

NATIONAL NEWSLETTER

February, 1983

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OF CANADA

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CONGRÈS ASTRONOMIQUE 1983 1983 ASTRONOMICAL MEETING



Quebec City provides a spectacular backdrop to the campus of Laval University, site of the 1983 General Assembly. Join us 20 to 23 May, 1983.

NATIONAL NEWSLETTER

February, 1983

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Star Attractions: A Guest Editorial

by Wayne Crowell
Sarnia Centre

Sometimes I think we assume too much when it comes to the study of the stars and planets. Let me explain.

Last month I walked into the bookshop to pick up the newest issue of *Astronomy*, but was disappointed to discover that there were no copies left in the Science Section: either they were all sold out or they hadn't yet come in. However, just as I turned to leave, I was struck with a flash of intuition. Feverishly I dashed over to the Astrology Section, and aha! there it was! As I paid for my *Astronomy* magazine, I commented bitterly about how the magazine belonged in the Science Section, not the Astrology Section! The store clerk put on a puzzled smile, and admitted she had never realized there was a difference.

Several years ago some friends and I helped to organize an Astronomy Club at our university. We were very pleased to see over a hundred people signed up! But alas! After our first meeting, about half of them dropped out! Why? In nearly every case, the reason they gave was the same: they had naturally assumed that they were joining an Astrology Club!

So that's what I mean when I say we're probably taking too much for granted when it comes to star study.

Part of the problem, of course, is the very similarity of the names ASTRONOMY and ASTROLOGY. Etymologically speaking, ASTROLOGY is the better word. Taken from the Greek, it literally means "star study", whereas ASTRONOMY means "star arrangement", a rather nebulous description of our hobby. Besides the proximate spelling of the two words, there is the added disadvantage of a "pseudo-science" with a more "scientific" looking name, aping such fields as archaeology, paleontology, biology, geology, and anthropology.

COSMOLOGY would have been a better replacement term for the word ASTRONOMY, since it comes from the Greek COSMOS “universe” and LOGOS “study”. Unfortunately that term has already been taken for the particular philosophical study of the Universe. URANOLOGY is a suitable replacement term for ASTRONOMY, coming from the Greek OURANOS “heaven”: hence, “a study of the heavens”. Unfortunately, a few mindless creatures are apt to confuse us “uranologists” with a certain medical field I shan’t mention!

So, it seems, unless you have some better ideas for a replacement term, then we shall have to content ourselves with the word ASTRONOMY. A more reasonable alternative (and one that I hope our Centre will embrace with enthusiasm) is to make a more concerted effort to educate our public, to help them see that ASTROLOGY IS NOT ASTRONOMY, and that our hobby is infinitely more fascinating than casting horoscopes!

Reprinted from *Urania*

Errors in *Sky Atlas 2000 0*

Some of the finest publications in the world carry errors which may be detected by the very careful reader or user of the publication.

Tirion’s *Sky Atlas 2000.0* has been acclaimed as one of the very best and it is gradually replacing others as one of the finest sets of star maps available. Yet a few errors have been detected. In an article recently published in *Deep Sky Monthly*, Brian Skiff of Flagstaff, Arizona has pointed out a number of flaws. Here is a brief explanation of what he has pointed out.

- On Map 1, the object listed as NGC 358 (R.A. $1^{\text{h}} 3.6^{\text{m}}$, Dec. $+61^{\circ}$), an open cluster, should not be listed as such (a non-stellar object) since it is only a group of 4 stars in Cassiopeia.
- On Maps 1 and 3, the object listed as NGC 133 (R.A. $0^{\text{h}} 29.7^{\text{m}}$, Dec. $+63^{\circ}$) an open cluster should not be listed as such since it is only a star or number of stars.
- On Map 12 the elliptical galaxy NGC 2967 in Hydra (R.A. $9^{\text{h}} 39.6^{\text{m}}$, Dec. $+5^{\circ} 17'$) should be called NGC 2962. The error also appears on Map 13.
- On Map 12, the elliptical galaxy NGC 3067 (R.A. $9^{\text{h}} 40.8^{\text{m}}$, Dec. $+0^{\circ} 27'$) should be called NGC 2967. The error also appears on Map 13.
- On Map 16 and Map 22, the open cluster listed as NGC 6003 (within M24) (R.A. $18^{\text{h}} 17^{\text{m}}$, Dec. -18°) should be called NGC 6603.
- On Map 16 the open clusters NGC 6682 and NGC 6683 have been located at R.A. $19^{\text{h}} 40^{\text{m}}$. They should be moved westward by 1^{h} R.A. and located at R.A. $18^{\text{h}} 40^{\text{m}}$.
- On Map 22 the object listed as open cluster NGC 6227 (R.A. $16^{\text{h}} 4^{\text{m}}$, Dec. -41°) should not be listed as such. The Revised NGC states that it is not a cluster.
- Finally, the planetary nebula plotted as IC 1298 should be called IC 1295.

It is hoped that pointing out these errors can be helpful to our members who use Tirion’s *Sky Atlas 2000.0*.

Reprinted from *Regulus* with credit to Brian Skiff of *Deep Sky Monthly*

1983 Meeting of The Astronomical Society of the Pacific

Our sister organization in the U.S., the Astronomical Society of the Pacific, has announced the dates and location of its 1983 Annual Meeting.

