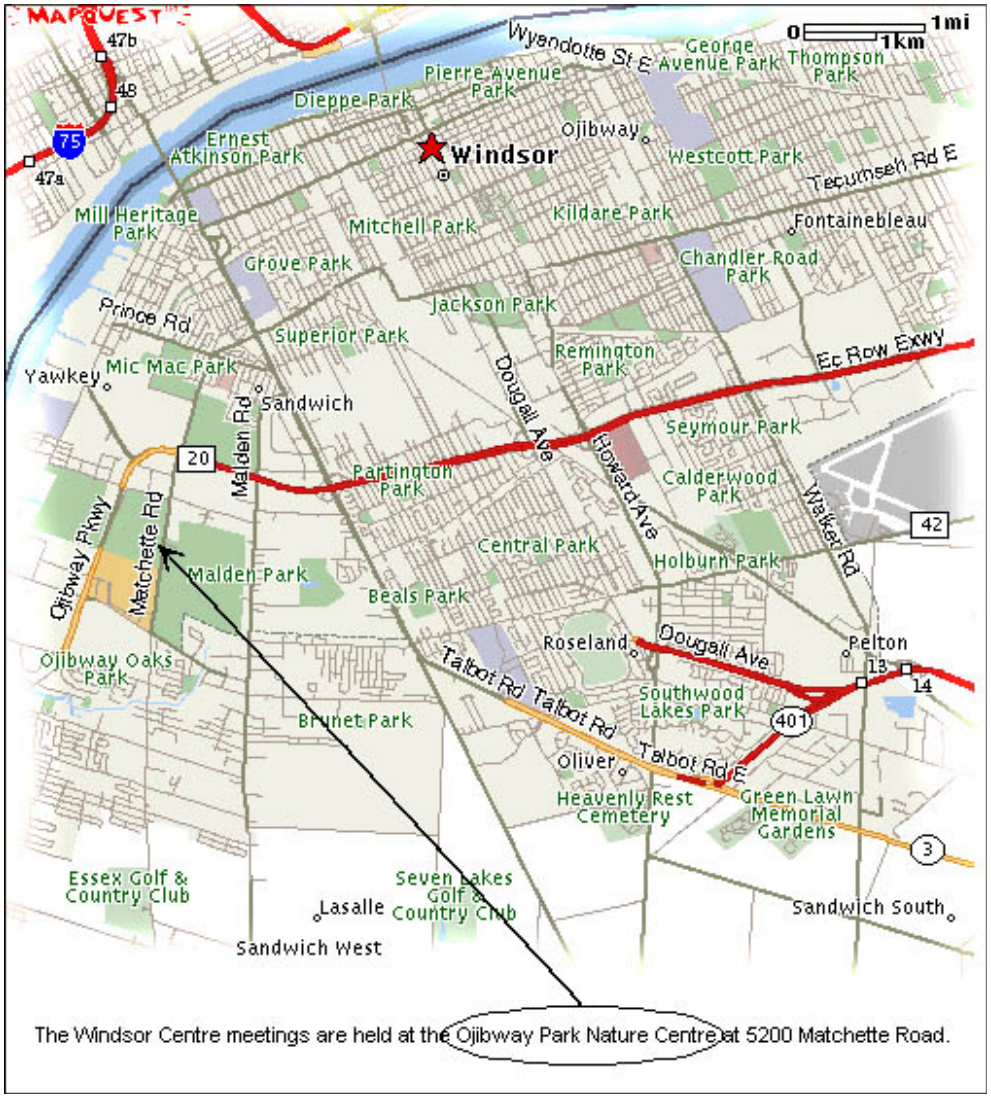
Aurora
The Royal Astronomical Society of Canada - Windsor Centre
Volume 29, Number 3
November 2003

# New Meeting Location by Steve Mastellotto

Beginning with the October meeting of the R.A.S.C. - Windsor Centre we will meet at the Ojibway Park Nature Centre located at 5200 Matchette Road. We have not yet decided to permanently move to this location. However, we will be meeting there for the October and November meetings as well as the December Social to see how it works out. The map below is also on our web site (http://www.mnsi.net/~rasc/), just follow the link for "Meetings".




