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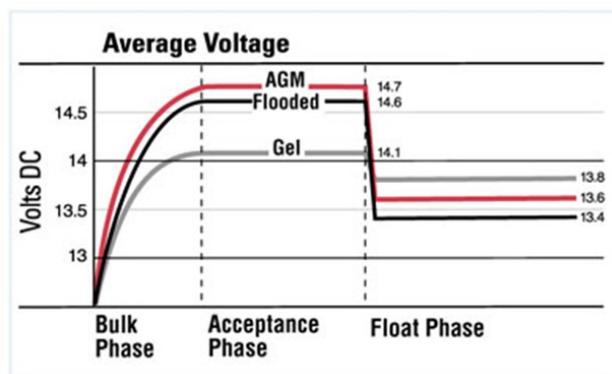
Royal Astronomical Society of Canada London Centre Newsletter September 2017

So You Want to Buy a Deep Cycle Battery Charger

By: Norman McCall

So you plan on buying a deep-cycle battery to power your astronomy equipment and now you're wondering where to find a good **deep cycle battery charger** to keep it charged. You've selected a 12V deep cycle battery AGM battery since it is designed to spend much of its life being regularly deeply discharged and recharged on a regular basis. However, not all lead-acid car battery chargers are designed to be a *deep cycle battery charger* especially since the needs of a deep cycle battery are drastically different than those of a regular car battery.

Deep-cycle batteries last the longest and charge the fastest if they are charged in distinct phases, which can be referred to as the "Ideal Charge Curve," (see figure) the charging schedule recommended by virtually all makers of deep-cycle marine batteries. In the description that follows, remember that recommending precise voltages for batteries is subject to at least two caveats: 1) Gel batteries charge at different (and lower) voltages than flooded-type and AGM batteries. 2) The voltages stated are temperature-dependent..



Bulk Phase

This is where the heavy lifting takes place. Charge at a rate up to 20 percent to 40 percent of Ah capacity to a voltage of about 14.6 volts (gel: 14.1 volts). For example, a 200 amp-hour battery would be charged at 40-80 amperes. This will bring the battery to about 75 percent of full charge, and is efficient (more

amp-hours replaced per hour of charge time) since the battery accepts more current when it is discharged. AGMs require slightly different voltages, and unless there is an AGM setting, should be charged using lead-acid settings.

Acceptance Phase

Maintain battery at 14.6 volts (Gel: 14.1 volts) while the amperage is steadily reduced. This will restore the next 25 percent of capacity at a declining rate. Your battery can be considered fully charged if it will accept current equal to 2 percent of it Ah current at 14.6 volts (a 200 amp-hour battery will only accept four amps).

Float Phase

When the battery's acceptance declines to two to four percent of its capacity, the voltage is reduced to 13.4 volts (Gel: 13.8 volts) to maintain the battery without losing electrolyte from the cells. This is a maintenance phase, not a charging phase.

Equalization

This stage is used to prevent flooded lead acid batteries from aging prematurely, and is an optional and frequently omitted phase. After the battery reaches the end of the acceptance phase, the battery continues to be charged at four percent of its Ah capacity until the voltage stops rising, usually around 15.5 to 16.2 volts. This forces the battery to its highest possible state of charge, boiling the electrolyte in a controlled manner and dissolving the lead sulfate crystals that have collected on the battery's plates.

Tips for Charging Deep-Cycle Batteries

Since all lead-acid batteries can experience sulfation—the formation of lead sulfate crystals upon discharge. Look for a charger with a Desulfation mode to help recondition your battery and keep it performing at its best.

Consistently failing to fully recharge batteries leaves them with lead sulfate that hardens on their plates—they become sulfated—and gradually lose their ability to perform. Increased resistance when charging causes falsely elevated voltage readings, essentially

(Continued on page 2)

fooling the battery charger, leading to further undercharging, in a downward spiral. Beyond a certain point, a sulfated battery cannot be returned to a healthy state, and you need a replacement.

Low and slow is best. If time is not a factor, a low amp charger (one to 12 amps) is generally the best choice for charging any lead-acid battery. While it is quicker to charge at higher amperage, it also can generate a lot of heat, which reduces the life of a battery. As a rule of thumb, when selecting a smart charge choose one with a maximum amp charge rate of no more than 25% of the batteries Ah rating. However, if the battery is to be charged while under load, a good rule is to have enough amperage to equal the sum of the DC loads plus 10 percent of the amp-hour capacity of the battery.

While no battery will last forever, the goal is to consistently maintain the charge on your battery to get the most life out of it. The worst thing you can do after a long night to observing is to leave your battery in a low or even a fully discharged state for an extended period. This is one of the fastest ways to drastically shorten the life of your lead-acid battery.

While you may have remembered to charge your battery after use, remember that batteries also self discharge over time. If you are not intending to use it on a regular basis, charge it on a monthly basis or keep it plugged into a quality charger capable of operating in a Float mode.

Finally, in selecting a charger, one should note that a low-cost charger may not be able to re-charge a battery that has dipped below 10.5 volts. For this reason, some charges offer a Recondition mode which can resurrect even a fully discharged battery.

Lets take a look at some of the battery charges designed for charging deep cycle AGM batteries.

NOCO Genius G3500 6V/12V 3.5A UltraSafe

The G3500 is a smart 3.5A charger designed to charge both 6V and 12V lead-acid and lithium-ion batteries up to 120Ah.



With its onboard microprocessor, the G3500 monitors battery activity for safer and more efficient charging as well as minimizing energy consumption. Overcharge protection in float mode allows you to keep this charger connected to your battery 24/7 indefinitely without overcharging. With built-in speed charging capability, it can charge batteries up to 2X faster than ordinary chargers and can even repair damaged batteries.

The NOCO Genius is a premium rated charger.

CTEK MUS 4.3A

The CTEK MUS 4.3 is one of the highest-rated smart chargers available. It can charge and maintain a variety of battery types and chemistries as well as solve a wide



range of battery-related problems. Its state-of-the-art microprocessor technology delivers 8 patented steps maximizes battery life and performance including desulphation

process that removes sulfate from lead plates, battery diagnosis that determines the health of your battery, a reconditioning function that can restore stratified and deeply discharged batteries, maintenance (float) charging, cold weather optimization, and AGM charging. It offers a 0.8A and 4.3A charging of 12V batteries from 1.2 to 110Ah with maintenance charging up to 160Ah.

Schumacher SEM-15662-CA 1.5 Amp Speed Charger

The Schumacher SEM-15662-CA 1.5 can charge both 6V and 12V batteries and has the capability to switch to float mode automatically to prevent overcharging. With a built-in microprocessor, the SEM-1562A-CA automatically detects battery voltage and then provides a multi-phase charging schedule based on data analyzed by the processor.



Deltran Battery Tender Plus 1.25 Amp Charger

One of the most popular and capable 12V smart battery chargers on the market, the Deltran Battery Tender Plus



1.25 Amp Battery Charger is known for its ability to charge and maintain a variety of battery types and chemistries without overcharging. It offers a complete 4-step charging program including Initialization, Bulk Charge, Absorption Mode, and Float Mode. Its

microprocessor controlled smart charger switches automatically to float mode when charging is complete to prevent overcharging. It offers ambient temperature-compensated charging.

Summary

So now go that you know the basics of charging a deep cycle AGM battery, you can now make an informed decision in selecting a charger that best protects the money you investe in a deep cycle AGM battery.

