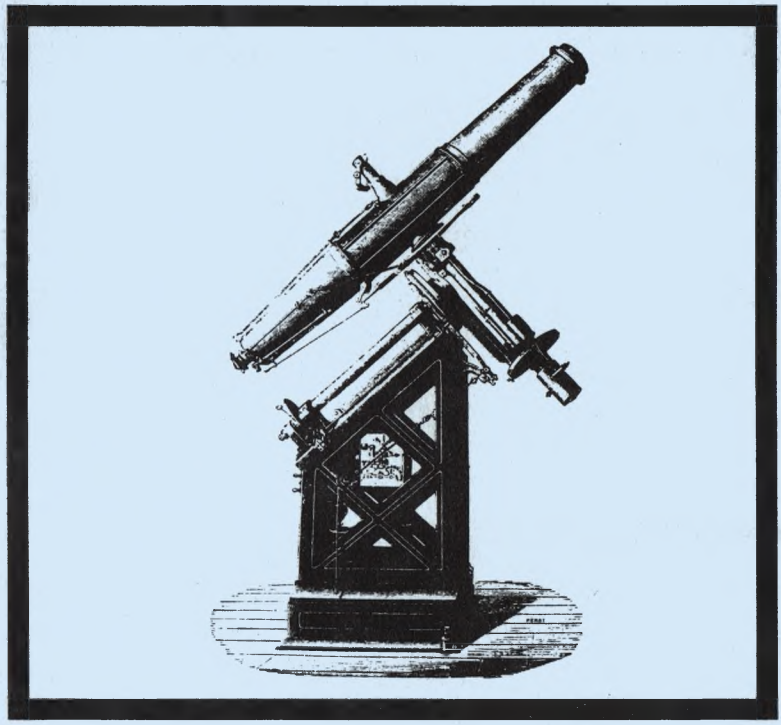
NOVA NOTES



Halifax Centre

Sept–Oct 1989
Volume 20
Number 5

1989 Halifax Centre Executive

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Notice of Meetings

Dues are Due!!

Please use the enclosed form to renew your membership. Remember that prompt renewals makes it easier for everyone!!

Date: Friday, September **22nd: 7:30 P.M.**
Place: David Lane's apartment: **26 Randall Avenue Apt. 4** Randall Avenue is in Fairview (Halifax). Turn north off Main Avenue onto Gerhart Street (about halfway between Willett Street and Titus Avenue. Randall intersect Gerhart Street. You can call Dave at 443-5989 for further details
Topic: September Members' Night. Topic: Astronomical Accessories

Date: Friday, October **20th: 7:0 P.M.** for the early presentation; **8:00 P.M.** for the regular meeting
Place: Nova Scotia Museum, Summer Street, Halifax. Access from the parking lot and side entrance. Meeting to be held in the lower theatre.
Topic: The topics for both the early presentation and the main meeting have not been finalized yet.

Halifax Planetarium Public Shows:

September 7th	The September Sky	**7:00 P.M.**
September 10th	The Stars and Planets	**2:00 P.M.**
September 21st	The Size of Space	**7:00 P.M.**
September 24th	The Stars and Planets	**2:00 P.M.**
October 12th	Galaxies	**7:00 P.M.**
October 14th	The Stars and Planets	**2:00 P.M.**
October 26th	The October Sky	**7:00 P.M.**
October 29th	The Stars and Planets	**2:00 P.M.**

The Halifax Planetarium is located in the Sir James Dunn Building of Dalhousie University.

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

About the cover: .The cover shows a telescope made circa 1890 by A. Bardou.

Editor's Report
Patrick Kelly

I trust that you have all had a pleasurable summer. There were quite a few astronomical events over the past few months. Leading off was the General Assembly in Sydney. There was a large turnout from the Halifax Centre and I think it is safe to say that a good time was had by all (I know that I had a wonderful time!). We even had some clear weather for an observing session! (See the Gawker's Report for details.) The Halifax Centre also did well in terms of participating in the various events. Three of the papers were presented by members from our centre: **Randall Brooks** gave a talk on micrometers, **Doug Pitcairn** showed the astronomy art that he produced on the Macintosh and **Mary Lou Whitehorne** gave a presentation on Be stars. In addition, we also had a prize winner from the display entries with **Mary Lou** being awarded first prize in the solar category for the photos that she had taken through the H-alpha filter. Lastly, the Halifax Centre had an entry in the song contest. The song was though up by **Dave Lane, Darrin Parker and Doug Pitcairn** "while driving from Baddeck to Sydney". It was performed admirably and won second place in the contest despite the fact that I joined them to finish off the quartet! (I suppose word will leak out, so I'll tell you now that there were only two entries...) In any event, the song is reproduced in all of its glory below with apologies to the Beverly Hillbillies.

The Ballad of Astronomer Joe
(sung to the tune of "The Ballad of Jed Clampett")

Come and listen to a story 'bout astronomer Joe.
Bought a big refractor to split Alpha Scorpio.
Then, one day, he swung it up and 'round.
It hit him on the head and knocked him right into the ground.

Refractors, that is.
Black skies.
Pinpoint stars.

First thing you know, Joe's a galaxy fanatic.
Kinfolk said, "A Dob would be fantastic".
They said, "NOVA EAST is the place you ought to be."
So he loaded up the U-Haul to see what he could see.

Fog, that is.
Bay of Fundy fog.
Lots of fog.

Well, now it time to say good-bye to Joe and all his 'scopes.
That you'll come to NOVA EAST is our only hope.
You're all invited down this year to that locality.
To see stars, Messiers, and maybe NGC's.

You all come down now, here!

Just remember that you read it here first! Also on an artistic theme, I received a poem from **Dave Lane** that was a bit too late for the last issue. I suppose it echoes sentiments that we have all felt at one time or another.

The East Coast Astronomer
by Dave Lane.

Three weeks ago I bought a 'scope.
Sometimes I think I don't have a hope.
I long to visit Beaverbank.
But all I see is an east coast fog bank.
To Ottawa this eve I fly
And all I see is clear blue sky.

The next big event was Stellafane. I normally would not include an event that was so far away, but this year **Nat Cohen** and **Dave Lane** drove down to attend it. They brought back some interesting stories to tell along with a great deal of slides. Hopefully they will give a small talk on it at a future meeting.