## *In This Issue*

# Calendar of Events

***Our next meeting…***

**Annual Meeting**

Tuesday, November 18, 2003
8:00 p.m.
at
Ojibway Park Nature Centre
5200 Matchette Road

***Main Speaker…***

TBD

***Topic...***

"TBA"

***Activities...***

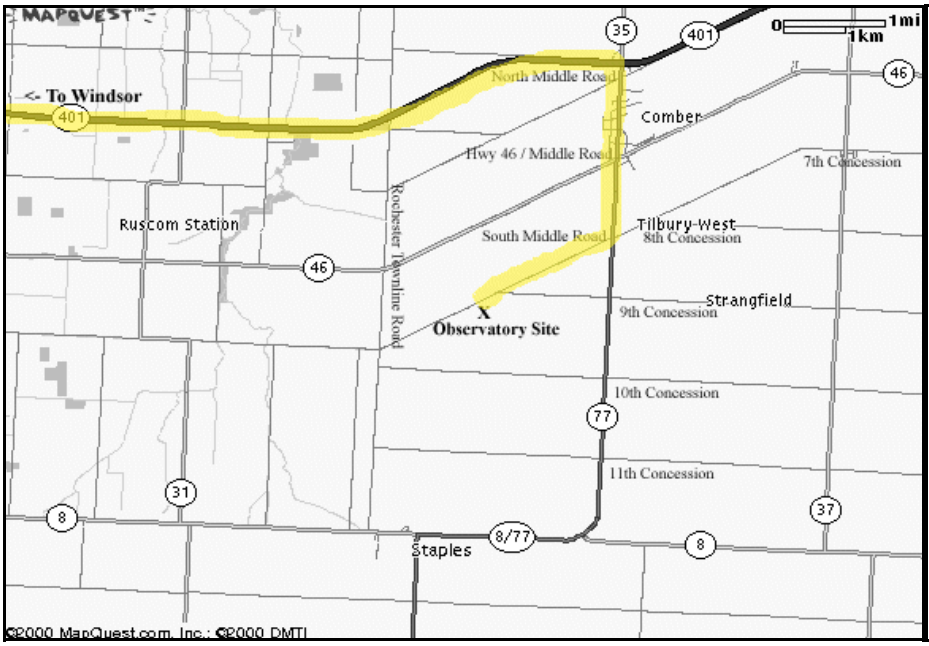
***Orionid Meteor Shower:*** Peak at 5:00 a.m. on Wednesday October 22.

***Venus and the Moon:*** On Sunday October 26 look for Venus very close to the Moon. An occultation occurs from Hawaii.

***Lunar Eclipse:*** On Saturday November 8 the Moon will slip into the Earth's shadow.

***Leonid Meteor Shower:*** Unlike years past we do not expect a storm this year however you can try and spot some Leonids on Monday November 17.

***December Social:*** Will be held on Friday December 5 at the Ojibway Park Nature Centre. More details to come.




## Hallam Observatory Site

At left is a map showing the Comber area and it includes the major highways (401, 77, 8 and 46) that are in the area of the observatory. I "highlighted" the most direct route from Windsor on this map which is to take 401 East to Highway 77 South to South Middle Road. While on South Middle Road you will cross some railroad tracks (they just removed the tracks) and just after the barely discernable point where Concession 9 joins it you will find the observatory site on the South side of the road. If you hit the Rochester Townline Road (i.e. you come to a stop sign and have to turn left or right) you have gone too far. On most clear nights someone is usually out there observing but if it happens to be a clear, moonless, weekend night you should have many observing buddies.

# Submissions

Aurora is published monthly except for August. The September, November, January, March, May and July issues are full newsletters (usually 6 pages) with a number of member submitted articles. The October, December, February, April and June issues are short flyers (2 pages) with one short article. Submitted articles can be of any length from a paragraph to multiple pages. I can scan pictures and/or diagrams (both prints and film) to support your article and the originals will be returned to you.

Submission deadline is the 1st of the month. I will accept Emails at the address below, floppy disks, or written submissions.