Sky Events for Late September and early October

Sept. 18 Venus, Regulus, Mars & Mercury Moon occultation
 Sept. 20 New Moon
 Sept. 22 Jupiter 4° S of Moon
 Sept. 28 Moon First Quarter
 Oct. 3 Neptune 0.7° N of Moon
 Oct. 5 Venus 0.2° N of Mars
 Oct. 5 New Moon
 Oct. 12 Last Quarter
 Oct 17 Zodiacal light in N lat. In E before morning twilight for
 next 2 weeks
 Oct. 18 Venus 2.0° S of Moon



Planets

Mercury: Emerges in the morning sky early in the month. Best morning apparition of the year for Norther viewers.
 Venus: Continues its extended view in the dawn sky.
 Mars: Emerges into the morning sky in Mid-month.
 Jupiter: Towards the end of the month it will be hard to see in the Norther hemisphere.
 Saturn: Low in the southwestern sky in the evening hours.
 Uranus: Rises in mid-evening as it approaches its October Opposition.

R.A.S.C. London Centre Library — Books of the Month, September 2017

By Robert Duff

As always, these “Books of the Month” are available for loan to members, to be returned at the following monthly meeting. The books for September 2017 are as follows:

Cataclysmic Cosmic Events and How to Observe Them, by Martin Mobberley. c2009. (Astronomers’ Observing Guides)
In Search of Time: Journeys Along a Curious Dimension, by Dan Falk. c2008.
Universe on a T-shirt: the Quest for the Theory of Everything, by Dan Falk. c2002.

For a complete listing of our RASC London Centre Library collection please click on the Library menu at the top of the RASC London Centre main Web page: <http://rasclondon.ca/>

If there is a particular book or video you wish to borrow, please feel free to contact me by telephone at (519) 439-7504 or by e-mail at rduff@sympatico.ca

Solar Eclipse, August 21st Public Event at the Cronyn Observatory

By: Robert Duff

A generally clear blue sky with a few clouds greeted some 6,000—7,000 visitors to Western University’s Cronyn Observatory and University College Hill for the Solar Eclipse, Monday, August 21st, 2017, 1:07—3:48 p.m. The event was organized by Professor Jan Cami, with students and staff from Western’s Department of Physics and Astronomy and Centre for Planetary Science and Exploration (CPSX), as well as volunteers from the RASC London Centre.

This was a Partial Solar Eclipse in London with a maximum obscuration of 74.9 percent. The beginning of the eclipse (first contact) was at 1:06:56 p.m., with maximum eclipse (74.9 percent covered) at 2:29:46 p.m., and the end of the eclipse (fourth contact) was at 3:48:32 p.m.

The big 25.4cm refractor in the Cronyn Observatory dome was fitted with a Herschel Wedge and projection screen and graduate students supervised as a long line of visitors viewed the projected image of the eclips-

ing Sun. RASC London Centre member Mark Tovey, gave tours of the historic “1940s Period Room,” a recreation of Dr. H. R. Kingston’s 1940 office and the “1967 Period Room” recreating the early control room of the Elginfield Observatory to celebrate the 150th anniversary of Confederation in 1867—Canada 150. Both “Period Rooms” were designed by Mark Tovey. A live feed from the eclipse path of totality was available next door in the Spencer Engineering Building, Room SEB 1200.

On University College Hill visitors lined up to receive information pamphlets and eclipse glasses. There were 3 tents located along the walkway up UC Hill with the welcome tent at the bottom of the hill, distributing eclipse glasses and flyers, with more eclipse glasses and bottled water in the tent at the top of the hill, and a solar projection station midway down UC Hill—featuring the *Sunspotter* provided by Fanshawe College. There were 3,000 eclipse glasses supplied by Western University and another 250 provided by RASC. These were soon gone with just one provided per family. The visitors lined up to view through amateur telescopes,

which were fitted with solar filters and set beside the walkway running down UC Hill.

RASC London Centre members present as volunteers included David Clark, Everett Clark, Mike Costa, Bob Duff, Gaetan Godin, Paul Kerans, Heather MacIsaac, Harold Tutt and Mark Tovey. RASC London member Henry Leparskas was also there taking pictures. There were 8 telescopes set up by graduate students and RASC London Centre members, along the walkway up University College Hill. These included the Cronyn Observatory's 90mm Coronado H-Alpha Solar Telescope, operated by undergraduate student Roy Zang (and others), and Meade 8-inch (20.3cm) Schmidt-Cassegrain, with a Kendrick Baader film solar filter, operated by London Centre member Bob Duff.

RASC London Centre members who brought their telescopes included Dave Clark, with his Celestron Super 8 (20.3cm) Schmidt-Cassegrain and Thousand Oaks solar filter; Mike Costa, with his iOptron Solar 60 refractor; Gaetan Godin, his home-built 20.3cm Newtonian reflector on a Sky-Watcher NEQ6 Pro mount and fitted with a Kendrick Baader film solar filter; Paul Kerans and Charlene Kerans, with their 80mm Sky-Watcher refractor with solar filter and Vixen equatorial mount; Heather MacIsaac, with her Celestron NexStar 90SLT 90mm Maksutov-Cassegrain with Kendrick Baader film filter; and Harold Tutt, with his 80mm Stellarvue Nighthawk refractor with solar filter. Gaetan Godin also took pictures of the eclipse with his Canon camera installed at prime focus on his 20.3cm Newtonian reflector telescope—with visitors viewing the eclipse through the camera!

RASC Ottawa Centre member Tony Peterson came down to London for a better view of the eclipse with his Celestron 15cm Schmidt-Cassegrain and solar filter. RASC London member Ryan Fraser came to take pictures of the eclipse and soon found a line-up of some 80 people behind his Canon EOS 7D Mark II DSLR camera—equipped with a 100—400mm zoom lens and solar filter—set-up the bottom of UC Hill near Talbot College. Ryan put his camera on live view and provided commentary for some 500—750 people until 3:20 p.m.

Professor Pauline Barmby was media contact. The overall organizer / coordinator of this event was graduate student Robin Arnason. CPSX Outreach Coordinator and doctoral graduate Parshati Patel took care of social media and designed the eclipse T-shirts for volunteers as well as the cardboard “Western” and “CPSX” pinhole letter projections. Roaming University College Hill was Everett Clark making sure everything was running well and assisting where needed.

Professor Phil McCausland (Western University Department of Earth Sciences and RASC London member) set up his solar filtered 11 X 80mm binoculars on a camera tripod near the bus stop in front of the Allyn & Betty Taylor Library. Some 300 people came by and Phil handed out 150 eclipse glasses. Phil reported nice views of the eclipse through the binoculars with the Moon sliding across a prominent group of Earth-sized sunspots, making an excellent local reference for the minute-by-minute orbital motion

of the Moon across the Sun's disk. Many people noticed significant dimming within 20 minutes of the eclipse, with the heat of the day noticeably receding during maximum—a welcome relief from an otherwise hot 2.5 hours. One visitor made a pinhole projector with cracker-box cardboard and aluminum foil. Sunlight through tree leaves produced crescent shapes on the ground and people found that they could also project tiny crescents of the eclipse by making pinholes with their hands. The eclipse glasses Phil gave out were ones obtained from the RASC for the Transit of Venus, June 5, 2012, along with a pack bought at some time from Kendrick Astro Instruments.

The solar eclipse was over at 3:48 p.m. and everybody began packing up the telescopes and tents after a very successful and well organized event at the Cronyn Observatory and University College Hill, under a mostly clear sky.

Eclipse 2017 and a Budding New Astronomer 2032!

By: Gaetan Godin

After such a wonderful outreach event at the Eclipse of 2017, it would be interesting to find out what effect we had on the 7,000 people or so that had a view through our telescopes. I spoke to a lot of youngsters and saw the awe in their eyes. Will that translate to an increased interest in astronomy and in science in general? Stay tuned in 2032 or so...

One budding astronomer / scientist may be my grandson, Kody Godin-Morton, who was there and was very helpful in the setup and running of the telescope. During the event, he manned the timer and the remote for the camera allowing the collection of enough photos to produce



a time lapse of the eclipse. He is in grade 8 this year and has always shown an interest in science. He has an extensive collection of rocks (geology) and has readily accepted my collection of SkyNews magazines. I told him I always read those magazines cover-to-cover... I don't just look at the pretty pictures.