R.A.S.C. members unable to attend the General Assembly at Quebec City, may want to attend the joint meeting of the A.S.P. and Western Amateur Astronomers 13 to 19 June 1983 at the Keauhou Beach Hotel on the Kona Coast of the island of Hawaii. Features of the meeting are tours of the Mauna Kea Observatories, and the 94th Annual Scientific Meeting Symposium: “The Renaissance in High Resolution Spectroscopy: New Techniques and New Frontiers”.

For further information, write to the Astronomical Society of the Pacific, 1290 24th Ave., San Francisco, CA 94122.

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Schedule of Events for Quebec General Assembly May 20–23, 1983

Thursday, May 19

- 15:00 Registration for early arrivals
- No planned activities, but local tours can be arranged.

Friday, May 20

- Breakfast for early registrants
- 10:00 Registration opens
- 13:00 Meetings of Councils of each Society
- 18:00 Dinner for those with a big appetite
- 19:00 Wine & Cheese Party
- 21:00 Song Contest, Slides and/or Movies

Saturday, May 21

- Breakfast
- 8 00 Registration
- 8:30 Official Welcome, Start of Paper Sessions
(Dr. J.-R. Roy, Chairman)
- 10:00 Coffee break
- 10:20 Paper Sessions resume
- 12:00 Group photograph, followed by lunch
- 13:30 Bus tour leaves for "Old Quebec" Annual meeting of A.G.A.A.
- 17:00 Bus tour ends
- 18:00 Bar opens
- 19:00 Annual Banquet, Awards Presentation Dinner speaker: Dr. Hubert Reeves

Sunday, May 22

- Breakfast
- 8:30 Paper Sessions
- 10:00 Coffee break
- 10:20 Paper Sessions resume
- 12:00 Lunch
- 13:30 Annual meeting of R.A.S.C.
Business meeting of A.A.V.S.O.
- 15:00 Coffee break
Council meetings
- 19:30 Paper Sessions, followed by presentation of
exhibit awards

Monday, May 23

- 8:00 Buses leave for Mount Megantic Observatory
- 12:00 Picnic at Observatory site
- 17:00 Return from Mount Megantic

B.A.A. Aurora Section Wants Canadian Observers

The following letter was received recently from the Secretary of the British Astronomical Association:

“I am writing with a preliminary enquiry as to the best method in which our Auroral Section may be put in contact with groups, observers, or potential observers in Canada. Our Section now has extensive coverage of the European and North Atlantic sector, with close co-operation with many Scandinavian observers and reports from shipping and aircraft. However the situation has been reached where the gap in coverage of Canadian events is becoming serious in the study of aurorae and their analysis.

“At present we are uncertain of the amount of observing which is done in Canada, so any information, or contacts, which you might be able to give us would be of value. If little is undertaken on an organised basis by amateurs, perhaps we could devise ways of jointly encouraging this? I would add that we are trying to build up our coverage in the Southern Hemisphere – excluding Antarctica – although this mainly only concerns Southern Australia and New Zealand, to enable better correlation of activity to be made.

“Details of any co-operation and observational methods will naturally be covered later by our Director of the Aurora Section, Mr. Livesey, and the Assistant Director, Dr. Gavine, but in the meantime, I should be pleased to receive any preliminary thoughts which you might have on this matter.

Sincerely
S.R. Dunlop, Secretary
British Astronomical Association
140 Stocks Lane
East Wittering
nr Chichester
West Sussex P020 8NT
England”

Observers Needed for Meteor Network

The Canadian Meteor Network exists to gather data on both major and minor meteor showers. While there has been some response from a few Canadian observers, many more observations are needed to improve our knowledge of meteor showers. Of particular interest in the next few years will be the Eta Aquarid and Orionid showers which are associated with Comet Halley. The 1982 Orionid and recently reported Pi Comid showers have been subjects of recent reports, and further observations on these are needed. For further information, please contact Michael E. Boschat, 6363 Liverpool St., Halifax, Nova Scotia B3L 1Y1.

Halley’s Comet is Coming!

The first of a series of bulletins on Halley’s Comet is now available. The bulletin contains information on comets in general and Halley’s Comet in particular, the possibilities of observing Halley’s Comet from Canada, as well as a description of some of the scientific studies that are planned in connection with the appearance of this famous object.

The bulletin was produced jointly by the Society, the Herzberg Institute of Astrophysics of the National Research Council of Canada, and the National Museum of Science and Technology. Copies are available from the National Office, or from Mrs. Mary Grey, Curator, Astronomy Division, National Museum of Science and Technology, 1867 St. Laurent Blvd., Ottawa, Ontario K1A 0M8.

New A.V. Aids

The Astronomical Society of the Pacific has announced the availability of two special slide sets of solar system objects.

The first set includes the best images from the Voyager, Viking, Mariner, Apollo and other missions, together with a complete list of planetary probes and a full table of data about all the known planets and satellites.

While assembling the first set, Dr. David Morrison, a noted planetary astronomer, found that he had to omit some superb images of each planet, as well as some excellent views of the Earth itself. Thus he put together a second set of 50 slides which complement and extend the images in the first set. Set 2 also includes the new colour images taken by Russian spacecraft on the surface of Venus. Together the sets constitute a complete visual tour of the explored regions of our solar system. They are at once an important educational tool and a delightful feast for the eyes.

Each set is available for \$34.95 plus \$2.00 postage and handling from the Astronomical Society of the Pacific, Selectory Department, 1290 - 24th Avenue, San Francisco, California 94122.