Editor: Steve Mastellotto Email: mmastellotto@cogeco.ca

# Membership

The Windsor Centre of The Royal Astronomical Society of Canada meets on the 3rd Tuesday of every month (except July and August) at the Ojibway Park Nature Centre. In addition to regular meetings the centre hosts a number of observing nights, a picnic and a December social. Members receive a copy of the Observer's Handbook, the RASC Journal, a subscription to SkyNews magazine and access to the Centre's library and telescopes.

Annual Membership Fees are Regular - $44.00, Youth - $27.50 and Life - $880.00.

Contact Ken Garber at (519) 966-3478 or visit our website at: www.mnsi.net/~rasc for more information.

## Hermes Is Found

*The following news item is from Sky and Telescope's web site (http://skyandtelescope.com) and was written by Roger W. Sinnott*

October 16, 2003 | After eluding astronomers for 66 years, the long-lost asteroid Hermes has finally been retrieved.

This most famous of the "lost asteroids" was originally discovered by Karl Reinmuth at Heidelberg, Germany, on October 28, 1937, and tracked for only five days. Despite numerous attempts, the object that came to be known as Hermes was not seen again — until now.

Early on October 15th, Brian A. Skiff (Lowell Observatory Near-Earth Object Search, Arizona) sent measurements of four CCD images obtained with the Anderson Mesa 23-inch Schmidt telescope to the Minor Planet Center in Cambridge, Massachusetts. At the center, Timothy B. Spahr identified the suspect with other measurements submitted in the past seven weeks and recognized that its orbit closely matched that of long-lost Hermes. In addition, quick action by James Young (Table Mountain Observatory, California) secured a confirmation just before dawn on the 15th.

Judging by its brightness, Hermes is a minor planet about 1 to 2 kilometers across. So it could be somewhat larger than the 1937 estimates. In a famous exhibit at the American Museum of Natural History, New York, Hermes was depicted as a sphere about the size of Central Park.

Hermes is by no means the last of the lost asteroids — many thousands of others in the Minor Planet Center's database fall in this category because they could not be followed long enough for an accurate orbit to be determined.

In late October 2003, Hermes will be bright enough (magnitude 13) to be seen in 8-inch and larger amateur telescopes as it races westward across Cetus, Pisces, and Aquarius. By month's end it will be moving 7° per day and gaining. Unlike the situation in 1937, when Hermes skimmed to within 800,000 km of our planet (two Earth-Moon distances), it will pass about nine times that far on November 4, 2003. Nevertheless, the possibility of future close encounters definitely puts this object in the PHA (potentially hazardous asteroid) class.

### *China Launches First Astronaut* *from Sky and Telescope*

October 16, 2003 | The People's Republic of China became just the third nation to send a human into space. China's first astronaut, Yang Liwei, spent 21 hours orbiting the Earth in the Shenzhou 5 spacecraft, launched aboard a Chang Zheng 2F ("Long March") rocket. The name Shenzhou has been translated as "Divine Vessel," but "Spaceship" may be equally accurate. The Shenzhou has three sections — engine, descent, and orbital modules — and is similar to the Russian Soyuz in overall appearance. Indeed, the descent module was developed after China bought several used Soyuzes from Russia. The orbital module, however, is an advanced, all-Chinese design with its own solar-cell panels; it will remain in orbit and continue to carry out experiments for several months. Liwei emerged from the capsule after the descent module landed in northern China less than 5 kilometers from its intended target. Xie Mingbao, director of China's piloted space effort, explains that the next Shenzhou will be launched in a year or two.