That afternoon was an exciting event for all of us who participated. It was wonderful to see all those people genuinely interested in the eclipse, calmly and patiently waiting their turn in line. All of them seemed happy at the experience.

Bring on the next one, 2024!

Cronyn Observatory Public Nights & Special Events, July 15th—September 2nd, 2017

By Robert Duff

Cronyn Observatory Public Night, Saturday, July 15th, 2017

Partly cloudy, later clearing skies greeted some 123 visitors to Western University's Cronyn Observatory Summer Public Night, Saturday, July 15th, 2017, 8:30 p.m. Graduate student Josh Hedgepeth made 3 presentations of his digital slide presentation "*Life in the Universe*" and fielded questions. Graduate student Amanda DeSouza was "crowd manager" and counted 53 and 54 visitors for the first and second slide presentations, respectively; and there were 15 for the third slide presentation, for a total of 122 visitors. There was one late arrival in the dome bringing the total to 123 visitors.

RASC London Centre was represented by Steve Imrie, Heather MacIsaac, Bob Duff, Dale Armstrong, Mark Tovey, Peter Jedicke and Norm McCall. Graduate student Viraja Khatu was telescope operator and directed the big 25.4cm refractor in the dome towards Jupiter. Visitors enjoyed excellent views of Jupiter, and later Saturn, through the 25.4cm refractor, using the 28mm Meade Super Wide Angle eyepiece (157X).

There were 3 amateur telescopes set up on the observation deck outside the dome. Dale showed visitors Jupiter and Saturn through the observatory's Meade 20.3cm Schmidt-Cassegrain (15mm Sky-Watcher UltraWide eyepiece, 133X). The Great Red Spot was visible on Jupiter. Dale later showed visitors the globular cluster M13, the Ring Nebula (M57) and the open star cluster M11 through the 20.3cm Schmidt-Cassegrain (26mm Plossl eyepiece, 77X).

Steve Imrie showed visitors Jupiter through the London Centre's 25.4cm Dobsonian, using the 17mm Nagler eyepiece (66X) and then the 12.5mm Ortho eyepiece (89X). Steve also showed them Saturn through the 25.4cm Dobsonian, using the 17mm Nagler (66X) and 12.5mm Ortho (89X) eyepieces. Heather MacIsaac showed visitors good views of Jupiter and Saturn through her Go-To computerized Celestron NexStar 90SLT 90mm Maksutov-Cassegrain (17mm Plossl eyepiece, 73.5X), and later the double-star Mizar and nearby Alcor.

Mark Tovey gave visitors tours of the downstairs "*1940s Period Room*," an historic recreation (designed by Mark) of Dr. H. R. Kingston's 1940 office with his brass refractor and the *Sotellunium*—a mechanical eclipse demonstration model built by W. G. Colgrove—on display. Mark also showed them his work being done on the "*1967 Period Room*," recreating the early control room of the Elginfield Observatory to celebrate the 150th anniversary of Confederation—Canada 150.

Bob gave out about 10 of the observatory's solar eclipse glasses, folded into RASC London Centre brochures, to interested visitors, in anticipation of the August 21st solar eclipse, viewed as a partial eclipse from London, Ontario. The observatory was closed down around 11:37 p.m. after very enjoyable evening of astronomy under clear skies.

SHAD: Evening Observing at the Cronyn Observatory, July 18th, 2017

Mostly clear skies with a few clouds greeted 77 visitors (including 67 students and 10 staff members) from

the SHAD program, for evening observing at Western University's Cronyn Observatory, Tuesday, July 18th, 2017, 8:30 p.m. They were welcomed by Professor Jan Cami and graduate students Viraja Khatu and Amanda DeSouza. The SHAD program is for highly gifted high school students from across Canada.

RASC London Centre was represented by Everett Clark, Paul Kerans and Bob Duff. Viraja was telescope operator and, together with Jan, directed the big 25.4cm refractor (17mm Nagler eyepiece, 258X) in the dome towards Jupiter in the bright early evening sky, using hour angle and declination coordinates from the *Starry Night Pro* software on the computer.

There were 3 amateur telescopes set up for the evening, including the observatory's Meade 20.3cm Schmidt-Cassegrain and the London Centre's 25.4cm Dobsonian set up on the observation deck outside the dome; and Paul's 22-inch (56cm) Obsession Truss-Tube Dobsonian, set up on the brick sidewalk on the south side of the observatory. Bob showed visitors Jupiter through the 20.3cm Schmidt-Cassegrain, using the 15mm Sky-Watcher UltraWide eyepiece (133X) and then the 12.5mm Ortho eyepiece (160X). Everett showed them Jupiter, Saturn and the star Vega through the 25.4cm Dobsonian, using the 18mm Radian eyepiece (62X). Paul showed visitors Jupiter, Saturn and the stars Mizar and Alcor through his 22-inch (56cm) Obsession Truss-Tube Dobsonian, using his 21mm Ethos eyepiece (126X).

The students asked many good questions and everybody was gone by around 10:20 p.m. after a very interesting and enjoyable evening of astronomy.

Summer Academic Writing Clinic, Evening Observing at the Cronyn Observatory, July 19th, 2017

Clear skies greeted 62 visitors (students and staff members) from the Summer Academic Writing Clinic for incoming first-year students, for evening observing at Western University's Cronyn Observatory, Wednesday, July 19th, 2017, 8:30—11:00 p.m. Professor Robert Cockcroft made the digital slide presentation "*Celestial Bear: The Six Nations' Night Sky*." This was followed by the visitors dividing into groups for tours of the downstairs "*Black Room*" and "*Period Rooms*" and observing in the dome.

Downstairs in the "*Black Room*" Professor Jan Cami gave 2 demonstrations of the "*Transit Demo*" model—showing how the transit detection method worked for finding extra-solar planets, as well as 2 demonstrations of the "*Spectroscopy Demo*" with the visitors putting on *diffraction grating* glasses to view the spectra of 4 gas discharge lamps set out on the table, including: hydrogen, helium, neon and mercury. Jan also gave 2 tours of the historic "*1940s Period Room*," a recreation of Dr. H. R. Kingston's 1940 office and one tour of the "*1967 Period Room*" recreating the early control room of the Elginfield Observatory to celebrate the 150th anniversary of Confederation—Canada 150. Both "*Period Rooms*" were designed by RASC London Centre member Mark Tovey.

RASC London Centre was represented by Everett Clark, Heather MacIsaac, Bob Duff and Paul Kerans. Graduate student Amanda DeSouza was telescope operator and, with some help from Bob, directed the big 25.4cm refractor (17mm Nagler eyepiece, 258X) in the dome towards Jupiter in the bright early evening sky, using hour angle and declination coordinates from the *Starry Night Pro* software on the computer. The students enjoyed good views of Jupiter through the 25.4cm refractor with the darkening evening sky.

There were 3 amateur telescopes set up on the observation deck outside the dome. Everett operated the London Centre's 25.4cm Dobsonian showing visitors Jupiter and Saturn, using the 18mm Radian eyepiece (62X). Paul showed visitors Jupiter and Saturn and the galaxy M81 through his Celestron 9.25-inch (23.5cm) Schmidt-Cassegrain (Vixen SXD2 mount), using his 21mm Ethos (112X), 10mm Takahashi (235X) and 15mm LE Sky-Watcher (156X) eyepieces. Heather showed the visitors Jupiter and the yellow and blue double-star Albireo through her Go-To computerized Celestron NexStar 90SLT 90mm Maksutov-Cassegrain, using a 17mm Plossl eyepiece (73.5X).

The students asked many good questions and were gone by around 11:00 p.m. after a very interesting and enjoyable evening of astronomy.