How many of you saw the lunar eclipse? I was in New Hampshire that night and had a beautiful view of the eclipsed moon with the White Mountains in the background. If only I had a camera capable of having the shutter locked open... I understand that it was clear in the Maritimes and that a lot of the general public witnessed this event as well.

Last but not least was NOVA EAST '89 which went very well this year. I won't go into any great detail as there will be a report in the next issue, but the good weather, combined with good people made for what I think was the best one yet.

On a personal note, two of our members had something extra to celebrate over the summer. **Randall Brooks** graduated from the University of Leicester with a Ph.D. in the History of Astronomy. Hopefully it won't take Saint Mary's too long to get the plaque on his door changed to **Dr.** Randall Brooks! **Dave Lane** built an observatory complete with a roll-off roof near his parent's place in Bridgewater, so now he'll have a place to use when he goes home. I understand that it has been called the Bridgewater Astrophysical Institute...

In addition to the trip being sponsored by the R.A.S.C. to view the 1991 solar eclipse, there are a number of other groups arranging cruises, etc. The centre has received information from

Horizon Travel & Tours of California who is planning a one week cruise to view the eclipse aboard the Carnival Cruise liner *Jubilee*. If anyone would like further information, please contact me and I'll send you a copy of the information.

For those of you who are still trying to choose what kind of binoculars to buy, **Kevin Postlethwaite** informs me that the July '89 issue of *Consumer Reports* has a review of binoculars.

Once again, it is that time of year to renew memberships. In order to make it easier for you to renew this year, we have decided to include an "invoice" and a preaddressed envelope with this issue of NOVA NOTES for all regular, youth and associate members. Please note that if there are any corrections to be made in your name or address, there is room for it on the renewal form. Phone numbers would also be appreciated. We now have a new membership category for senior members. This resulted from the new constitution that was approved at the Sydney G.A. We hope that this new approach to memberships will not only improve our cash flow but will provide better service to our members as we will have a way of double checking to make sure that people receive their handbooks, etc. Please keep in mind that if you renew late, you may not receive back issues of the publications (both the national ones as well as NOVA NOTES) as the number of copies printed is determined by the number of paid members.

Along the same line, from time to time we have members who move without sending us a change of address notice. If anyone knows the whereabouts of the following members, please drop me a note. Their last recorded addresses are as follows:

Mike Turney , RR#3 Muloch Road , Bridgewater
John P. Griffin, RR#1 Lake Major, Halifax County

I would also ask that if any of you do plan to move in the future, please be sure to send us a copy of your new address. We can now forward it to National Office by electronic mail so that they can update their records right away.

Lastly, a few comments on this issue. Once again I would like to thank all of those who have been contributing articles for allowing me to be able to publish several consecutive issues that are above the usual six sheets of paper. Because of the timeliness of most articles, I hate to file them for future issues and as a result, NOVA NOTES has been getting quite thick of late! I can only hope that this "problem" will continue into the future!! I have come up with several new ideas for GAZER, but now I find that I don't have any room. The recent lunar eclipse prompted me to include the article on the astronomical "nightmare". Last but not least, I finally had room for the letter to Porsche, which I found to be most humorous. (Maybe Roy could drop them a note as well!!) Clear skies until next issue! Ω

Central Obstructions and Performance

reprinted from **MainFrame**

Telescope builders are often concerned about the effects of diffraction, especially when the telescope is intended for high resolution planetary observations. It is generally known that the smaller the central obstruction of the secondary mirror, the lower the effects of diffraction and the better the contrast and resolution of the image. Consequently, refractors have become very popular in recent years. With the improvements on color correction in apochromats, the non-obstructed refractor offers many advantages over comparable aperture reflectors. However, we should reconsider our thinking when building large aperture instruments, especially for apertures over 16 inches.

Let's start with a review of diffraction and how it is measured. When there is no central obstruction, about 90% of the light falls into the central portion of the image, forming an Airy disk. The size of this disk is fixed and is dependent **only** on the f number of the optical system. If we maintain the aperture and vary the f number, the Airy disk will increase proportionally with the f number. Since the focal length changes with the f number, the angular resolution remains the same for this fixed aperture scenario.

When comparing equivalent f number telescopes of different aperture, the Airy disk is the same size because the f numbers are equal, however, since the larger aperture instrument has a longer focal length for this fixed f number, the field size is smaller and the resolution is higher. When a central obstruction is introduced, the central light peak is diminished and this light is transferred into the diffraction rings. If the obstruction is about 40% to 50%, then enough light is transferred into the rings to cause a degradation of the resolution by about a factor of two. So, what used to be a telescope capable of a magnification of about 60 power per inch (PPI) is now a telescope capable of about 30 PPI. Below 30 PPI, one **cannot** see the effects of diffraction, since the Airy disk is smaller than the eye's resolution at this magnification.

If you are building a 24-inch Cassegrain, how much central obstruction is acceptable? If the instrument only needs to provide perfect imaging up to 500x, then the 24-inch scope is working at 20 PPI and a 50% obstruction is very acceptable. If you are building a 30-inch deep sky Newtonian for 250 power usage, that's only 8.3 PPI, so you might as well compress the tube assembly and make it stable and stop worrying about the central obstruction. No wonder 100-inch telescopes always have such large secondaries! Ω

Astrophotography: The Craftsman's Approach

Brian Segal

A very perceptive person once observed that one of the most interesting aspects of astrophotography is that its pursuit often results in a reduction of an otherwise intelligent and competent individual into a clumsy fool bumbling around in the dark while systematically making every mistake known to man, if not inventing some new ones along the way.

Product suppliers, knowing this, are always seeking ways to make the road easier for the astronomer. "Product design", "needs fulfillment" and "user friendliness" are the watchword of this secondary systems industry. Why, you can spend more on a fancy, stable and exquisitely styled equatorial mount than you paid for the optical gear. A slick interchangeable accessory system can put you into the lineup for the poor house. A top notch solar filter can send a monetary cloud floating over your horizons.

Be that as it may, astrophotography is a very technical activity, which, coupled with some phenomenal luck can result in celestial images which will wow your family and friends, perhaps contribute to some corner of astronomical science and certainly provide the photographer with some self-made solace on cloudy nights - a supply of which seems abundant down here in the mysterious east.