Walt Disney Educational Media Company, 500 South Buena Vista Street, Burbank, California 91521, has released a new film called Close-up on the Planets. The film is designed for grades 5 to 12 as well as junior college science classes, and gives students a "satellite's-eye view" of the Earth, the moon, the sun and the planets. Computer animation and footage from NASA space missions, including Voyager II, are employed to help explain how our solar system evolved, and the Earth's unique place in it. A comprehensive teacher's guide is provided with the film. Further information on preview and purchase arrangements may be obtained from the address above.

Japanese Amateur Astronomers Meet

**by Osao Shigehisa
Kanagawa, Japan**

Ama-Ten 1982, the Fifteenth Japan Amateur Astronomers Assembly, was held on October 16-17, 1982 in Fukuoka City, Kyusyu Region, Japan. There were about 250 participants.

The paper session was held following an opening ceremony on October 17. The eighteen papers covered ethnology and history (4), time and the ephemeris (2), the sun (2), solar eclipses (1), the moon (1), instruments (5), meteors (1), occultations (1) and variable stars (1). Several very well-attended subcommittee meetings followed.

One of the highlights of the meeting each year is the presentation of the Kaho Prize. Given for the best paper at the meeting, the Kaho Prize is named in honour of the late Shigeru Kaho, an amateur astronomer who later was a professional member of the Tokyo Astronomical Observatory and was a co-discoverer of Comet Kaho-Kozik-Lis, 1936b. The recipient in 1982 was Mrs. Yoko Koikeda of Kanazawa, Ishikawa, for her presentation "The distribution of the sun's dark filaments".

Like the R.A.S.C. General Assembly, the Japan Amateur Astronomers Assembly moves from city to city. The first meeting was held in 1967 in the City of Kawasaki. The 1983 Assembly will be held in that city, hosted by the Kawasaki Association of Astronomical Friends, which will be observing its thirtieth anniversary.

22-30 Nishi-Tsuruma 6-Chome,
Yamato, Kanagawa, Japan 242

(Osao Shigehisa is an unattached member of the Society resident in Kanagawa City, Japan. An instructor in astronomy at the Kanagawa Prefecture Zama Youth Centre, Mr. Shigehisa attended the 1982 General Assembly on his first visit to Canada. We welcome him as a new author to these pages. *Eds.*)

A 1908 Brass Refractor

by Brian Carr
Hamilton Centre

During the Syracuse Summer Seminar in 1981, the hosts had a small swap table set up, with eyepieces, books and a few telescopes for sale. By the table stood an old 3½-inch refractor. Although it was in good shape, the seller told me it had been collecting dust in his basement for 20 years. Dirt and dust had marred the finish of the brass-plated (?) instrument. Getting it electroplated again would be as hard as finding someone to do it! At home, as I cleaned off the tube, I found it was brass after all. On the tail stock were the names “Petitdedier” and “Chicago”. I rubbed down the tube first with steel wool, then with teflon pads, polished it, and gave it several coats of liquid plastic.

It was easier cleaning up the mounting, which was made by “William Gaertner and Company” of Chicago. Its right ascension drive is interesting. It’s a 7½-inch diameter clock, key-wound like a grandfather clock (no electricity at the turn of the century!), and operates by friction. An ingenious arrangement of two 45° angle gears turns the worm which drives the telescope in right ascension. The clock drive runs better if the telescope is counter-balanced in favour of the tube assembly. Since the clock drive sits in a circular case, setting latitude is quite easy – undo the lock nuts and rotate the entire drive assembly to the correct position which is read off a degree scale on the case! The clock runs for over four hours, plenty of time for an average observing session. The telescope sits on a very sturdy field tripod.

Having completed the restoration, I decided to learn about the telescope’s builders. *Sky and Telescope* had no information on them, but I did find an ad for a Gaertner Scientific Corporation in Chicago. I wrote them, enclosing some photographs. A few weeks later I received a reply.

Little is known about Petitdedier. He had a small optical shop at 149 East 56th Street in Chicago where he made lenses, eyepieces and telescopes in the 2½ to 6-inch range. He supplied William Gaertner with optical tubes and eyepieces after 1896.

The company gave me much more information on Gaertner. Son of a paper mill owner, he was born in Germany in October of 1864. After grade school he entered a school of instrument making. He learned quickly and worked for a year at Prague University before returning to Germany. He spent the next ten years in several positions, learning various aspects of his trade, and by 1880 was known throughout Europe for his improvements to different instruments.

Gaertner made his first visit to the U.S. in 1889, and worked as an instrument maker for the Buff and Berger Surveying Company. In 1890 he secured a similar job with the State Coastal and Geodetic Survey Company. He returned to Germany until 1893, when he attended the World’s Fair in Chicago. There he met the director of the Smithsonian Institute Observatory and obtained a job at that institution. In 1895 he moved from Washington to Chicago to join the Kenwood Observatory.

The William Gaertner and Company business was founded in May, 1896. Business picked up quickly – Yerkes Observatory opened in 1897 and Gaertner was given the task of making most of the instruments by his good friend Burnham. By this time Petitdedier had begun to produce telescope parts and complete instruments. He and Gaertner became friends and soon entered into an arrangement with Petitdedier making the refractor tube assemblies and Gaertner constructing the mountings and drives.