## Proposed Nomination List for 2004 Council of the RASC - Windsor Centre

### Elected Officers

| | |
|---|---|
| President | Steve Mastellotto |
| 1st Vice-President | |
| 2nd Vice-President | Robin Smallwood |
| Treasurer | Ken Garber |
| Secretary | Joady Ulrich |
| National Council Rep. | |

### Councilors

| | |
|---|---|
| Paul Preney | Susan Sawyer-Beaulieu |
| Henry Lee | Steve Pellarin |
| Peter Bondy | Rev. Harry Brydon |
| Ken Roung | |

### Appointed Officers

| | |
|---|---|
| Honorary President | Dr. William Baylis |
| Past-President | Randy Groundwater |
| Librarian | Milica Rakic |
| Recording Secretary | Dave Panton |
| Public Education Director | Randy Groundwater |
| Public Relations Director | 2nd Vice-President |
| Newsletter Editor | |
| Assistant Newsletter Editor | |
| Director of Observing | Steve Pellarin |
| Assistant D. of O. | Robin Smallwood |
| Alternate Council Rep. | |
| Webmaster | Steve Mastellotto |

### *Contour Mission Failure Report Released*
***From Sky and Telescope***

October 16, 2003 | This week, 14 months after NASA's Comet Nucleus Tour (Contour) spacecraft disintegrated following a course-correcting rocket burn, the team charged with investigating the mishap released its final report. The panel concluded that the most likely reason was that the solid-rocket motor firing on August 15, 2002, overheated the spacecraft, causing it to tear apart. The possibilities deemed less probable were a collision with space debris, the solid rocket exploding, and a thruster misfiring that spun spacecraft out of control.

## Mars, God of the Block-Party by Rod Clark

Planet Mars has achieved a public relations triumph by its orbital convergence with Earth. Throughout the month of August and well into September, it has managed to push Bin Laden from his dominant position in the world's newscasts. A marginal increase in its approach during past convergences has been hyped as a rare one-in-a-fifty-thousand-year event and now everyone must see Mars.

In early September, my golfing buddy asked me to bring my telescope to his home on Lexham Gardens to show him Mars. It was a perfect clear night with an almost full Moon and Mars nearby, outshining every other object in the sky. I set up my telescope by the curb and we used the Moon to adjust the focus. Mars was somewhat hazy as the Earth's atmosphere wrinkled the image. By exercising our patience we were able to glimpse the polar ice-cap and some faint surface markings.

Our viewing was interrupted by a neighbour who wondered what we were doing out there in the street. He came, looked into the eye-piece and scurried home to bring his wife and son for their introduction to Mars. They, in turn, called other neighbours who called their neighbours until we seemed to have the entire block lined up at the telescope. Street traffic slowed and came to a halt while drivers parked to see what was going on and then they too joined the line. Others gossiped and exchanged neighbourhood news while they waited. Someone generously served drinks to the entire gathering.

As Mars continued to rise, the image steadied and we could see the distinct outline of the Syrtis Major region while the ice-cap appeared to be almost three dimensional. One charming lady argued that we must be focused on the Moon until we panned over to it for comparison.

This brought a new interest to the group with the Copernicus crater and the Sea of Tranquility being the favourites. There was a great discussion about the size of an object that had whacked the Moon, carving the huge crater and creating the ray-system.

As the party moved away from its original astronomical interest, I gave my old C8 a friendly pat in appreciation for the crisp image that was kept well-centered throughout the session. I had given only minimal attention to its horizontal and polar alignment parameters. We eased our way through the crowd which had truly become a block-party, showing no signs of dispersing. We thank the gracious people of Lexham Gardens for their kind appreciation and good wishes and we thank Mars for being back there after all this time.

## Quo Ducit Urania by Bert Huneault

Every issue of the Windsor Centre's ***Aurora*** newsletter shows the RASC. seal in the left margin. The seal includes the Society's motto, "*Quo Ducit Urania*", and since my knowledge of Latin is virtually equivalent to the latitude of the Equator, I obviously needed some help in deciphering the meaning of that motto. Initially, I figured it might have something to do with the planet Uranus but I discarded that idea, reasoning that the RASC wouldn't show such flagrant favouritism; after all, why give preferential treatment to such a distant planet, some 19 astronomical units away from Old Sol, even though in Greek mythology Uranus is the son and husband of Gaea (goddess of Earth). Gaea married her own son? Yikes!... it sure sounds like a dysfunctional family to me!