Putting luck aside for the moment, the technical side of the photographer's life requires a storehouse of knowledge, a LOT of practice and some essential equipment without which good photos simply cannot be taken. Many debates rage about the virtues of off-axis guiders versus guidescopes; ultra-fast film with lots of grain compared to moderate, finer films; and hyperspeed optics as opposed to moderate optics with a wider application but more trade-offs, less coma and so on. However, everyone agrees that first and foremost your pictures (a) should be in sharp focus and (b) should contain the image that you thought you were getting rather than the unidentified stationary object that crept onto the film (I KNOW that was NGC 4564.... where'd it go??).

When I heard that Spectra, the makers of the excellent *Sure-Sharp* Ronchi grating focussing device, had come up with a thing called *Duo-View*, a gadget that allows you a parfocal view with your camera's picture plane by the clever use of an eyepiece and a finely machined hunk of metal, I was very interested. At last, I would finally be able to see clearly the camera eye view, freed of the infernal finder, which despite Nikon's best intentions is at

best marginal for serious astrophotography. In one fell swoop I would be able to compose the shot and locate a bright guide star in the field. Someone, somewhere, had been listening to my epithets in the dark. Here, at last, was the answer!

Due to a whole series of adventures which I will not recount here, my initial attempts with the *Duo-View* coincided with a long awaited first attempt at using the *Sure-Sharp.* Here was real excitement. I must tell you that I almost always have incredible beginner's luck, which, coupled with the resulting overconfidence leads to a series of follow-up disasters which are at the same time both humbling and instructional. My first attempt with the new gadget, a fifteen minute guided exposure of M27, the Dumbbell Nebula (chosen in anticipation of the results) was a surprising and marvelous success. I couldn't believe it. O.K., so the guiding could have been a bit tighter, but the focus! the composition! I was ecstatic and quickly became, you guessed it, super confident.

As soon as I could, I got out there again. I prudently decided to stick with the classics. The Ring in Lyra, M13 in Hercules, the Trifid and the Wild Duck. I had a tremendous night, five exposures ranging from fifteen to thirty minutes in three hours. My fields were composed, my guiding was very disciplined, and focus... leave it to the *Sure-Sharp.* I even attempted some high magnification shots of the Moon using the Ronchi to focus, and devil may care.

Now I have to tell you that I make my living designing and making ceramic wares. My approach to my work is a combination of technical competence, design discipline (we produce useful things that must work) and the usual artistic hunchmaking that is impossible to control but essential to success. In many ways there are great similarities between my vocation and my avocation. I issue this disclaimer to assure you that despite my exuberance, I was actually quite meticulous in what I did that night.

One of the great frustrations that dogs the potter is the uncertainty of the results. I mean, you make an object, apply glaze and decoration and shove it into a searing kiln where it reaches 1300° C. A colleague and I agree that the process is definitely magic and every kiln load the succeeds is, in some small way, a victory over nature that defies logic.

astrophotography is a bit like that. Until the film is developed all you know is that you've spent a half hour or so peering intensely at a star which is more often than not, barely brighter than the illuminated crosshairs of the guiding reticle, and that hopefully you haven't: a) sneezed, thus sticking the eyepiece in your eye and jarring the telescope; (b) photographed yet another NORAD (making the skies safe for democracy) jet; (c)

had some well meaning neighbour come barrelling over with his hyperbright sealed beam to make sure that you haven't finally gone off the deep end; or (d) got a terrific photo of your (up to that moment) best friend's headlights as he raced over to tell you that it was a clear night! Not to mention countless other disasters waiting to strike.

The results of that night were interesting. In all cases, the guiding was excellent. The compositions were exactly what I had hoped for. I had two problems. The focus was, imagine it, not sharp and the exposures were too short. It's easy to know what to do about the latter, but why, I wondered, was the focus off?

In reviewing the evening I soon realized what I had done. I had broken a bunch of rules. Suffice it to say that I should have rechecked more often, and I should have relied on my telescope's finder to place the focussing star exactly on axis. You see, the first time out I had really respected the instructions. Overconfidence had tempted me to cut corners. It doesn't work in the high-fired porcelain business, so why should it work anywhere else? Oh well, part of being a craftsman is experimentation, right?

Reverting to my more controlled side, I decided on another attempt at the Ring Nebula, except that this time I would really do it right. No short cuts, no smugness. The next decent night I got out there early and really cooled the optics properly. I took incredible pains to be very precise about the alignment of the finder with the main scope (I use an 8" Meade 2080 LX5 at f/6.3 courtesy of a Lumicon off-axis guider with telecompressor - no vignetting). My polar alignment was very good. The reticle box held the star for longer than ever.

I took great care in achieving infinity focus. I chose a sufficiently bright star (Vega certainly fills that need). I checked and re-checked for the null to bright leap that indicates correct focus. I composed the field with great care and I treated the entire event as a serious and exacting endeavor. It was. I had to get it all right. I was going to write an article for NOVA NOTES reporting on this vastly improved astrophotography wonder.

Having done it all with certainty and precision, I hooked up the Nikon's mirror and very slowly and carefully pushed the cable release. A muffled click indicated that the shutter had opened. For the next thirty minutes, eye glued to a faint star as I guided with averted vision, I tickled the control paddle and kept the guide star dead center in the reticle box. When my nifty wristwatch timer beeped, I slowly grasped the cable release and very gently pushed the release button. No sound. No comforting click indicating that the shutter was safely closed. What to do? This had never happened before.

Suddenly it dawned on me. The shutter wasn't open. I looked at the shutter speed dial. You guessed it! I had just taken a

snapshot of the Ring Nebula at 1/500th of a second and had spent the remaining twenty-nine minutes and 499/500th of a second photographing my shutter!

Fortunately a friend phoned at the very moment I realized what I had happened. Consequently, I am still alive and my gear is still in one piece. But I had proven one thing. That guy was right. Astrophotography creates idiots.

Following the philosophy that you should get tight back on the horse, I did manage to get my shot before the waning crescent Moon flooded the field with light. But I didn't enjoy that shot nearly as much! Ω

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Venus: Puzzles and Promises

Patrick Kelly

Early this March, Joe, Dave Lane and I drove to Yarmouth to attend a public lecture that was sponsored in part by the Maple Grove Astronomy Club. The speaker was Harry Taylor, a recently retired NASA scientist who had worked for the space agency for 38 years. He has designed and conducted several experiments related to the study of planetary atmospheres, including some that were on board the Pioneer Venus probe of 1978.