Cronyn Observatory Public Night, Saturday, July 22nd, 2017

Cloudy skies with occasional light rain greeted some 23 visitors to Western University's Cronyn Observatory Summer Public Night, Saturday, July 22nd, 2017, 8:30 p.m. Geophysics and Planetary Science graduate student Alyssa Werynski presented her digital slide presentation "*A Tour of the Solar System*" and fielded questions. Undergraduate student Sunny Xiyang was "crowd manager," welcoming and counting 23 visitors by the end of the evening.

RASC London Centre was represented by Everett Clark, Heather MacIsaac, Bob Duff, Peter Jedicke and Mark Tovey. The dome remained closed due to rain. Heather set up her Go-To computerized Celestron NexStar 90SLT 90mm Maksutov-Cassegrain (17mm Plossl eyepiece, 73.5X) inside the dome so as to view the communications tower in south London through the door to the observation deck. Everett and Heather helped a visitor set up and use his newly acquired Go-To computerized Celestron NexStar 4SE 102mm Maksutov-Cassegrain (25mm Plossl eyepiece, 53X), which was directed so as to view through the door towards the Engineering building.

When the visitors arrived upstairs in the dome, Bob gave a talk on the history of the observatory and technical aspects of the big 25.4cm refractor. He explained the Cassegrain reflector telescope and Schmidt camera piggy-backed on the main telescope as well as the 2 Maksutov telescopes set up inside the dome. Bob also explained the 2 clocks on the east wall and the difference between Standard and Sidereal Time. Everett, Heather and Bob talked to the

visitors, who were invited to view through the Maksutov telescopes.

Downstairs in the "*Black Room*" graduate student Robin Arnason gave demonstrations of the "*Transit Demo*" model—showing how the transit detection method worked for finding extra-solar planets, as well as demonstrations of the "*Spectroscopy Demo*" with the visitors putting on *diffraction grating* glasses to view the spectra of 4 gas discharge lamps set out on the table, including: hydrogen, helium, neon and mercury. RASC London Centre member Peter Jedicke and Mark Tovey gave tours of the historic "*1940s Period Room*," a recreation of Dr. H. R. Kingston's 1940 office and the "*1967 Period Room*" recreating the early control room of the Elginfield Observatory to celebrate the 150th anniversary of Confederation—Canada 150. Both "*Period Rooms*" were designed by Mark Tovey.

The observatory was closed down by 10:50 p.m., after an interesting and enjoyable evening for the visitors, beginning with the slide presentation "*A Tour of the Solar System*," followed by tours of the telescopes in the dome; the "*Black Room*" with the "*Transit Demo*" and "*Spectroscopy Demo*"; and the historical "*Period Rooms*."

Indigenous Services Mini-University, Evening Observing at the Cronyn Observatory, July 24th, 2017

Cloudy skies and hazy damp weather greeted 25 visitors from the Indigenous Services Mini-University for evening observing at Western University's Cronyn Observatory, Monday, July 24th, 2017, 9:00 p.m. Professor Robert Cockcroft presented the digital slide presentation "*Water in the Universe*" and fielded questions. Graduate student Amanda DeSouza was telescope operator for the evening and took everybody upstairs into the dome after the slide presentation.

RASC London Centre was represented by Everett Clark and Bob Duff. Cloudy damp weather ruled out opening the dome. Everett set up the observatory's Meade 20.3cm Schmidt-Cassegrain inside the dome so as to view out the door to the observation deck. He installed the 20mm Plossl eyepiece (100X) in the 20.3cm Schmidt-Cassegrain and centered the red lights on the communications tower in south London in the field of view. When everybody arrived upstairs in the dome, Amanda gave a talk about the 25.4cm refractor and explained the difference between a refractor and reflector telescope, calling their attention to the Schmidt-Cassegrain as an example of a reflector telescope. The visitors asked questions and 2 people looked at the communications tower through the 20.3cm Schmidt-Cassegrain.

Everybody then went downstairs into the "*Black Room*," where Professor Robert Cockcroft showed them the "*Transit Demo*" model—demonstrating the transit detection method for finding extra-solar planets—and the "*Spectroscopy Demo*" inviting the visitors to put on *diffraction grating* glasses and view the spectra of 4 gas discharge lamps set up on the table, including: hydrogen, helium, neon and mercury.

Everybody was gone by a little after 10:00 p.m., after a very enjoyable evening learning about astronomy despite the cloudy weather.

Boys & Girls Club of London, Solar Observing at the Cronyn Observatory, July 28th, 2017

Partly cloudy skies with hazy clouds greeted 32 visitors (28 children and 4 staff members) from the Boys & Girls Club of London for solar observing at Western University's Cronyn Observatory, Friday, July 28th, 2017, 11:00 a.m. They were welcomed by graduate student Dilini Subasinghe who brought them downstairs into the "Black Room," where she showed them the "Transit Demo" model—demonstrating the transit detection method for finding extra-solar planets—and the "Spectroscopy Demo," inviting the visitors to put on *diffraction grating* glasses and view the spectra of 4 gas discharge lamps set up on the table, including: hydrogen, helium, neon and mercury.

RASC London Centre was represented by Heather MacIsaac and Bob Duff. When everybody arrived upstairs in the dome, Bob gave a talk on the observatory and technical aspects of the big 25.4cm refractor. He also explained the Cassegrain reflector telescope and Schmidt camera piggy-backed on the main telescope. The children were then divided into 3 groups to view through the 3 telescopes set up on the observation deck.

Dilini helped the children view the Sun through the observatory's 90mm Coronado H-Alpha Solar Telescope (CEMAX 12mm eyepiece, 44X), set up on the Sky-Watcher EQ mount, while Heather showed them the Sun through her Celestron NexStar 90SLT 90mm Maksutov-Cassegrain (32mm Plossl eyepiece, 39X), fitted with a Kendrick Baader film solar filter. Bob showed them the Sun through the observatory's Meade 8-inch (20.3cm) Schmidt-Cassegrain (20mm Plossl eyepiece, 100X) fitted with a Kendrick Baader film solar filter. The Sun was somewhat obscured by hazy clouds and no sunspots were visible.

Heather gave one of the Boys & Girls Club of London staff members 28 of the observatory's solar eclipse glasses for her to distribute to the group. Everybody was gone by 11:55 a.m. after an interesting and enjoyable observatory tour and opportunity to view the Sun through solar filtered telescopes.

Cronyn Observatory Public Night, Saturday, July 29th, 2017

Clear skies greeted some 104 or more visitors to Western University's Cronyn Observatory Summer Public Night, Saturday, July 29th, 2017, 8:30 p.m. Professor Robert Cockcroft made 2 presentations of the digital slide presentation "New Horizons: A New Look at Pluto" and fielded questions. RASC London member Bob Duff counted 57 visitors in the lecture room at 8:30 p.m., for the first slide presentation. More people arrived with some going into the lecture room and others going upstairs into the dome. Professor Robert Cockcroft counted 15 visitors for his second slide lecture. There were a total of 104 visitors

counted midway through the evening, as people crowded into the dome and on to the observation deck.

Professor Robert Cockcroft immediately followed his first slide presentation by inviting visitors downstairs into the "Black Room," where he showed them the "Transit Demo" model—demonstrating the transit detection method for finding extra-solar planets—and the "Spectroscopy Demo," inviting the visitors to put on *diffraction grating* glasses and view the spectra of 4 gas discharge lamps set up on the table, including: hydrogen, helium, neon and mercury.

Bob Duff gave a brief tour of the "1940s Period Room," and an informal demonstration of the "Spectroscopy Demo" and "Transit Demo" to a small group of visitors, prior to the arrival RASC London members Mark Tovey and Edith Tovey and Professor Robert Cockcroft. Mark gave tours of the historic "1940s Period Room," a recreation of Dr. H. R. Kingston's 1940 office and the "1967 Period Room" recreating the early control room of the Elginfield Observatory to celebrate the 150th anniversary of Confederation—Canada 150. Both "Period Rooms" were designed by Mark Tovey.