I wondered... if *Urania* doesn't stand for Uranus, what could it possibly mean? Besides, what about that *Quo Ducit* bit? Hmmmm... maybe the Internet could come to my rescue? But before firing up my computer, I glanced at my bookshelves and spotted the book "***Looking Up***" by former RASC President, Peter Broughton. Since the book relates the history of our Society, I figured it just might contain a reference to the RASC motto. Sure enough, while browsing through its very interesting pages... eureka! I found it. It means "**Where Urania leads, we follow**".

That's fine, I thought, but who the heck is Urania? If I'm going to follow that leader, I'd better find out who she is and what she's up to! Since my knowledge of Greek mythology is about on a par with my understanding of Latin, I figured I needed help here too. Now it was time to go online. Using a search engine I found the following: **Urania, the "Heavenly", is the Muse of astronomy; she foretells the future by the position of the stars.**

In Greek mythology, Muse is any of the nine daughters of Mnemosyne and Zeus who preside over the arts and sciences. My conclusion: since daughter Urania presides over our fascinating science of astronomy, she was obviously very well chosen to be our leader.

So there you have it folks; as broadcaster Paul Harvey would say, **"Now you know the rest of the story"**.

Epilogue: Curious to know a little more about Urania? If you can access the Internet, you can see her portrait, read a poem about her from *An Ode to Music*, and even listen to that music at: **http://www.eliki.com/portals/fantasy/circle/urania.html**

## Fireball at Mars Mania Party by Dave Panton

Dan and Carol Taylor's August 30th Mars Mania night was a great success with lots telescopes and people on hand viewing Mars at it's finest. The weather and all else was perfect. After midnight there was a special event seen by only three lucky people. Low in the Northeastern sky a nice colorful fireball zipped down through the Earth's atmosphere.

Good fortune is everything. It was only my third fireball in a longish lifetime. My observation was primarily of a "ball of coloured fire with a tail" growing larger in it's few visible moments. Calling out "did anyone see that?" I rushed back to the group and found Susan Sawyer-Beaulieu and Mike Pataky had done better than I. They also saw it and if I recall correctly noted a yellowish core while I was merely dazzled by the nice colours streaming from the head. With a little bit of luck maybe I will see another one some fine night (or day like my first, but that is another story).

## Cassini Proves Einstein Right - So Far

*The following news item is from Sky and Telescope's web site (http://skyandtelescope.com) and was written by Govert Schilling*

October 2, 2003 | Albert Einstein still rules. His 1915 theory of gravity, the general theory of relativity, has just passed its most stringent test by far. Extremely precise measurements of the radio link between Earth and NASA's Cassini spacecraft, bound for Saturn, match general relativity's predictions extraordinarily closely.

However, physicists suspect that even more refined experiments, planned for the near future, could turn up the first deviations — pointing the way to a new and more complete theory of the basic forces of nature and the fundamental makeup of spacetime.

The Cassini experiment was carried out in June 2002, when the spacecraft passed just 9 arcminutes from the Sun's southern rim (a third of the Sun's apparent diameter) as seen from Earth. Using NASA's Deep Space Network, Italian astrophysicist Bruno Bertotti (University of Pavia) and his colleagues sent radio carrier waves to Cassini for a couple of weeks and precisely measured the minute frequency shifts in the returned signal.

Due to the warping of spacetime by the Sun's gravitational field, the round trip time to the spacecraft was a trace longer than it would have been without this relativistic curvature. The result: a tiny extra frequency shift in Cassini's radio signals.

Like previous testers of relativity, Bertotti and his team expressed their result in terms of a quantity called gamma, which Einstein predicted is exactly equal to 1. (In classical Newtonian physics it's zero.) The team found that gamma indeed equals 1 to a precision of about one part in 40,000. This result is roughly 40 times more precise than the best previous determinations, made two decades ago. "No violations of general relativity have been detected," the group writes in the September 25th *Nature.*

According to Clifford M. Will (Washington University in St. Louis), a leading relativity expert, the improved accuracy is mainly due to the use of several different high-frequency signals, allowing the experimenters to fully correct for the frequency drifts produced by the plasma of the solar corona. Corrections for the Earth's atmosphere also had to be applied.