He began by briefly discussing the main goals of planetary research. Some are well-known, such as the desire to explore the planets of our solar system and to survey the resources available in the region of space near the Earth. Others are related to seeking the answers to the age old questions of "How did life on Earth begin?" and "How was the solar system formed?".

However, the topic which his talk dealt with in detail was that of comparative planetology. The questions that he felt were important were: "How do the other planets compare with the Earth?" and "What can we learn from such a comparison?" He feels that the answers to these questions are of vital importance. By comparing Earth with other planets we should be able to get a new understanding of how our own planet works. This in turn can be very valuable in helping us to deal with the challenges that are currently facing us on Earth.

One of the main factors to be taken into account in any comparison of the planets, especially when one is dealing with their atmospheres, is that the overriding factor is the Sun. It actually acts as an experimental control, since all of the planets have a common source of energy, that of the Sun. However, as we have learned, each planet responds to that energy source in a completely different manner.

He feels that Venus is the most interesting planet to compare with the Earth, as far as atmospheres go, because of several factors. Both planets are the same size and mass and thus in surface gravity. They are also at comparable distances from the Sun. However, there are also quite a few difference between them, which have effects on their weather. The more important of these are surface temperature, atmospheric composition and the rotation rate of the planet itself.

One of the main goals of the Pioneer Venus spacecraft was to gather a lot of data regarding that planet's atmosphere. The vehicle itself consisted of an orbiter as well as a number of probes which were released into the atmosphere. These probes transmitted various types of data as they descended through the atmosphere. Although they were only designed to obtain

atmospheric data, a bonus came when information was actually returned from the surface for a period of time.

The results from this mission contained some unexpected surprises. Although Venus takes over 200 days to rotate, its clouds take only four days to circle the planet. In addition the clouds have an appearance which is completely different from those of the Earth. The atmosphere itself consists almost entirely of carbon dioxide with traces of sulphur dioxide and hydrogen sulfide. The radar imager found several large uplands including what may be the solar system's largest mountain.

The Pioneer probe ended up presenting astronomers with more questions than it solved. Why does Venus's atmosphere rotate so quickly and what source of energy drives it? What causes the atmosphere to suddenly stop its rotation and then start up again? Why is the atmosphere made up almost entirely of carbon dioxide? Was there water on Venus in the past and if so where is it now? What forces produced the topographical features and what effect,if any, does this have on the atmosphere?

As you can see, there is a lot of work still to be done, but the results could go a long way to helping us understand the current concerns about our own atmosphere. Comparative planetology may help us to discover the answers to such long standing puzzles as "Why do we have such regional variations in our own atmosphere?", "Why does the weather on Earth change so quickly?" (especially here in the Maritimes!!) and "Do cyclical variations in solar output have any effect on the environment here on Earth?". Even the recently discovered holes in the polar ozone layers might have an explanation which will come from this type of research.

Probably the most pressing question to be resolved is that of the highly publicized "apparent" changes now going on with regards to the Earth's climate. Are these changes long term or short term and are they caused by man or by nature? There are several ways in which mankind is having an impact on the atmosphere. These include industrial pollution, the production of carbon dioxide, deforestation and interference with the ozone layer. However, nature has many ways in which it can affect the Earth's atmosphere. Short term effects can be caused by volcanic eruptions and solar eruptions which may have an effect on the weather. Long term changes can result from changes in the amount of solar radiation that the Earth receives. Also, it is possible that the trend that we have seen towards higher temperatures in some places may simply be the result of regional shifts in the Earth's climate resulting from a "redistribution" of the Earth's solar energy, with some areas cooling off. Obviously this is an area of research which may yield many more surprises in the future. Ω

Your Heavenly Constipations (Your Summer Wedge)

H. Healy

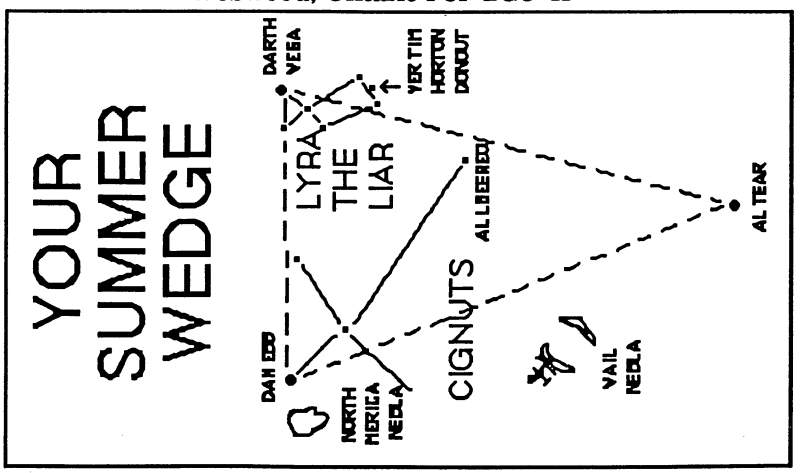
reprinted from **Astronomy North** - Sudbury Astronomy Club

Now I know you folks in the big city by the lake like to call this the Summer Triangle but let's face it, we here in Rainbow Country beat the toon to a different piper. The *Summer Wedge* is made up of 3 stars. First there's the villain *Darth Vega* along with his side-kicks *Dan Ebb* and *Al Tear*. Together, they are a fromidible trio. Cause betwix them and around them is a hole bunch of interestin stuff. Take for exampill you bird called *Cigar Nuts*. It looks jist like a cross. The nose of this bird is made up of a star (two actyoully) called *All-Beer-Oh*. One reminds me of yor Labatt's Blue, while the uther makes me think of an amber bottle holdin' a Molsen's Ail. When me an Ian goes out observating we makes sure to take alon a six-pack of the right optickle aids.

Also aroun you *Summer Wedge* is two neblas. Near *Dan Ebb* (no relation to Jake in Ottawa) is yor North 'Merican Nebla. Darn if the thing don't jest look like the weather map on the Buffalo TV stations. Nearby is yor *Vail Nebla*, named after yor Colorado ski resort. It don't look like no skiers though. Now if you peak a look-see near *Darth Vega*, you'll find *Lira* the harpsickord. A tiny constipation what holds for us yor Tim Horton donut, called the *Ring Nebla*. Very pretty iffen you got a good tellyscope.