In 1910 Gaertner constructed a very accurate photographic zenith telescope for the International Geodetic Association. In 1915 his company became one of the first to do a world-wide business in scientific instruments. The company moved to its present location, 1201 Wrightwood Ave., Chicago, after the First World War and continues to build high-precision equipment such as microscopes, spectrometers and interferometers. William Gaertner died in December of 1948.

Cameras! Cameras! Cameras!

by **Mario Caluori**
Montreal Centre

Where would astrophotographers be without them?

I build cameras for astrophotography not only to suit my own requirements, but for the fun of it!

The heart of any astro-camera is its lens, around which the camera is built. Many lenses are commonly available from local camera shops dealing in used or surplus equipment, and usually at reasonable prices. Even simple achromats are useful if they are well-corrected for coma and chromatic aberration, and used in narrow 35 mm format cameras.

The sheet film camera bodies can be built from anything from Heinz (use the best!) tomato juice cans (available at your grocer's) to P.V.C. Sewage Pipe (empty, of course!) available at the hardware store.

The possibilities are endless to those with imagination. And when painted with candy or wrinkle finish, or even good enamel paints, the results are outstanding. A small solar kiln can be built for under \$2.00, which will bake the paint of your new camera and give it that really professional look.

Commercial Schmidt cameras cost upwards of \$500, but you can build one right at home with relative ease and modest cost, with nothing more than hand tools if the "lensless" Schmidt camera is considered. Such cameras can yield stellar images of .001 inch when attention is paid to focusing and proper guiding. Yet few builders choose this design for the reason that the camera must be twice the length of a true Schmidt camera. But all things considered, the "lensless" will render the sharpest image for the lowest price.

Alternately, there exist methods readily available to amateurs to improve the clarity and decrease the exposure times both at the telescope and later in the darkroom. These include using hypersensitized, chilled, or spectroscopic film, or using focal reducers. The nebular filter now allows us the luxury of capturing certain deep sky objects right from downtown Montreal. Some common methods of enhancing photos in the darkroom will include "composite" imaging for lunar and planetary photos and unsharp masks for stellar photography. "Dodging" and "burning in" are old time favourites too.

The options available to the amateur in the darkroom and in the field are greater now than they have ever been. Techniques which used to be available only to professional astronomers at the world's leading observatories years ago can now be enjoyed by anyone, without having to pay a king's ransom.

I am an astronomy enthusiast whose interests include double stars, solar, lunar and planetary observing and, of course, astrophotography. But because my main interest is astrophotography, some of my fellow members consider me as only an astrophotographer. But that is impossible, because all astrophotographers (bar none) must first have a reasonable understanding of constellation study, general observing, the celestial grid system and the mechanics of telescopes. When you know what you're doing; it's easier to do it better!