Graduate student Collin Knight was telescope operator in the dome and showed visitors the Moon and Jupiter through the big 25.4cm refractor, using the 17mm Nagler eyepiece (258X). He later swapped in the Meade 28mm Super Wide Angle eyepiece (157X) so that RASC London member Rob McNeil could use the 17mm Nagler with the London Centre's 25.4cm Dobsonian.

RASC London Centre was represented by Bob Duff, Mark Tovey, Edith Tovey, Heather MacIsaac, Steve Imrie, Dan Tremblay, Paul Kerans, Everett Clark, Dave McCarter, Rob McNeil and Mike Roffey. London Centre member Richard Gibbens was also there and listened to the slide lecture. London Centre member Mike Hanes and his son arrived prior to 8:30 p.m. to deliver the London Centre's newly repaired home-built 30.5cm Dobsonian, but did not stay for the public night.

There were in all 7 amateur telescopes set up for the evening, including 5 telescopes on the observation deck and 2 just outside the observatory! On the observation deck, Steve Imrie operated the 30.5cm Dobsonian (18mm Radian eyepiece, 83X) showing people the one-day-prior-to first quarter Moon, Jupiter, Saturn and the double-star Mizar and nearby Alcor. Heather MacIsaac showed visitors Jupiter (17mm Plossl eyepiece, 73.5X) and then the Moon and the yellow and blue double-star Albireo through her Celestron NexStar 90SLT 90mm Maksutov-Cassegrain. Dan Tremblay showed Saturn, Jupiter and the Moon through his 80mm Stellarvue refractor (9mm eyepiece, 80X) on an equatorial mount. Paul Kerans showed visitors the Moon, Jupiter, Saturn, the globular cluster M13 and the Ring Nebula (M57) through his Celestron 9.25-inch (23.5cm) Schmidt-Cassegrain (21mm Ethos eyepiece, 112X) on a Vixen equatorial mount. A visitor set up his Sky-Watcher 8-inch (20cm) Newtonian reflector with an EQ6 equatorial mount on the west end of the observation deck.

Rob McNeil took the London Centre's 25.4cm Dobsonian (17mm Nagler eyepiece) outside the observatory and set it up beside Alumni Hall, where he showed people Saturn. On the south side of the observatory, Mike Roffey set up his 15cm Celestron NexStar 6SE Schmidt-Cassegrain on an Evolution mount and showed people Jupiter, the Moon and Saturn, using a Lunt 7.2—21.5mm zoom eyepiece.

Everett and Bob gave out 2 of the observatory's solar eclipse glasses. Everybody was gone by around 11:15 p.m. with the observatory being shut-down after a very informative and enjoyable evening of astronomy.

Summer Academic Writing Clinic, Evening Observing at the Cronyn Observatory, August 2nd, 2017

A cloudy, later partly clearing hazy sky greeted 38 visitors (students and staff members) from the Summer Academic Writing Clinic for incoming first-year students, for evening observing at Western University's Cronyn Observatory, Wednesday, August 2nd, 2017, 8:30 p.m. Professor Robert Cockcroft made the digital slide presentation "*Celestial Bear: The Six Nations' Night Sky*" and fielded questions. This was followed by the visitors dividing into groups for tours of the downstairs "*Black Room*" and observing in the dome.

Professor Robert Cockcroft brought one group of 20 visitors downstairs into the "*Black Room*," where he showed them the "*Transit Demo*" model—demonstrating the transit detection method for finding extra-solar planets—and the "*Spectroscopy Demo*," inviting the visitors to put on *diffraction grating* glasses and view the spectra of 4 gas discharge lamps set up on the table, including: hydrogen, helium, neon and mercury. The other group of 18 visitors went upstairs into the dome.

Graduate student Amanda DeSouza was telescope operator for the big 25.4cm refractor in the dome, which at first remained closed due to the uncertain weather. RASC London Centre was represented by Heather MacIsaac and Bob Duff. Amanda, Heather and Bob set up 4 amateur telescopes inside the dome. Graduate student Richard Bloch and Bob set up the London Centre's home-built 30.5cm Dobsonian (18mm Radian eyepiece, 83X) inside the dome for demonstration. Heather and Amanda set up the London Centre's 25.4cm Dobsonian (17mm Nagler eyepiece, 66X), just inside the door to the observation deck, as well as the observatory's Meade 20.3cm Schmidt-Cassegrain (20mm Plossl eyepiece, 100X) so as to view the communications tower in south London. Heather also set up her Celestron NexStar 90SLT 90mm Maksutov-Cassegrain (32mm Plossl eyepiece, 39X) so as to view the communications tower.

Bob gave 2 talks, one to each of the 2 groups of visitors as they arrived in the dome, on the history of the observatory and technical aspects of the big 25.4cm refractor. He called their attention to the Cassegrain reflector telescope and Schmidt camera, piggy-backed on the main telescope; as well as the Dobsonian reflector, Schmidt-Cassegrain and Maksutov telescopes set up inside the dome, and explained the difference between a refractor and

reflector telescope. Bob also explained the 2 clocks on the east wall and the difference between Standard and Sidereal Time. The students were invited to view the communications tower through the Schmidt-Cassegrain and Heather's Maksutov telescope.

The sky began to clear and the 3-day-past-first-quarter gibbous Moon became visible through the hazy clouds, as Bob finished his talk to the first group of visitors. Amanda and Richard directed the 25.4cm refractor towards the Moon and the 25.4cm Dobsonian (17mm Nagler eyepiece, 66X) was taken outside on to the observation deck. Amanda and Bob supervised as the visitors viewed the Moon and Saturn through the 25.4cm Dobsonian (17mm Nagler eyepiece, 66X). Bob later swapped in the 6mm Ortho eyepiece (186X) for a better view of Saturn through the 25.4cm Dobsonian. Heather supervised as the visitors viewed the Moon through the 25.4cm refractor (Meade 28mm Super Wide Angle eyepiece, 157X).

There was just 4 visitors for the second demonstration in the "*Black Room*," although both groups in the dome were well attended. The visitors were gone by 10:00 p.m. after expressing their appreciation for an interesting enjoyable evening of astronomy.

Cronyn Observatory Public Night, Saturday, August 5th, 2017

Clear skies greeted some 100 visitors to Western University's Cronyn Observatory Summer Public Night, Saturday, August 5th, 2017, 8:30 p.m. Professor Sarah Gallagher made 2 presentations of her digital slide presentation "*Tight Families: Compact Galaxy Groups*" and fielded questions. Graduate student Pranav Manangath was the "crowd manager" for the evening.

Downstairs in the "*Black Room*" graduate student Taranpreet Kaur gave demonstrations of the "*Transit Demo*" model—showing how the transit detection method worked for finding extra-solar planets, as well as demonstrations of the "*Spectroscopy Demo*" with the visitors putting on *diffraction grating* glasses to view the spectra of 4 gas discharge lamps set out on the table, including: hydrogen, helium, neon and mercury. RASC London Centre members Peter Jedicke, and later Mark Tovey, gave tours of the historic "*1940s Period Room*," a recreation of Dr. H. R. Kingston's 1940 office and the "*1967 Period Room*" recreating the early control room of the Elginfield Observatory to celebrate the 150th anniversary of Confederation—Canada 150. Both "*Period Rooms*" were designed by Mark Tovey.

RASC London Centre was represented by Everett Clark, Heather MacIsaac, Steve Imrie, Peter Jedicke, Steve Gauthier, Norm McCall, Mark Tovey and a new youth member, Jacob Renders. Heather MacIsaac set up her Celestron NexStar 90SLT 90mm Maksutov-Cassegrain and then made ready the big 25.4cm refractor in the dome. Heather operated the 25.4cm refractor for the evening, showing visitors the 6-day-past-first quarter nearly full Moon, Jupiter and Saturn, using the Meade 28mm Super Wide Angle eyepiece (157X). Norm McCall operated

Heather's 90mm Maksutov (32mm Plossl eyepiece, 39X), showing visitors the Moon.