So that's yor Summer Wedge. See you next time.

Seth Smith and son Ian
Arm Chair Stronomers
Rule Root 5
Webwood, Ontario P0P 2G0 Ω



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Book Review: The Starry Room by Fred Schaff

David Griffith

Just like the author who struggles with writer's block, we amateur astronomers are occasionally plagued by a definite downturn in our enthusiasm. We find it increasingly difficult to pack up the ol' scope and go. We look for excuses. We procrastinate. We stay inside. Happily, such "down times" are cyclical and short lived, but any skygazer who finds this condition becoming chronic should immediately obtain a copy of *The Starry Room*, Fred Schaff's engaging and often moving collection of essays devoted to the art of naked-eye astronomy.

With its treatment of seeing, solar phenomenon, meteors, comets, planets, stars and the like, *The Starry Room* is an excellent introduction to casual astronomy. Having read this book, the novice should be both well prepared and eager to begin astronomy the proper way – without optical aid. Schaff does not challenge the reader to rush out and nail down the NGC, rather he encourages the reader to become intimately acquainted with the sky at large.

The subtle patterns of a constellation, the drama of a bright meteor, the romance of a flock of geese passing overhead against the stars; these are the things Schaff urges us to see and appreciate. The night sky is more than just a black background from which to pluck out deep sky objects. It is an intimate world, a vast "room" that so few of us really know. To Schaff, the night sky is a place where each of us can bask in starlight and respond and reflect in our own personal way to the universe and our own humble place within it.

The author's style ranges from the whimsical to the poetic. His love for the night sky and its treasures is evident in every essay, whether a personal account of a stunning fireball sighting or an impassioned plea for a return to dark skies. *The Starry Room* is a basic yet inspiring book; it suggests that perhaps the limited vision of our optical instruments have produced a sort of astronomer's tunnel vision. The author says it most eloquently: "... the fact remains that we need to care best and most justly we can about the things and not just about our accumulation of statistics on them or uses of them in theoretical schemes. Without our perceptions of the sky and resultant feelings of awe, delight and connection, even our most strictly scientific conceptions of outer space themselves will become starved, and the science of astronomy suffer."

The Starry Room is a wealth of inspiration; its pages have the power to capture new enthusiasts and to reintroduce the

seasoned deep sky observer to the wonders of naked eye astronomy. It will not go far to help you locate that elusive planetary or split that difficult binary. It will, however, get you outside under the ceiling of the starry room and it will remind you how to sit back, look up and appreciate the grandeur of the heavens. Ω

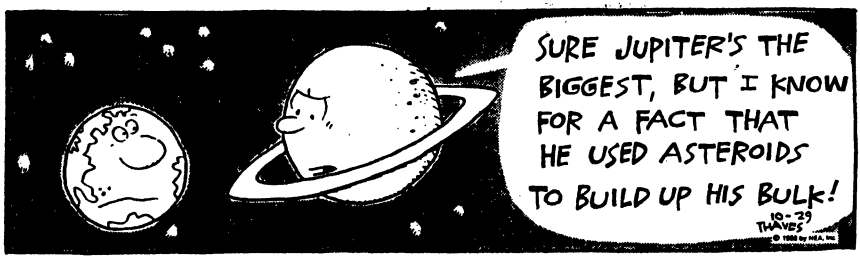
Book Review:
Tapes of the Night Sky
by the Astronomical Society of the Pacific

David Griffith

Learning the constellations and brighter stars has never been easier thanks to the A.S.P's **Tapes of the Night Sky**, a set of two audio casettes covering the main constellations and stars of each of the four seasons. Also included with the package are complete transcripts of the tapes, some advice on dark sky observing and a set of very basic star charts.

The beginning enthusiast no longer needs to search for a knowledgeable buddy to show them the stars; it is all right here on four thirty minute tours of the night sky. Each tour begins with a very simple primer on directions at night and how to judge angular distances using the "fist" method. The narrator skillfully orients the observer and hops from one constellation to the next. Interspersed throughout the commentary are interesting facts pertaining to the mythology and astrophysical nature of the stars being observed. Mention is even made of meteors and planets the observer may encounter during the session.

The narration is clear, easily understandable and friendly, and well timed pauses are provided for the observer to follow directions. An excellent and entertaining beginner's guide to the night sky. Ω



Driving in the Fast Lane

Charles Fassal

edited from **Niagara Whirlpool** - Niagara Centre

Porsche Cars, North America, Inc.

Dear sirs:

I would expect that the two-page colour advertisements that you run in magazines like **Road and Track** are very expensive to produce. I'm afraid then, that you have paid quite a bit of money for an embarrassingly stupid bit of writing. I will quote the advertisement for the Porsche 944 Cabriolet as it appears in the May 1989 issue of **Automobile**: "every time you see a star streak across the sky above you, it signals the end of a solar system". This goes beyond "poetic" license; it is very wrong. A "falling star" has nothing to do with star systems; it is a meteor about the size of a grain of sand burning up in the Earth's atmosphere.

I am an amateur astronomer and am upset that a respected sports car like Porsche could be associated with this blatant bit of erroneous information. I'm sure you would be very furious with your advertising department if they were to produce an ad that stated that a heavy car holds the road better. You shouldn't perpetuate childhood (or backwards) myths. The advertisement also implies that a fast drive in a 944 on a clear night will provide the driver with the spectacle of a skyful of stars turning into streaks overhead, much like the special effect of the starship Enterprise going into warp drive on 'Star Trek'.

I will tell you right now that you cannot cause a star to streak past by driving fast in a convertible, Porsche, or otherwise. I'm perfectly willing to prove it, too. Any clear night that a Porsche representative would like take me for a fast drive in a 944 I will show how the stars remain fixed , even at 150 mph.

If you state publicly that your automobile can do 149 mph, every buyer should be able to get their car up to that speed or very close to it. If every buyer finds that their top speed is really 120 mph, then your company would be guilty of false advertising and you could be charged or sued in court by angry buyers. You have to deliver what you promise, within reason, If you are going to promise buyers of Porsche 944 Cabriolets that the stars will streaks past the car, you'd better build a car that will do better than 186,000 miles per second!