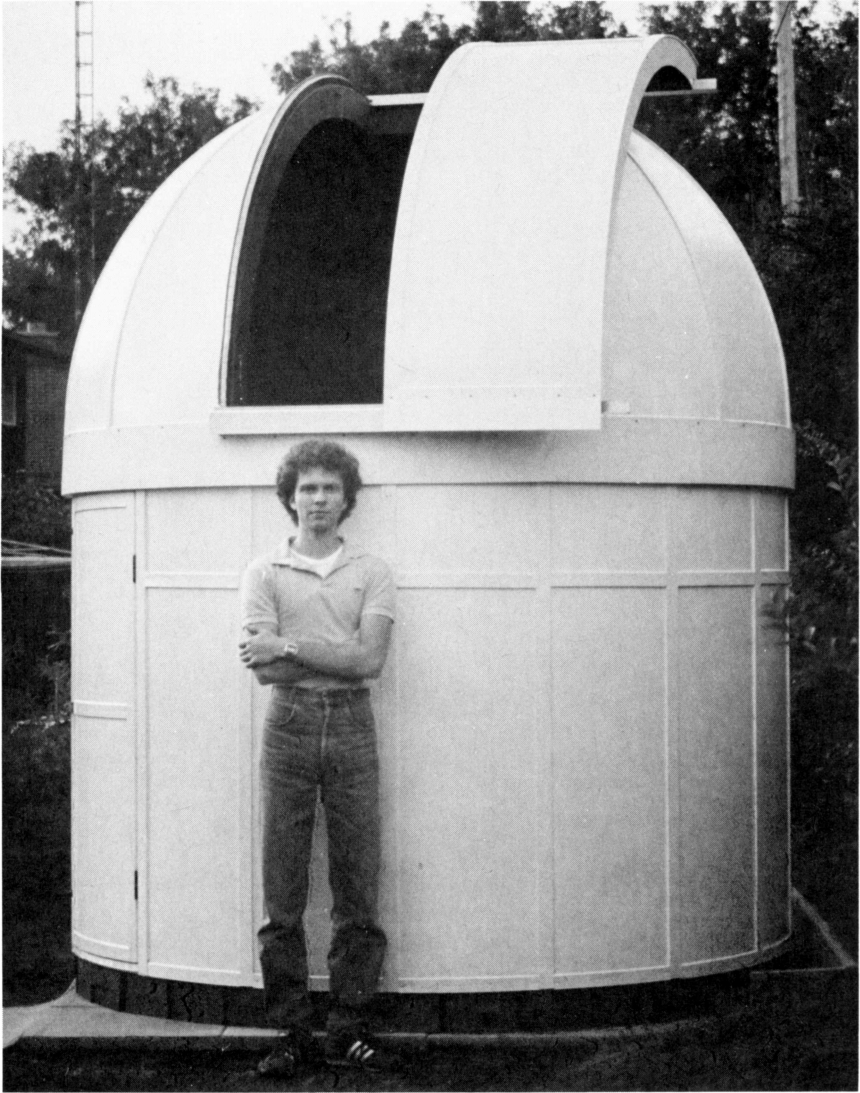
Reprinted from *Skyward*

A Backyard Observatory

by **Michael J. Cook**
Toronto Centre

An observatory is the one piece of equipment that many amateur astronomers obtain at some point in time instead of allocating the same funds to upgrade existing equipment or increase aperture. At least this was the case for me. My eight-inch Dynamax was keeping me busy and the portability of the instrument discouraged any idea of a larger telescope. However, the observatory was constructed so that a larger telescope would be compatible. To ensure frequent use of my observatory I decided to build and locate it in my backyard instead of in the country.

After some consideration, an eight-foot dome and matching cylindrical base was chosen. This type of structure gives maximum protection to the observer and instruments against the elements and stray light. However, this type of structure is not for the novice astronomer who finds it difficult to recognize where he is when looking at the night sky through a narrow slit.



Michael Cook in front of his observatory

Construction took place in mid July of 1981. At that time I was residing in Sherbrooke, Quebec but the observatory has survived the trip to Oshawa, Ontario. Work on the observatory was done each day for an eight to ten hour stretch for six consecutive weeks. My father, also an avid astronomer, helped a great deal with his indispensable carpentry knowledge.

The curved framework is made-up of $1/12$ th circle segments to conserve wood. The base was constructed first. The two rings of the base, top and bottom, are double laminations of three-quarter-

inch plywood glued and screwed together. The base wall studding is made from two-by-fours five feet long. The dome is made of three-quarter-inch plywood also. The dome arches consist of three laminations as do the ribs perpendicular to them and the dome ring. The whole affair is covered with one-eighth-inch masonite with caulking and pine trim at the joints to ensure that no leaks take place. The dome rotates on nine three-inch rubber casters while nine other two-inch rubber casters ride against the dome ring, not the skirt which is made from twelve-foot lengths of white vinyl siding. The floor is made of two-by-fours and one-half-inch chipboard. The shutter is of one piece design and rolls off to one side on two aluminum angle tracks. The slit is sealed against the elements with weather stripping which compresses down when four hooks secure the shutter in the closed position.

Two coats of primer and three coats of high-gloss white paint on the exterior reflect the heat while the black interior reduces reflections.

In addition to a complete electrical system for drives and lights, there is also a chart stand, storage cases, shelves, and short-wave receiver.

The observatory is centered over an eight-inch steel pipe which extends six feet into the ground and is five feet high inside the observatory making it level with the observatory base wall. This pier is ample to support my telescope which is precisely oriented to the north celestial pole for deep-sky photography.

After the severe winter of 1981–82 with snow up to the dome skirt, the observatory shows no wear and proper maintenance should provide many years of easier viewing. I would be pleased to correspond with anyone who would like construction hints on building an observatory of similar design. Write to Michael J. Cook, 996 Regent Dr., Oshawa, Ontario L1G 1J5.

Centre News

by Peter Jedicke
Assistant Editor

NIAGARA FALLS: The Niagara Centre hosted its semi-annual banquet atop the Skylon Tower on November 12. In addition to the magnificent view of the Falls, there was guest speaker Dr. Ernst Both, from the State University of New York in Buffalo, who displayed both an interest in Eastern European history and a professional expertise in comets. The altitude, a fine buffet dinner and attendance of approximately 70 persons gave the Niagara banquet at least three things in common with the Ottawa Centre's annual meeting and dinner in the Top of the Hill room at the Skyline Hotel.

OTTAWA: In Ottawa, Dr. Karl Doetsch of the National Aeronautical Establishment spoke on "The Canadarm: a Canadian Technological Success." Members who braved less than hospitable weather also saw banquet committee chairman Peter MacKinnon installed as the Ottawa Centre's new President.

MONTREAL: Jimmy Letourneau organized a visit for fifteen Montreal Centre members to the Observatory at Mount Megantic. Although predictions called for overcast conditions, the brave amateurs were treated to a beautiful, clear sky with some haze. Among the objects viewed with the 153-cm telescope were M92, M57, M31 and Stephan's Quintet. Sadly, the Centre was less fortunate with its own Observatory on the campus of McGill University, which was broken into around September 7. A door was kicked in, but no other damage was visible and nothing seemed to be missing. Repairs were soon completed.

VICTORIA: The blue and white trailer and red telescope of the Victoria Centre's 50-cm mobile observatory were first displayed to the public on October 16 at the Tillicum Mall. It is named the Evans-Vander-Byl Telescope in honour of the late Robert Evans, who left several thousand dollars for the project, and Centre President Leo Vander Byl, who led the construction. George Ball was working on the secondary mirror, and there were plans to add computer guidance to the observatory. The telescope sits on a completely independent mounting aboard the trailer. This arrangement should help solve the stability problems usually associated with mobile instruments.

CALGARY: On September 11, some 15 persons turned out at the Strathcona-Tweedsmuir site to raise the Calgary Centre Observatory's dome. Shutters and drives were installed the following day. A few weeks later, the Byers mount for the telescope was received and was to be installed November 6. The Centre announced a contest to provide a name for the new observatory. Calgary had its Annual Banquet on December 9.