Steve Gauthier operated the observatory's Meade 20.3cm Schmidt-Cassegrain, using his 9mm Nagler eyepiece (222X) to show visitors Saturn. Steve Imrie operated the London Centre's home-built 30.5cm Dobsonian (17mm Nagler eyepiece, 88X), showing visitors Jupiter, Saturn and the Moon—using Norm McCall's donated 2-inch Zhumell Variable Polarizing Filter to reduce the Moon's brightness to comfortable levels. New youth member Jacob Renders and his father set up the London Centre's 25.4cm Dobsonian (18mm Radian eyepiece, 62X) on the sidewalk on the east side of the observatory to show people the Moon.

Everett Clark assisted wherever he was needed. The observatory was closed down around 10:50 p.m. after an excellent evening of astronomy under clear skies.

Ivey Summer Leadership Program, Special Event at the Cronyn Observatory, August 7th, 2017

A mostly clear sky greeted some 47 (40 students and 7 staff members) from the Ivey Summer Leadership Program, for a special event at Western University's Cronyn Observatory, Monday August 7th, 2017, 8:30 p.m. The Ivey Summer Leadership Program is put on by the Ivey Business School at Western University and is an enrichment program for high school students going into grades 9—12. Graduate student Viraja Khatu presented the digital slide presentation "*Mars*" and fielded questions. Viraja then introduced the activity "*Telescope Kits*" showing the students how to assemble a simple telescope from a small reusable kit. Everybody then divided into 10 groups of 4 students, with each group assembling and testing a small telescope.

RASC London Centre was represented by Everett Clark, Heather MacIsaac, Peter Jedicke, Bob Duff and new youth member Jacob Renders and his father. When everybody arrived upstairs in the dome, Peter gave a talk on the history of the Cronyn Observatory and some of the technical aspects of the big 25.4cm refractor, as well as the Schmidt camera piggy-backed on the main telescope. Everett and Peter supervised as the students viewed Jupiter, Saturn and the full Moon through the 25.4cm refractor (Meade 28mm Super Wide Angle eyepiece, 157X).

There were 2 amateur telescopes set up on the observation deck outside the dome. Heather showed the students Jupiter and Saturn through her Celestron NexStar 90SLT 90mm Maksutov-Cassegrain (17mm Plossl eyepiece, 73.5X) and the Moon (32mm Plossl eyepiece, 39X)—using a Celestron neutral density filter to reduce the Moon's brightness to comfortable levels. Jacob operated the London Centre's home-built 30.5cm Dobsonian (17mm Nagler eyepiece, 88X), showing the students Jupiter, Saturn, the star Arcturus, and the yellow and blue double-star Albireo. Peter called everybody's attention to an International Space Station (ISS) pass (9:45—9:50 p.m.) reaching a maximum altitude of 44 degrees above the north northeast horizon at 9:48 p.m. (See: *ISS – Visible Passes* for London,

Ontario, on *Heavens Above*: <http://www.heavens-above.com/>)

Downstairs in the "*Black Room*" Viraja gave 2 demonstrations of the "*Transit Demo*" model—showing how the transit detection method worked for finding extra-solar planets. Bob Duff gave 2 demonstrations of the "*Spectroscopy Demo*" with the visitors putting on *diffraction grating* glasses to view the spectra of 4 gas discharge lamps set out on the table, including: hydrogen, helium, neon and mercury. The light of the artificial star went out during the "*Transit Demo*" with the first group of 20 students and Viraja simply explained the "*Transit Demo*" and did the "*Spectroscopy Demo*," for the second group of students.

The visitors were gone by 10:30 p.m., after expressing their appreciation for a very interesting and enjoyable evening of astronomy.

Summer Academic Writing Clinic, Evening Observing at the Cronyn Observatory, August 9th, 2017

A partly cloudy sky greeted 62 visitors from the Summer Academic Writing Clinic for incoming first-year students, for evening observing at Western University's Cronyn Observatory, Wednesday, August 9th, 2017, 8:30 p.m. Professor Robert Cockcroft made the digital slide presentation "*Celestial Bear: The Six Nations' Night Sky*" and fielded questions. This was followed by the visitors dividing into 2 groups for tours of the downstairs "*Black Room*" and "*Period Rooms*," and for observing in the dome.

Professor Robert Cockcroft brought one group of visitors downstairs into the "*Black Room*," where he showed them the "*Transit Demo*" model—demonstrating the transit detection method for finding extra-solar planets—and the "*Spectroscopy Demo*," inviting the visitors to put on *diffraction grating* glasses and view the spectra of 4 gas discharge lamps set up on the table, including: hydrogen, helium, neon and mercury. The other group went upstairs into the dome.

RASC London Centre member Mark Tovey, gave tours of the historic "*1940s Period Room*," a recreation of Dr. H. R. Kingston's 1940 office and the "*1967 Period Room*" recreating the early control room of the Elginfield Observatory to celebrate the 150th anniversary of Confederation—Canada 150. Both "*Period Rooms*" were designed by Mark Tovey.

RASC London Centre was represented by Everett Clark, Mark Tovey, Bob Duff, Heather MacIsaac and Peter Jedicke. When the first group of visitors arrived upstairs in the dome, Peter gave them a talk on the big 25.4cm refractor. Graduate student Viraja Khatu was telescope operator and showed the visitors Jupiter through the 25.4cm refractor (17mm Nagler eyepiece, 258X). Everett later directed the 25.4cm refractor to show the visitors Saturn (258X).

Everett set up the observatory's Meade 20.3cm Schmidt-Cassegrain on the observation deck and Bob supervised as the visitors viewed Jupiter and Saturn, using the

20mm Plossl eyepiece (100X). Bob later swapped in the 12.5mm Ortho eyepiece (160X) for a better view of Saturn through the 20.3cm Schmidt-Cassegrain. Heather showed visitors Saturn through her Celestron NexStar 90SLT 90mm Maksutov-Cassegrain, using a 17mm Plossl eyepiece (73.5X) and later an observatory's 12.5mm Ortho eyepiece (100X).

Bob mentioned and Peter called everybody's attention to a bright (magnitude -3.9) International Space Station (ISS) pass (9:37—9:42 p.m.) reaching a maximum altitude of 89 degrees above the south southwest horizon at 9:40 p.m. (See: *ISS – Visible Passes* for London, Ontario, on *Heavens Above*: <http://www.heavens-above.com/>)

The visitors were gone from the dome by 10:10 p.m., and from the downstairs “Black Room” and “Period Rooms” by 10:20 p.m., after expressing their thanks for a very interesting and enjoyable evening of astronomy.

Cronyn Observatory Public Night, Saturday, August 12th, 2017

Clear skies greeted some 206 visitors to Western University's Cronyn Observatory Summer Public Night, Saturday, August 12th, 2017, 8:30 p.m. Professor Jan Cami made 2 presentations of his digital slide presentation “*The Solar Eclipse of August 21, 2017*” and fielded questions. Graduate student Sivayini Kandeepan was “crowd manager” and counted 130 visitors by 9:20 p.m. and 200 by 10:39 p.m. There were 6 more visitors, from RASC London Centre member Paul Kerans' telescope outside, who accompanied London Centre member Bob Duff into the dome at 11:08 p.m. for a total count of 206 visitors.

RASC London Centre was represented by Everett Clark, Heather MacIsaac, Dale Armstrong, Mark Tovey, Edith Tovey, Bob Duff, Steve Imrie, Paul Kerans, Peter Jedicke and Steve Gauthier. Graduate student Amanda DeSouza was telescope operator and showed the visitors Saturn through the 25.4cm refractor (17mm Nagler eyepiece, 258X). Amanda later directed the 25.4cm refractor to show the visitors the double star Mizar and nearby star Alcor (258X).