I doubt very much that you will retract your ad, or run a correction or apologize to astronomers everywhere for this mistake. However, I would recommend that your advertising department be required to check with someone who knows what they are talking about before the ad gets sent to the publishers. I'd be happy to act as your astronomy consultant. Ω

An Astronomer's Nightmare

Peter Brown
reprinted from **Stardust** – Edmonton Centre

During everyone's career as an amateur astronomer at least one or two events which can best be described as "gaffes" have befallen the unwary amateur. Usually these foul-ups occur among fellow astronomy nuts at a star party or the like and are fondly remembered for the future enjoyment of all who were present. I would like to relate to you what must be one of the all-time great astronomy gaffes.

It all began when I accepted a position over the summer to fill in for a reporter at the local paper who was taking a short summer leave. I was already well-known in the newsroom for the hard-hitting weekly columns on astronomy I had been churning out for the previous two years. I was no sooner in the job when I realized these journalists thought I knew something about astronomy. I was continually bombarded by questions like "What was that bright object in the west last night?". Little did I know the trouble this was to lead me into.

Near the end of my tenure with the paper, I happened to be writing a column about the August 26-27 lunar eclipse. The photographer at the paper saw the column and thought it would make a great photo opportunity. He was so excited over the possibility of setting up all kinds of unusual shots with the eclipsed moon that he immediately had me show him the site where our local club observes from (some 30 km south of Fort McMurray). I complied and indicated that we would be there at least about 1:00-2:00 A.M. on August 27th, the night of the eclipse.

The sense of excitement spread throughout the newsroom until every reporter except the editor decided that they also had to make the early morning journey and witness one of nature's marvels. I encouraged the entire bunch to come and proceeded to make detailed calculations as to where the moon would be at different times during the evening's eclipse.

When the local club heard of the media event the half dozen members who had already decided to come, thought it would be good if we got there extra early and had everything ready for the newsroom crew when it arrived. So, on Saturday night, August 27th, the night I had predicted that the eclipse was going to occur, our club headed off for the site where we hoped clear skies would be found. After several hours of waiting, the photographer from the paper showed up in a groggy, semi-conscience state eager to see the 4:00 A.M. eclipse. Shortly thereafter, several other reporters arrived and the whole evening seemed well underway. That's when things began going wrong. My first inkling of what was

coming occurred about a half hour after the beginning of what should have been the first umbral contact. We were still watching carefully, yet nothing seemed to be happening. Cameras clicked around the site as the reporters got the shots of the uneclipsed moon, to use in contrast to the spectacular views to come.

After 45 minutes, I retreated into a camper with the reporters and club members to wait for some low cloud to pass. It was then that the vice-president hauled out the Observer's Handbook and handed it to me, requesting that I double check my calculations. I had calculated and recalculated the moon's position at various times and was very confident that the two to three hours spent doing this had not gone to waste. Then, to my horror, I looked at the date and connected it with the time. The eclipse was to happen on the morning of August 27 which meant the evening of August 26. We were a day late!!!

My realization was not met with sympathy. The photographer had even been watching T.V. the night before and had heard that the eclipse was going to occur then, but figured they were in another time zone or something. The situation (which was quickly getting out of control) was soon compounded by a knock on the door.

In walked the 6' 6" energy reporter tired and flustered muttering "coffee - water". After attending to his needs, he explained that he had been directed to the site by a gentleman who gave him directions for the "short way" to the observing area. After driving four miles along a narrow path and over what passed for a bridge, his Cadillac had gotten stuck in three foot deep trenches up a steep cliff on the road. Unable to free the beast, he had walked the remaining six miles on foot, taking four hours to reach us. He had luckily taken the correct forks in the road or would have ended up somewhere in the Alberta Hinterland.

After he had regained his strength the inevitable question arose, "So how's the eclipse going?". Slowly backing towards the door of the camper, I explained the situation. He was not understanding. As punishment I was forced to drag his Cadillac out of the bush the next day, an enjoyable way to spend ten hours. Not only had I dragged the entire club and most of the media from Fort McMurray out to watch the eclipse on the wrong evening, I had even published the wrong date in my column. Needless to say, I entered the newsroom the following Monday with trepidation.

I am continually reminded of this incident in the newsroom, though just about everybody has forgiven me (the energy reporter is still passing judgement). I have boldly indicated that I will make it up to all of them by taking everyone out to the near total eclipse coming up this August. When asked the date, I had to be honest, "I don't quite know... it's sometime in mid-August I think." Ω

The Sagittarius Show

David Griffith

I'm grateful that I'm a Sagittarian. Don't misunderstand me; in no way do I subscribe to any of the hocus-pocus that is astrology. I do, however, take great pride in having my name associated with one of the night sky's greatest hunting grounds. Sagittarius is the astronomer's Cupid - once smitten by his arrow, you are forever changed. As spring turns to summer, I eagerly await the arrival of the Archer, replete with its nebulæ, clusters and star fields.

Sagittarius is a wonderful constellation both for the beginner and the seasoned observer. Its bright nebulæ and clusters boldly demonstrate that, yes, you really can see deep sky objects with the naked eye and binoculars. For those with more substantial instruments, Sagittarius can entertain all night long.

A recent July outing moved me to write this article in praise of the Archer. My original plan was to start in Sagittarius and then move up to the the Cygnus/Vulpecula/Sagitta region. I never made it past Sagittarius.

A good hour was spent on the "Big Three" nebulæ: M8, M20 and M17. Each of these bright nebulæ allow for higher magnification and comparing the view in different oculars revealed interesting filaments of nebulosity and dark lanes. Next came the globular clusters, led of course by the massive M22 (imagine this sucker viewed at the zenith!). Again, this object can withstand ample magnification, so I made the point to employ everything from my 32 mm to my 10 mm. After a thorough study of M22 I continued with the other globulars in Sagittarius such as M28, M54, M69, M70 and NGC's 6544 and 6624.

Open clusters are also plentiful and include the impressive clusters M23 and M25. Incidentally, if you are considering pursuing a Messier certificate, start here for a good head start - Sagittarius has more Messier objects than any other constellation. A magnificent object is the star cloud M24. A fine naked eye and binocular object, M24 is a treasure trove for scope users. This single "object" contains open clusters, dark nebulæ (B92) and even a tiny planetary. To scan this one quickly should be a criminal offense! Slow down and get lost in M24!