EDMONTON: The Centre is working hard to financially assist the almost completed Edmonton Space Science Centre scheduled to open to the public in July 1984. Last summer several public displays actively promoted interest in astronomy and public awareness of the Edmonton Space Science Centre. A "Light Up Our Sky – Donate a Star" fund raising programme has started with information packages sent to 15,000 classrooms in Alberta. This winter a series of one day only shopping mall displays has been organized which will feature a model of the Space Science Centre.

Sol-Lunar Forces and Tides

by **B. Franklyn Shinn**
Associate Editor

In Winnipeg, Manitoba we talked about tides. I think you have to live near the sea to learn about tides. Since moving to Nanaimo, B.C. on the Straits of Georgia, I've become aware of that.

Once one learns of Sir Isaac Newton's concept that gravitation works between every individual particle, it isn't hard to understand that the moon can pull the ocean up into a bulge that periodically engulfs the shoreline, and that the sun has a similar effect, though because of its greater distance it is less. Thus one gets familiar with the concept of these two bodies negotiating between them where the bulges will be highest. Figure 1 is the usual diagram of this.



FIGURE 1. At New Moon (position A) or at Full Moon (position C) lunar and solar gravitational forces are in line and tidal bulges will be larger. At positions B or D sun and moon are pulling at right angles, reducing the extent of the bulges.

I found members of the Power Squadron in Winnipeg somewhat skeptical when I suggested that when the moon was at position A, between Sun and Earth, the latter body was pulled away from the ocean leaving a bulge on the opposite side, where position C would show it. They seemed to feel that if I wanted to think that the earth could be pulled away from the water I could go ahead and believe it, but as for them they'd rather wait for some more acceptable explanation. Nobody said it was wrong, they just looked at me rather as they would at a child accepting a fairy story, but whose illusions they didn't feel they had authority to destroy.

It wasn't until I constructed a model intended originally to show Sirius A and Sirius B as a

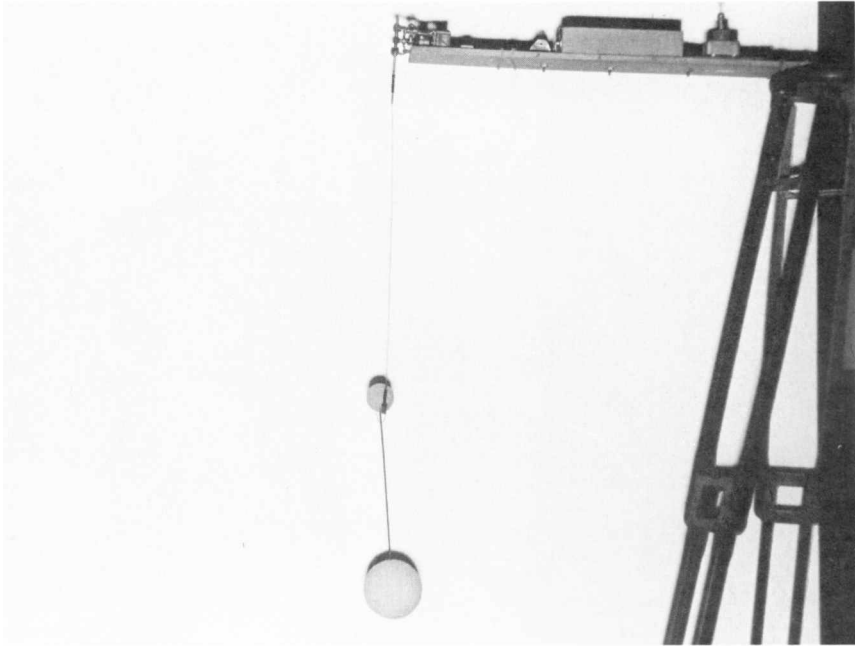


FIGURE 2. At rest the two styrofoam balls assume a position more or less vertically in line with the shaft of the supporting motor. It developed that it was not necessary to shift the support along the connecting bar to the centre of gravity before starting rotation.

demonstration of how Sirius B could cause a wandering proper motion in Sirius A, that a more acceptable explanation emerged.

The model is simplicity itself. I hung a fishing leader from a shaft rotated by a small motor originally intended for model railroad locomotive installation. In the snap at the lower end of the leader I proposed to suspend a crossing strip of balsa wood with a styrofoam ball at each end. One ball was large (Sirius A) and one small (Sirius B). Sirius A was white, Sirius B black. When set rotating in reduced light Sirius A was visible wobbling about, while the darker ball became almost invisible.

The surprise came for me when I started to play with the unit. I had formed the opinion that I would have to balance the two balls and the connecting strip very carefully on the leader. They were temperamental, and I spent some time getting them to balance before trying it out. With them in balance it worked quite up to my expectations, but then came the surprise; the pair came to rest after one rotation with the leader hard against Sirius A, and Sirius B hanging below it. Being me I switched it on to see what would happen, really expecting to see balls start flying all over the room. To my surprise the system shortly acquired almost the same rotation position as when the balance had been built in at the beginning. The same forces worked in my basement as worked in outer space! The two balls began to rotate about the barycentre, their mutual centre of gravity, or as nearly so as support by the fishing leader opposing earth's gravity would permit. The device is shown in photographs forming Figures 2 and 3.