Downstairs in the “Black Room” Peter Jedicke gave 5 demonstrations—“*Eclipse Demos*”—with his “*Eclipse Observing Kit*” on how to observe the solar eclipse safely by putting 3 layers of Mylar film over the objective lens of his 50mm Galileoscope mounted on a camera tripod. Peter also showed the visitors his pinhole projection shoebox and how to use a mirror to project the Sun's image on a wall. Mark Tovey, gave tours of the historic “*1940s Period Room*,” a recreation of Dr. H. R. Kingston's 1940 office—featuring the “*Sotellunium*” mechanical eclipse demonstration model made by Rev. W. G. Colgrove, and Dr. H. R. Kingston's brass refractor telescope—and the “*1967 Period Room*,” recreating the early control room of the Elginfield Observatory to celebrate the 150th anniversary of Confederation—Canada 150. Both “*Period Rooms*” were designed by Mark Tovey.

There were 4 amateur telescopes set up for the evening, including 3 telescopes on the observation deck and

one just outside the observatory. On the observation deck, Steve Imrie operated the London Centre's home-built 30.5cm Dobsonian, showing visitors Jupiter and Saturn, using the 18mm Radian eyepiece (83X), later swapping in Steve Gauthier's 9mm Nagler (166X) for a better view of Saturn. Steve Imrie also showed visitors the Ring Nebula (M57) and globular cluster M13 through the 30.5cm Dobsonian (83X).

Heather MacIsaac showed visitors Jupiter and Saturn through her Celestron NexStar 90SLT 90mm Maksutov-Cassegrain (17mm Plossl eyepiece, 73.5X). Heather later used Steve Gauthier's 7mm Nagler (178.6X) and 9mm Nagler (139X) eyepieces to show better views of Saturn through her 90mm Maksutov.

Dale Armstrong operated the observatory's Meade 20.3cm Schmidt-Cassegrain showing visitors Saturn, using the Sky-Watcher 15mm UltraWide eyepiece together with the CEMAX 2X Barlow lens (266X). (The CEMAX 2X Barlow lens from the observatory's 90mm Coronado H-Alpha Solar Telescope.) Dale later showed visitors the yellow and blue double-star Albireo through the 20.3cm Schmidt-Cassegrain, using the Sky-Watcher 15mm UltraWide eyepiece (133X).

On the south side of the observatory, Paul Kerans set up his Celestron 9.25-inch (23.5cm) Schmidt-Cassegrain on a Vixen equatorial mount and showed visitors Arcturus, Saturn and Jupiter, using a 21mm eyepiece (112X); and globular cluster M13, the Ring Nebula (M57), NGC 457 (Owl Cluster) and Albireo, using a Sky-Watcher LE 15mm eyepiece (156.6X); and the Andromeda Galaxy (M31) using the 21mm eyepiece (112X).

There were 10 solar eclipse glasses distributed to interested visitors (4 and 6 solar eclipse glasses distributed by Everett Clark and Bob Duff, respectively). Observing continued until 11:20 p.m. under unusually clear skies before the observatory was closed down after a very enjoyable evening of astronomy.

Cronyn Observatory Public Night, Saturday, August 19th, 2017

Clear skies greeted some 228 visitors to Western University's Cronyn Observatory Summer Public Night, Saturday, August 19th, 2017, 8:30 p.m. Graduate student Josh Hedgepeth made 4 presentations of his digital slide presentation “*Ocean Worlds*” and fielded questions. McMaster University undergraduate student Ian Fare was “crowd manager” and counted 181 visitors by 9:37 p.m., 212 by 10:02 p.m. and 226 by 10:45 p.m., with 2 more arrivals for a total of 228 by 10:54 p.m.

RASC London Centre was represented by Everett Clark, Steve Imrie, Bob Duff, Heather MacIsaac, Paul Kerans, Mark Tovey and Edith Tovey. London Centre member Richard Gibbens was also there and listened to the slide lecture. Undergraduate student Roy Zang was telescope operator and, with assistance from Heather and Everett, showed visitors Jupiter through the 25.4cm refractor, using the Meade 28mm Super Wide Angle eyepiece (157X), and later the double star Mizar and nearby Alcor, using the 17mm Nagler eyepiece (258X). Everett and Bob

later located the “Double-Double” star system Epsilon Lyrae directly overhead with the big 25.4cm refractor and Everett swapped in the Sky-Watcher 15mm UltraWide eyepiece (292X) to nicely split the double components.

There were 3 amateur telescopes set up on the observation deck outside the dome. Steve Imrie operated the London Centre’s home-built 30.5cm Dobsonian, showing visitors Jupiter and Saturn, using the 18mm Radian eyepiece (83X), later swapping in the 12.5mm Ortho eyepiece (120X) for a better view of Saturn. Steve later showed visitors the Mizar and Alcor through the 30.5cm Dobsonian (83X). Paul Kerans set up his Celestron 9.25-inch (23.5cm) Schmidt-Cassegrain on his equatorial mount and showed visitors Saturn and the Owl Cluster (NGC 457), using the 28mm eyepiece (84X) and Sky-Watcher LE 15mm eyepiece (156.6X); and the Ring Nebula (M57) and the Andromeda Galaxy (M31), using the 28mm eyepiece (84X). Heather MacIsaac showed visitors Saturn through her Celestron NexStar 90SLT 90mm Maksutov-Cassegrain (17mm Plossl eyepiece, 73.5X). Heather also showed visitors her pinhole projection shoebox and how to use it to view the upcoming Solar Eclipse, August 21st, 2017, safely.

Mark Tovey, gave tours of the historic “1940s *Period Room*,” a recreation of Dr. H. R. Kingston’s 1940 office—featuring the “*Sotellunium*” mechanical eclipse demonstration model made by Rev. W. G. Colgrove, and Dr. H. R. Kingston’s brass refractor telescope—and the “1967 *Period Room*,” recreating the early control room of the Elginfield Observatory to celebrate the 150th anniversary of Confederation—Canada 150. Both “*Period Rooms*” were designed by Mark Tovey.

There were 18 solar eclipse glasses (10 and 8 by Everett Clark and Bob Duff respectively) distributed to visitors who requested them. Everett also gave out 2 “*Star Finder*” planispheres. The observatory was closed down around 11:00 p.m. after a very enjoyable evening of astronomy under very clear skies.

Cronyn Observatory Public Night, Saturday, August 26th, 2017

Clear skies greeted some 120 visitors to Western University’s Cronyn Observatory Summer Public Night, Saturday, August 26th, 2017, 8:30 p.m. Professor Robert Cockcroft made 2 presentations of his digital slide presentation “*The Final Mission of the Cassini Spacecraft – Update*” and fielded questions. RASC London Centre member Bob Duff counted 39 people in the lecture room at 8:49 p.m. and some 48 more in the dome, stairway and on the observation deck by 9:00 p.m. There were 16 people for the second slide presentation. There were some 120 visitors for the evening.

Downstairs in the “*Black Room*” graduate student Richard Bloch gave demonstrations of the “*Transit Demo*” model—demonstrating the transit detection method for finding extra-solar planets—and the “*Spectroscopy Demo*,” inviting the visitors to put on *diffraction grating* glasses and view the spectra of 4 gas discharge lamps set up on the table, including: hydrogen, helium, neon and mercury.

RASC London Centre member Mark Tovey, gave tours of the historic “1940s *Period Room*,” a recreation of Dr. H. R. Kingston’s 1940 office and the “1967 *Period Room*” recreating the early control room of the Elginfield Observatory to celebrate the 150th anniversary of Confederation—Canada 150. Both “*Period Rooms*” were designed by Mark Tovey.