For a change of scenery I then proceeded to locate the galaxy NGC 6822 in the northeastern part of the constellation. While in the area, I located the small planetary NGC 6818 - its not impressive, but its position is made easy by its proximity to 6822.

This is only a partial list of my observations. On this particular evening, I nailed most of the objects listed in *1000+*

and on my *Astro Cards*. My night did not, however, end there. Then came the planets.

Sagittarius is currently adorned with three planets, Saturn, Uranus and Neptune. So, in the spirit of Voyager, I decided to take my own grand tour of the outer worlds. The clear seeing made up for Saturn's low position in the sky. Several ring divisions were discernable, as were two dusky bands on the planet itself. Four (maybe five) moons were apparent. This was easily the best view of Saturn I have ever seen.

Nearby, virtually in the same field at low power, was Neptune. Granted, after Saturn the tiny blue dot wasn't overwhelming, but the thought that I was beholding the furthest planet in the solar system certainly was! As I studied the fuzzy dot, I pictured Voyager, quietly hurling toward the planet, its cameras already imaging history making photographs. Finally, before going to bed (with reluctance), I located Uranus near the Lagoon Nebula and compared its blue-green hue with golden Saturn.

Just as I began to disconnect my Dew Zapper (God bless that device!) and call it a night, a meteor streaked through the upper reached of the Archer, a fitting end, I thought, to a truly memorable night. Ω

THE FAR SIDE By GARY LARSON

"Oooooooo!"

Membership in the R.A.S.C.

If you are reading this newsletter, chances are that you have an interest in astronomy. Have you considered joining the Halifax Centre of the Royal Astronomical Society of Canada? Your membership brings you the following :

- The 1990 Observer's Handbook
- 6 issues of the R.A.S.C. Journal
- 6 issues of the National Newsletter
- 6 issues of NOVA NOTES
- R.A.S.C. Annual Report

You also get borrowing privileges from the Halifax Centre's sizable library which contains a large number of books covering all astronomical subjects. In addition, the Centre has two telescopes which members may borrow for two week periods to learn the basics of observing or to advance their observing programs. Meet new people who share your interest and learn more about this rewarding pasttime from other members. Even if you don't have a telescope, you are welcome to come to our observing sessions . Learn the night sky as never before.

Our membership year starts October 1st so now is the best time to join. You can join by filling out the form on the opposite page and bringing it to any of our regular meetings (see the "Notices of Meetings") or by mailing it along with the appropriate fee. For more information, please feel free to contact any of the members on the executive.

Halifax Centre, R.A.S.C.
1990 Membership Application

Name: _____

Address: _____

City _____

Province _____

Postal Code _____

Phone Number _____

Please accept my membership for 1990 in the following category:

☐ Regular ..... ($25.00)
☐ Youth* ..... ($15.00)
☐ Senior** ..... ($15.00)
☐ Life ..... ($500.00)
☐ Associate*** ..... ($5.00)

* must be under 21 and enclose proof of age
** must be 65 or over and enclose proof of age
*** must be an immediate family member of a regular or life member

Payment should be made by cheque or money order. Please make them payable to: **Halifax Centre, R.A.S.C.**
c/o 1747 Summer Street
Halifax, Nova Scotia
B3H 3A6

Do **not** send cash through the mail. Payment may also be made in person at the regular meetings held at the Nova Scotia Museum.

For centre use only:

☐ Treasurer	☐ Editor	☐ Handbook
☐ N.O. (E-mail)	☐ N.O. (Regular)	☐ Card

Gawker's Report
compiled by Pat Kelly

Time: Monday, July 3rd, 1989
Place: Coast Guard College, Sydney (1989 General Assembly)
Observer(s): Claude Fournier (Cape Breton Ast. Ass.); Mary Grey, Mercedes Pelayo, Doug George (Ottawa); Henry Lee (Windsor); Steve Dodson (Sudbury); Jean-Pierre Urbain, Maritya Berger, Leonard Simcoe, Ron Pow (Montréal); Jean-Marie Frechette (Québec); Chris Brown (Winnipeg); Cam Fahrner (Calgary); Joe Yurchesyn, Bill Thurlow, Mary Lou Whitehorne, John Reppa, Patrick Kelly (Halifax)
Equipment: 7x50 and 20x80 binoculars, 125 mm (f/3) rich field, 110 mm Newtonian
Comments: After four nights of being clouded and/or hazed out, we finally got a clear one! We tried to catch the New Moon but were unsuccessful. Many people had left the G.A. this morning and so missed the one clear night that we did have. Of course, most of the scopes had left early, too! We had a good social gab session, even if we didn't catch many NGC's. Mostly we discussed ways of raising the money to find our way to next year's G.A. in Ottawa. - M.L.W.

Objects Observed:

Planets: Saturn, Neptune
Asteroids: Vesta (in 7x50's, not visible to the naked eye)
Open Clusters: M39, Coathanger Cluster, Double Cluster
Planetary Nebulæ: M27
Globular Clusters: M4, M13 (naked eye by Doug George), M22, M28
Galaxies: M81, M82
Nebulæ: M8, M17
Double Stars: β Cyg

◊◊

Time: Saturday, July 8th, 1989
Place: Round Hill, Annapolis County
Observer(s): Dave King, Doug Pitcairn
Equipment: Dave's 200 mm Newtonian
MVM: 5.8
Weather conditions: Very clear and calm
Comments: A short interesting session, NGC 7662 is a surprising planetary, with a very high surface brightness.

Objects Observed:

Planetary Nebulae: M27 (no central star) NGC 7662 (a bright easy object)

Globular Clusters: NGC 6453 (in M7), NGC 7006 (in Delphinus, the second farthest globular known), NGC 6934, M15 (couldn't make out the planetary,K648)
Open Clusters: M7, M27, NGC 6910 (The delta shaped cluster near Delta Cygni!) ,H18
Galaxies: M31's faint companions: NGC 147, NGC 185 & NGC 278

◊◊

Time: Sunday, July 9th, 1989
Place: Bill's cottage, south of Digby on the South Mountain
Observer(s): Dave King, Doug Pitcairn and Bill Thurlow
Equipment: Bill's 17.5" Odyssey II
MVM: 6.0
Weather conditions: Very clear and calm
Seeing:
Comments: This was the first chance to use an Odyssey II under a clear, dark sky. After the somewhat disappointing views through the haze at NE88, the telescope finally redeemed itself. (It does fit into my Honda wagon as we hoped) and delivered stunning views. Most of the small globulars we looked at in Sagittarius are faint blobs in my 10". But the extra aperture working at 180x and 320x resolved some of them, and doubled the apparent angular sizes of all of them.