"It's exciting that we're now starting to probe the regime where deviations from general relativity might play a role," says Will. In their quest for a theory of everything, physicists are toying with extra dimensions, varying fundamental constants, and string-like particles. In particular, physicists assume that an unknown "scalar field" drove cosmic inflation during the first $10^{-32}$ second of the Big Bang; this field must have quickly decayed, but traces of it may show up as a tiny deviation from general relativity in the structure of spacetime today. "Most people take these issues pretty seriously," says Will, "but no one knows at what level these new ideas will show up in experimental data."

So far Einstein has always been vindicated. But future space probes, such as NASA's Gravity Probe B (due to be launched December 6th) and the European astrometry mission GAIA (slated for launch in 2010) could finally take physics to the next step beyond.

*Drawing of Cassini courtesy NASA/JPL*

## A Tiny Asteroid Whizzes By

*The following news item is from Sky and Telescope's web site (http://skyandtelescope.com) and was written by Roger W. Sinnott*

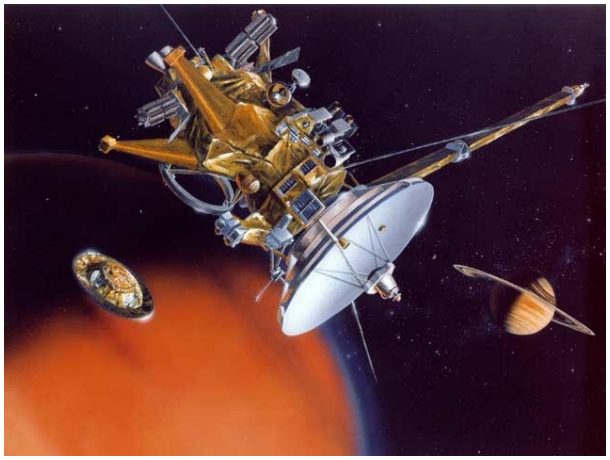
October 3, 2003 | On Saturday, September 27th, a very small asteroid plunged past Earth well inside the Moon's orbit. Unseen, it passed just 78,000 kilometers (a fifth the Moon's distance) above Earth's surface before barreling back into interplanetary space. Judging by its faintness — 18th magnitude when first picked up the next day — it can't be any larger than 3 to 6 meters across. That's "SUV or room size," notes Edward L. Bowell, principal investigator for the Lowell Observatory Near-Earth Object Search (LONEOS) at Anderson Mesa, Arizona, where the first images were taken.

LONEOS collaborates with Minor Planet Research, Inc., where Robert A. Cash used the PinPoint detection software to discover the object's faint trails on three LONEOS images. He immediately sent his measurements to the Minor Planet Center in Cambridge, Massachusetts, which alerted astrometric observers around the world.

More images of the rapidly receding, fading object were acquired on the 29th by LONEOS, and also by amateur astronomer Peter Birtwhistle in Berkshire, England, using a Meade 12-inch Schmidt-Cassegrain telescope. The Minor Planet Center announced the find on October 1st, dubbing it 2003 SQ222. Brian G. Marsden's orbital elements, refined on October 3rd, indicate that the tiny planetoid is traveling in a low-inclination orbit that takes it to well out beyond Mars's distance from the Sun, then inward as close as Venus, in a period of 1 year 10 months.

If it ever hits Earth it should break up in the upper atmosphere, causing virtually no harm — much like the slightly smaller Park Forest meteorite that dropped fragments on a Chicago suburb last March.

Asteroid 2003 SQ222 now tops the Minor Planet Center's list of the closest known approaches by asteroids outside the Earth's atmosphere. But larger objects have come even closer. Meteor Crater near Flagstaff, Arizona, was produced by the prehistoric impact of an asteroid perhaps 1,000 times more massive than 2003 SQ222. The meteoroid that exploded over Tunguska, Siberia, in 1908 may have been 30 times wider than 2003 SQ222. When hundreds of tourists saw the great Grand Teton National Park fireball of August 10, 1972, they were witnessing the atmospheric graze of an object about twice the size of 2003 SQ222 before it skipped back into space.



# September Meeting Minutes by Dave Panton

**General Meeting Minutes**
September 15, 2003

***1st Vice President, Steve Mastellotto:*** The June meeting minutes were read and a motion to accept them was made by Peter Bondy, seconded by Joe Cambala and carried.