RASC London Centre was represented by Everett Clark, Henry Leparskas, Dale Armstrong, Paul Kerans, Bob Duff, Steve Imrie, Peter Jedicke, Steve Gauthier, Dave McCarter, Mark Tovey and Edith Tovey, and new youth member Jacob Renders and his father. London Centre member Richard Gibbens was also there and listened to the slide lecture. Henry Leparskas helped undergraduate student Edith Yeung, who was telescope operator for the big 25.4cm refractor in the dome, locate Jupiter in the bright early evening sky using hour angle and declination coordinates from the *Starry Night Pro* software on the computer. Edith Yeung and Everett Clark, showed visitors Jupiter, the 5-day-past-new crescent Moon, Saturn and the double star Mizar, and nearby Alcor, through the 25.4cm refractor, using Meade 28mm Super Wide Angle eyepiece (157X)

There were 4 amateur telescopes set up for the evening, including 3 telescopes on the observation deck and one just outside the observatory. On the observation deck, Steve Imrie and Steve Gauthier operated the London Centre’s home-built 30.5cm Dobsonian, showing visitors the Moon, Saturn, the Ring Nebula (M57), the yellow and blue double-star Albireo and the Dumbbell Nebula (M27), using the 18mm Radian eyepiece (83X). Dale Armstrong set up the observatory’s Meade 20.3cm Schmidt-Cassegrain and showed visitors Saturn, using the 12.5mm Ortho eyepiece (160X), and later Steve Gauthier’s 7mm Nagler eyepiece (286X).

Jacob Renders and his father set up their Bushnell Voyager 114mm (f/8) Newtonian reflector telescope on its alt-azimuth mount and showed visitors the Moon and Saturn (12.5mm eyepiece, 72X), and the stars Arcturus and Altair, using the observatory’s Sky-Watcher 15mm UltraWide eyepiece (60X). The 114mm Newtonian also gave good views of Saturn, using 4mm eyepiece (225X) and 8mm eyepiece (112.5X).

On the south side of the observatory, Paul Kerans set up his Celestron 9.25-inch (23.5cm) Schmidt-Cassegrain on a Vixen equatorial mount and showed visitors the Moon, M57 and globular cluster M13, using his 28mm eyepiece (84X), and the Moon again using his Sky-Watcher LE 20mm eyepiece (117.5X).

Some of the visitors on the observation deck were able to see an Iridium flare visible in the north at 8:37 p.m. (See: *Iridium Flares* for London, Ontario, on *Heavens Above*: <http://www.heavens-above.com/>) The last visitors left the observatory around 11:15 p.m. and some RASC London members remained to continue observing on this clear night.

Boys & Girls Club of London, Solar Observing at the Cronyn Observatory, August 30th, 2017

Partly cloudy skies greeted 19 visitors (15 children and 4 staff members) from the Boys & Girls Club of London for solar observing at Western University's Cronyn Observatory, Wednesday, August 30th, 2017, 2:00 p.m. They were welcomed by graduate student Amanda DeSouza who brought them downstairs into the "Black Room," where she showed them the "Transit Demo" model—demonstrating the transit detection method for finding extra-solar planets—and the "Spectroscopy Demo," inviting the visitors to put on *diffraction grating* glasses and view the spectra of 4 gas discharge lamps set up on the table, including: hydrogen, helium, neon and mercury.

RASC London Centre was represented by Peter Jedicke, Bob Duff and new youth member Jacob Renders. Peter and Bob installed the Herschel Wedge and the brass Perkins Elmer 76.2mm eyepiece (57.6X) in the big 25.4cm refractor in the dome. Peter then directed the 25.4cm refractor towards the Sun so as to project the solar image onto the (attached) projection screen. When Amanda brought everybody upstairs into the dome Peter gave a talk about the big refractor and how the Herschel Wedge worked to reduce the heat and brightness of the sunlight going through the eyepiece to project the Sun's image on the projection screen.

On the observation deck outside the dome, Amanda and Bob set up the observatory's 90mm Coronado H-Alpha Solar Telescope using the equatorial mount from the Orion AstroView 6 (15cm) equatorial reflector. However, the Sun was frequently obscured by clouds and the telescope could not be brought to focus with either the CEMAX 25mm (32X) or 18mm (44X) CEMAX eyepieces. Jacob Renders brought his Bushnell Voyager 114mm (f/8) Newtonian reflector telescope, although it was not set up in the limited time available. Peter explained how the Coronado H-Alpha Solar Telescope worked and could show prominences on the Sun by selecting a very specific shade in the spectrum of red light. Peter had also brought the *Sunspotter* (provided by Fanshawe College), which was set up on the observation deck.

The visitors were gone by around 3:15 p.m. after an interesting tour of the "Black Room"—with the "Transit Demo" and "Spectroscopy Demo"—and the dome, with opportunity to view a projected image of the Sun through the big 25.4cm refractor and Herschel Wedge.

Cronyn Observatory Public Night, Saturday, September 2nd, 2017

Cloudy damp rainy weather greeted some 48 visitors to the Cronyn Observatory Extra Summer Public Night, hosted by RASC London Centre members on Saturday, September 2nd, 2017, 8:30 p.m. RASC London Centre was represented by Dale Armstrong, Everett Clark, Peter Jedicke, Steve Gauthier, Bob Duff, Henry Leparskas, Mark Tovey, and new youth member Jacob Renders and his father.

Dale Armstrong made his digital slide presentation "Using / Acquiring a Small Telescope" and fielded questions. An equatorially mounted 60mm refractor, donated to the observatory, as well as Peter Jedicke's 50mm Galileoscope, mounted on a camera tripod, were available for demonstration. Bob Duff counted 32 people in the lecture room at 8:39 p.m. and 47 at the end of Dale's presentation. There was one more arrival later in the dome for a total of 48 visitors for the evening.

Downstairs in the "Black Room" Henry Leparskas gave demonstrations of the "Transit Demo" model—demonstrating the transit detection method for finding extra-solar planets—and the "Spectroscopy Demo," inviting the visitors to put on *diffraction grating* glasses and view the spectra of 4 gas discharge lamps set up on the table, including: hydrogen, helium, neon and mercury. Mark Tovey, gave tours of the historic "1940s Period Room," a recreation of Dr. H. R. Kingston's 1940 office and the "1967 Period Room" recreating the early control room of the Elginfield Observatory to celebrate the 150th anniversary of Confederation in 1867—Canada 150. Both "Period Rooms" were designed by Mark Tovey.

Cloudy skies and damp weather ruled out opening the dome and the hoped for view of Asteroid 3122 Florence (1981 ET3), which made a close flyby on September 1st, 2017. Everett and Jacob set up the observatory's Meade 20.3cm Schmidt-Cassegrain (20mm Plossl eyepiece, 100X) inside the dome so as to view the TV screen in the Western Sports & Recreation Center through the door to observation deck. Everett also set up the observatory's 90mm Coronado H-Alpha Solar Telescope, on the Sky-Watcher EQ5 mount. The London Centre's home-built 30.5cm Dobsonian was also set up for demonstration.

When the visitors arrived upstairs in the dome, Peter gave a talk on the technical aspects of the big 25.4cm refractor, as well as the Schmidt camera and Cassegrain reflector telescope piggy-backed on the main telescope. He also talked about the Cronyn Observatory's 75th anniversary, celebrated in 2015, of its opening on October 25th, 1940. Peter called their attention to the large posters, recently placed on the walls by Mark, Peter and Steve, featuring the Elginfield Observatory and 15 solar eclipses seen in Canada since Confederation in 1867.

Peter also explained how the 20.3cm Schmidt-Cassegrain and 30.5cm Dobsonian telescopes worked, as well as how the 90mm Coronado H-Alpha Solar Telescope showed prominences on the edge of the Sun by transmitting only a very specific wavelength in the spectrum of red light. Steve Gauthier demonstrated the 30.5cm Dobsonian to some of the visitors, who also viewed the TV screen in the Western Sports & Recreation Center through the 20.3cm Schmidt-Cassegrain as they talked with RASC London members.

The visitors were gone by around 11:00 p.m. after an enjoyable evening learning about astronomy, small telescopes and the history of the Cronyn Observatory, despite the damp rainy weather.