A little thought, and the two balls could represent the Earth-Moon system. Then the moon would raise a tide on the nearer side, and "centrifugal force" would raise a tide on the opposite side. Everybody accepts that concept without question. (Of course, you and I know that really this is the same thing as

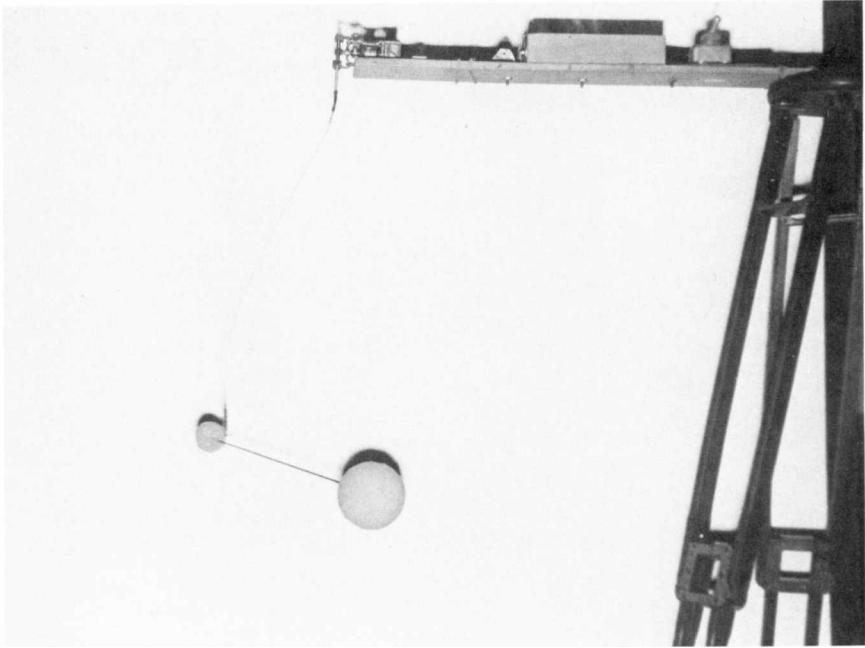


FIGURE 3. When rotating at 4 or 5 revolutions per second the assembly assumes a position approaching the horizontal and rotates about the position that would be the CG of the system, now called the barycentre. If the larger ball is regarded as the earth, it is obvious that as it rotates on the opposite side from the moon centrifugal force would account for a tidal bulge on the outer side of the system. (Rotation was frozen in the photograph by electronic flash.)

saying the moon pulls the earth away from the ocean on the opposite side, but let's not reopen the argument.) The barycentre of the Earth-Moon system is located about 1600km deep in the earth on the side toward the moon.

To be continued.

Reflections of a Solitary Observer

by Grant Wm. Dixon
Hamilton Centre

The sky is darkening as I look from my den window upon snow that is less than a day old. High pressure has moved into this area and, along with the cold weather, it brings very clear skies. Setting off to put my telescope and accessories into the car, I slip into my boots and parka with almost ritual regularity.

“Oh God, is it cold! Well, I’m really not dressed for it yet. Now hurry and load your equipment into your car, Grant, and you can get back inside to the warmth before you have to go. The cold certainly makes one aware of the difficulties in loading a large telescope into a small car. The metal case is bitingly cold on the fingers; I should have worn my gloves for this job. Hurry, hurry, hurry! Ah, thanks for the hot chocolate, Doreen; I will light the fireplace for your group.”

Sitting and admiring the roaring fire between sips of rich hot chocolate, I think I must be crazy. In less than an hour this house will be filled with the strains of soft Renaissance and Baroque music and friendly laughter, and, here am I, heading off to a cold and lonely site and who knows what. There’s the doorbell; I guess Doreen’s recorder consort is arriving. I had better get moving, or I won’t want to go at all.

Before me on the bed is a heap of warm clothing that will help me survive the winter night; behind me is a crackling hearth and the gentle sounds of Tielmann’s “Susato Dances” on a quartet of recorders. My desire to go is quickly leaving me. “Drive yourself, Grant, drive yourself!”

I have finally arrived, much to the chagrin of my car. The poor thing doesn’t like to be disturbed on a cold night, and started only with a great deal of insistence on my part. I think it’s colder up here than back home, and I’m dressed for it now.

“WOW! Look at that sky!”

The moon is down; there are no planets that I want to look at, so tonight is a deep sky night. The first thing to do is to dig a hole in the snow to set my equipment into. Now for the tripod, wedge, and telescope. Funny, the ads said that this was an easy chore. I guess no one in California has ever tried to do the job on a night that was 15° below.

The next thing to do is to try to get a polar alignment. This *cannot* be done with gloves on. Shudder! The ten-minute setup they talked about when I bought this telescope has taken me 45 minutes, and this is about as fast as I have ever done it.

Before I start observing, I need a cup of coffee. Well, forget it. The water in the container is ice. Placing the water jug next to the heater inside the observatory in the hope it will melt before the evening is over, I head back to the telescope and the starry night.

“WOW! The sky is really *something!* Deneb is setting and Regulus is rising, while Orion and all his friends dominate the sky. To work, Grant. First the three objects in Gemini that I chose earlier to look for. The first two were a bit of a bust; maybe I’ll have better luck with NGC 2392, the “Clown-face Nebula” which is sometimes called the “Eskimo Nebula”. SUPER!!! It is stunning! It should be more popular. I think I will call it the “Eskimo Nebula” from now on in honour of the weather. Funny, though, I don’t seem to be cold anymore.”