**Reports**

***Correspondence Secretary Joady Ulrich:*** Joady was unable to attend.

***Treasurer, Ken Garber:*** Ken reported there is approximately $21,000 in our bank account and a portion is $7,000 US. The exchange was made in view of the favourable US/CAN exchange rate. Ken said we currently have 119 paid up members. Ken ordered 40 copies of the 2004 RASC observer's calendar can be purchased from him for $12.00.

***Librarian, Tom Sharron:*** Tom currently has two telescopes available for member loans.

***Newsletter Editor and Web Master, Steve Mastellotto:*** Steve mailed the full edition newsletter two weeks ago. He has also e-mailed a list of members to all. It is also on our website. Burt Huneault's article "Analema Dilemma looks great in color in our Website's newsletter archive.

***National Council Representative, John Welsh:*** John has returned to his native U.S.A. and resigned his position on council.

***Director of Public Relations, Robin Smallwood:*** Robin was not available at this point in the meeting.

***Observatory Committee, Peter Bondy:*** Pete solicited and obtained a generous $5,000 donation from Advantage Engineering to build a large (35x40 foot) and attractive deck at the observatory. Pete showed a sequence of photos taken during construction. It's integral railing and bench will seat approximately 40 people. The wheel chair ramp was neatly aligned to allow access for members to easily pull out and observe with the 10 inch Bawtenheimer telescope.

Steve added that the new 14 inch Celestron with it's Software Bisque mount is to be shipped for installation in the dome late in October. The 8 inch Celestron currently in the dome will be returned to the telescope loan pool after some minor repairs and locating it's tripod.

Pete described plans to enlarge the graveled driveway area by building another one parallel to but below the current driveway grade. Concrete observing pads will be poured between the two driveways. A small bench seat/table is planned to be part of each pad area and shrubs planted to make them all attractive.

A permanent human relief facility is to be built and serviced monthly by a local "Porta-John" firm.

The observatory access code will be changed October 1st and made available to members for the $40 annual fee.

**Business**

**New Meeting Location**, Steve Mastellotto indicated that our meeting place for the past many years will need to be changed. This will be the last meeting held at St. Stephen's Church. Our evening rental rate was quadrupled to $200 on two weeks notice, effective in October. Steve requested suggestions in the hunt for a new location.

**Nominating Committee,** Susan Sawyer-Beaulieu as past president, heads the nominating committee and is looking for nominees by the November meeting. Steve Mastellotto will run for President, leaving the Newsletter Editor position open. Tom Sharron is dropping his position as Librarian. A suggested new position is that of "Hospitality Person" whose function would be welcoming visitors and new members.

**Visitors and New Members**, Steve noted several new people, asked for names of introduction and gave an official welcome to all.

**Mars Mania Party** at Dan and Carol Taylor's home: Dan returned a number of items left in the dark following the very successful observing session.

**Coffee Break and 50-50 Draw**: The Draw was won by John Beaudoin. John generously donated his winnings back to the club.

**Main presentation:** Director of Observing Steve Pellarin reviewed two main factors involved in seeing Mars at it's very best. Local seeing conditions and timing to catch Mars high in the sky are keys. The best seeing is through the least amount of our local atmosphere. The best Mars viewing has passed but there are still details visible even as it recedes from Earth.

Steve passed around charts and showed us some of the sights to be found in September skies. Zodiacal light is sometimes visible at this time of year but is rarely seen as conditions must be nearly perfect. The observer may miss the sight if not aware of it's appearance.

Steve provided a marked chart to all and issued a challenge for members to try to find and observe some variable stars in the area of the constellation Pegasus. The idea is to report any findings at the October meeting.

**Short Presentation:** Randy Groundwater recently spent a few days on the Bruce Peninsula with his family. At night he went alone onto a remote road to take color slide photographs of Fall Constellations as they cruised overhead. In a remarkable coincidence, member Bill James came upon Randy at his tripod! The slides were all a success and clearly showed a series of easy (and some difficult) constellations.

Meeting adjourned by Randy Groundwater.