The two objects I am most familiar with we gazed at in detail. M51's spiral arms showed detail rivalling a photograph. The joining of the arms to the nucleus is difficult in the 10", but obvious in the 17.5". The companion showed its asymmetric shading quite plainly, and the bridge between the two nuclei could be traced almost all the way across.

However, M13 at 320x was incredible! It looked like an entirely new object. Unlike M11, where the aperture increase showed little improvement, (perhaps due to the 10" already showing most of the stars?) the big guy revealed a huge spherical cloud which seemed to exist behind the brighter stars so visible in the 10". It was as if somebody took a picture showing all of the stars my scope revealed, and airbrushed a swarm of fainter stars over the image. I think there is a suggestion of these fainter members in the 10". but it just appears as a nebulosity. There was no nebulosity in the larger scope. I felt for the first time that I have seen ALL of the stars in this impressive globular. The photographs don't even come close.

Oh, during the course of the evening, Bill's beeper went off and he had to leave us (with the scope, we were real upset!) to go to the hospital in Digby. He returned an hour later and informed us that it was just some fisherman with a collapsed lung, no problem. We interrupt our observing time when nature calls, Bill interrupts his to go save a life!

Objects Observed:

Planets: Neptune, Saturn, Uranus, Vesta (naked eye!)
Planetary Nebulae: M27 (with blue central star and three other stars visible inside the nebula), NGC 6563 (inside teaspout)
Globular Clusters: M13 (WOW), M69, M70, NGC's 6528 & 6522 (both in the same field, near the tip of the teapot) NGC 6569, NGC 6624, NGC 6652
Open Clusters: M11
Galaxies: M51's arms were distinct, showing mottled detail

◊◊

Time: Saturday, July 29th, 1989
Place: outside Bridgewater
Observer(s): Dave Lane
Equipment: 200 mm (8") f/6 equatorial Newtonian, 7x50's
Seeing: Good
Comments: First night in new observatory

Objects Observed:

Planets: Saturn - Cassini's Division resolved with aperture stop
Planetary Nebulae: M27
Nebulae: M8, M20
Globular Clusters: M13, M22, M28, M54, M55, M69, M70, M75, M92, NGC 6652
Open Clusters: M21, M23, M24, M25, M29
Galaxies: M31, M32, M51, M101, M110

◊◊

Time: Monday, July 31st, 1989
Place: near Bridgewater
Observer(s): Dave Lane
Equipment: 200 mm (8") f/6 equatorial Newtonian, 7x50's
Seeing: Poor
Comments: Finished the rest of the summer Messiers

Objects Observed:

Planetary Nebulæ: M57
Nebulae: M17
Globular Clusters: M5, M9, M10, M12, M14, M19, M56, M62, M80, M107
Open Clusters: M6, M7, M11, M16, M18, M26, M39, M71

◊◊

Time: Saturday, August 5th, 1989
Place: Stellafane, near Springfield Vermont
Observer(s): Dave Lane and a million others!

Equipment: You name it, up to a 30" Dob
Comments: It's interesting to hear New Yorker's saying things such as "Wow!" when they see the Milky Way or the Andromeda Galaxy with their naked eye!

Objects Observed:

Globular Clusters: M13 through the 30" - WOW!!!!!!!

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Time: August 16/17th, 1989
Place: Beaverbank Observing Site
Observer(s): Randall Brooks, Phyllis Kennedy, Mary Lou Whitehorne, Joe Yurchesyn
Equipment: Meade 2080 LX5, 6" refractor, 8 eyeballs
MVM: varied from 2 to 4 depending on the stage of the eclipse
Weather conditions: Warm and very humid: 100%; occassional sparse clouds to total cloud cover
Comments: The weatherman was wrong for once! It cleared up just as the eclipse began, so we quickly set up and began crater timings (Joe) and photography (Mary Lou). The eclipse was beautiful to watch as the Earth's shadow began to "take a bite" out of the Moon. The further the shadow progressed, the easier it was to see the brick-red color of the Moon. We decided to call the eclipse L2->L3 (see p. 90 of the '89 Bible according to Bishop). As totality approached, we were able to watch our shadows disappear and see the Milky Way begin to glow overhead (albeit through the atmospheric murk). We were also treated to a fair number of meteors, most of which were Perseids.
As the Moon began to emerge from the central umbra, the clouds called in and covered the sky for almost twenty minutes. Eventually they drifted away and the Moon emerged - both from the clouds and the Earth's shadow. What a treat to have clear skies in Nova Scotia for this once-in-a-long-time event! Never mind that it was so humid the scopes were running with water.
As an extra bonus, we were honored by the presence of the very distinguished Dr. R. K. Brooks at this observing session. As Joe and I worked at our scopes, he sat on his lawn chair, swilling coffee, dishing out disparaging remarks and giving orders! Phyllis very wisely refrained from entering the verbal duel and so was able to escape unscathed. Smart move, Phyllis! - M.L.W.

The dates of the best observing periods can be obtained from the "Calendar of Events" inside the back cover. Any clear night in this period is likely to find people at Beaverbank. If you wish to double check to see if anyone is going out, please call the Observing Chairman or the Second Vice President .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

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HALIFAX CENTRE - R. A. S. C.
1989 CALENDAR OF EVENTS

September

S	M	T	W	T	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

October

S	M	T	W	T	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				

November

S	M	T	W	T	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		

December

S	M	T	W	T	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						

Key to calendar:

Regular Meetings: **bold and shadowed**
Special days: **bold**
Possible observing sessions: underlined

Special Days:

October 21 - Orionid Meteors
November 2 - South Taurid Meteors
November 3 - Io's shadow passes Europa's shadow
November 12 - Saturn 0.5° south of Neptune
December 13 - Gemenid meteors
December 22 - Ursid meteors

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