I think it’s time to take some photographs. Tonight I can safely say my Pentax is a cold camera. At least this is an affordable way of having a cold camera (chuckle). I fear I’m getting punchy.

“What’s that sound? Oh, it’s just Mr. Rabbit come to have a look at the sky. Don’t leave; I won’t hurt you. I just want to share the beauties of your peaceful night world. Good heavens! Here am I, a grown man, talking to a rabbit. No matter, at least he is listening. It’s good to have company while I observe. He’s not the kind of bunny one usually associates with a man who spends an evening away from home. Thinking about home, I wonder how my wife is faring with her music, fire, and hot chocolate. Hot chocolate! Gee, I haven’t had my coffee yet. Well, maybe later. I’m not too cold yet, and there is so much to see.”

You know, it’s so dark I think I will look for a few very faint objects in Orion. There is no trouble in finding IC 434, but I still can’t find the “Horsehead”. This is not too much of a disappointment because the whole area around Zeta is alive with glowing nebulosity. Back to the picture-taking.

It seems to be getting harder to locate objects. No wonder! Regulus is setting and Deneb is now rising; it’s morning! Look at all those Spring constellations. “Tempus fugit”; it’s time to go home to a warm bed.

As I take down my telescope, I look at the dawn and, smiling to myself, muse that, even for astronomers, God really knew what He was doing when He made the dawn.

You know what? I never got that coffee. I never seemed to be that cold once I got going. Well, maybe next time I’ll have some!

Société Royale d'Astronomie du Canada

Assemblée Générale 1983

20–23 mai

Une particularité spéciale de l'Assemblée Générale 1983 qui se tiendra dans la yule historique de Québec, sera le regroupement de trois Sociétés astronomiques. Elles s'uniront pour plusieurs activités conjointes du 20 au 23 mai 1983.

Cet évènement qui se déroulera principalement sur le campus de l'Université Laval, sera ponctué entre autres d'une visite dans le Vieux Québec, le samedi 21 mai p.m., et à l'Observatoire du Mont-Mégantic le lundi 23 mai.

En ce qui concerne les séances de travail, les membres sont invités à proposer des communications, d'une durée de dix minutes, sur tout aspect de l'astronomie. Des résumés des communications proposées sont à envoyer *avant le 23 avril* à: Dr J. R. Roy, Dept de Physique, Pavillon Vachon, Université Laval, Ste-Foy, Québec, G1K 7P4. Comme d'habitude, il y aura également un concours de travaux d'amateurs, pour de plus amples renseignements, consulter les autres pages du *Newsletter* (Octobre 1982).

Afin de nous aider dans la planification de cet évènement, nous vous invitons à nous faire parvenir la formule ci-après pour le *1^{er} avril 1983* au plus tard. Sur réception de ce formulaire, nous vous ferons parvenir une formule d'inscription détaillée. A cette fin, une enveloppe préadressée a votre nom et munie d'un timbre serait apprécié.

Vous êtes priés de faire parvenir les renseignements ci-dessous (avant le 1^{er} avril) au Secrétariat d'Accueil, soit: Assemblée Générale 1983, a/s Dr R. Dutil, Dépt de Physique, Pavillon Vachon, Université Laval, Ste-Foy, Québec, G1K 7P4.

J'assisterai
 J'assisterai peut-être } Nombre de personnes —

Je demande au Comité d'Accueil de s'occuper de mon hébergement

Type de logement souhaité

Résidence universitaire motel

Je m'occuperai moi-même de mon logement

Indiquer vos dates probables d'arrivée et de départ: mai 19, 20, 21, 22, 23, 24

Nom _____

Adresse _____

Centre local ou club _____

Royal Astronomical Society of Canada 1983 General Assembly May 20–23

A special feature of the 1983 General Assembly to be held in historic Quebec City, will be the gathering of three astronomical societies, the R.A.S.C., the American Association of Variable Star Observers, and the Association des Groupes d'Astronomes Amateurs. They will meet jointly for several events from May 20 to 23.

Most activities will occur on the campus of Laval University. There will be tours to "Old Quebec" on the afternoon of Saturday, May 21, and to Mount Megantic Observatory on Monday, May 23.

Members are invited to participate in the Paper Sessions. Papers of ten minutes duration on any aspect of astronomy are welcome. Abstracts must be sent *before 23 April* to the Paper Session Chairman, Dr. J.-R. Roy, Dept de Physique, Pavillon Vachon, Université Laval, Ste. Foy, Quebec G1K 7P4. A display competition will be another feature of the 1983 General Assembly. See the 1982 October issue of the *National Newsletter* for details.

There are 200 single residence rooms available at Laval University at \$23 per night, breakfast included. The nearby Motel Universel has 75 double rooms at \$45 per night (\$40 single).

To assist in planning for events and accommodation, as well as to receive detailed registration forms, please fill out the form below and send it *before 1 April*. Please enclose a stamped self-addressed envelope.

Would you please send the following information before April 1, to: Assemblée Générale 1983, a/s Dr R. Dutil, Dépt de Physique, Pavillon Vachon, Université Laval, Ste-Foy, Québec, G1K 7P4.

I plan to attend }
 I may attend } Number in party —

I wish the Organizing Committee to make arrangement for me

Accommodation desired: on campus motel

I will make my own arrangements

Circle expected dates of arrival and departure: May 19, 20, 21, 22, 23, 24

Name _____

Address _____

Centre or affiliation _____