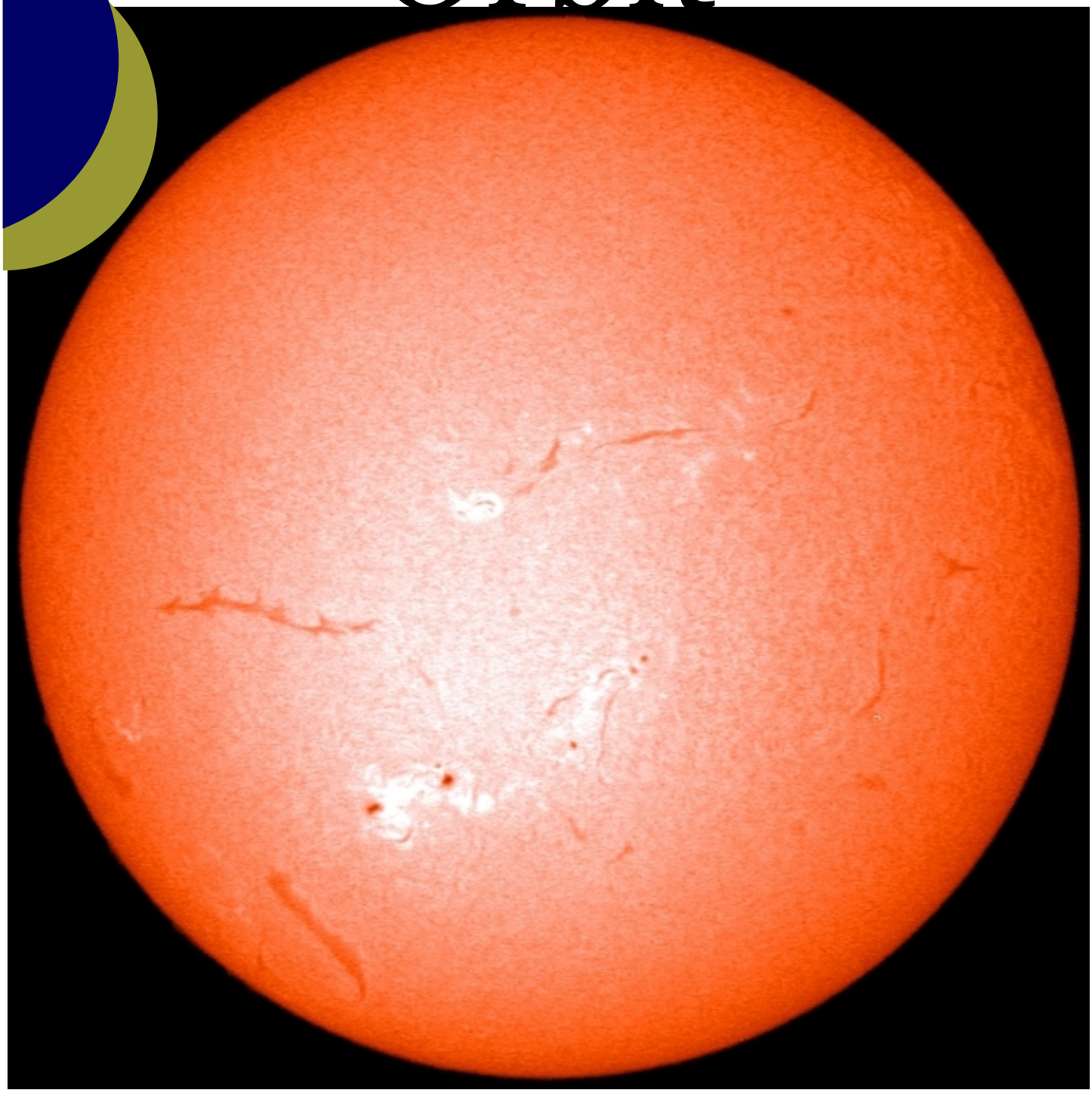
Orbit



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Issue Number 10, October, 2014
Roger Hill, Editor

The final weekend of September saw some spectacular skies, perhaps some of the finest Fall observing in living memory. And sure enough, I was unable to take advantage of them. Due to the worst late Summer cold I can remember experiencing, and having to attempt to help out pouring concrete and replacing a deck at a friends cottage, I did not even have access to a telescope.

Annoying? Yes, indeed. Because back in Hamilton was the (First annual?) Westfield Pioneer Village Star Party. By all accounts, it was a very good evening, and I gather that all who attended had a lot of fun. The Centre's new C14 made it's impressive appearance, Conditions could not have been much better. The evening was clear, with good transparency and the temperature was pleasant.. Hopefully, this will lead to the establishment of a turn of the 20th-Century observatory to house the Marsh Scope. And other artifacts from around the time when the Hamilton Centre was established.

Let me see...what else? Oh, yes.

Each year around this time I write a long series of sentences trying to get people to volunteer for the Board. I'm not sure if I'm wasting your time, or mine, so let me just say:

Volunteer for the Board! It's only a few hours a month, and you have a hobby because you have some time to spare, and astronomy is fascinating. What I'd like you to do is to take that experience, and raise it to a much higher level. Experience is NOT required. Frankly, if we can't explain to new people the reasons behind what we do, then perhaps we should be re-thinking them.

If you've been on the Board before...perhaps a couple of decades ago, or more, then you know how rewarding it can be. Trust me on this, though...the days of enmity, bickering, backstabbing, politicking, and bad blood have long gone. We have Directors Insurance (remember? Some of you said that there's no way you'd ever serve on the Board ever again without it.) We have a new set of by-laws coming down the pipe in the next year or two that should help matters considerably. Give Gary Colwell a shout, or send him an email. President @ hamiltonrasc.ca should be redirected to him.

There...that's done for another year.

Next? Ah, yes...plans for next year. I had a good chat with our picnic speaker, Dave McCarter from London, and he gave me some good ideas that I'll be implementing for the NOVA course in January. The order in which the sections will occur will change, some topics will be expanded and others drastically shortened. I think the new people who take it will benefit from the experience of those who took it over the last two years. For all who game me feedback...thanks!

As you can see from the front cover, I've been playing around with imaging the Sun through my PST (Personal Solar Telescope). There's more to come later, but I've been playing around with some image processing that seems to make a big difference. I'd still like to get rid of that "hot spot", though, but I think I may have found the answer to it...I'll give it a try and see, first, though.

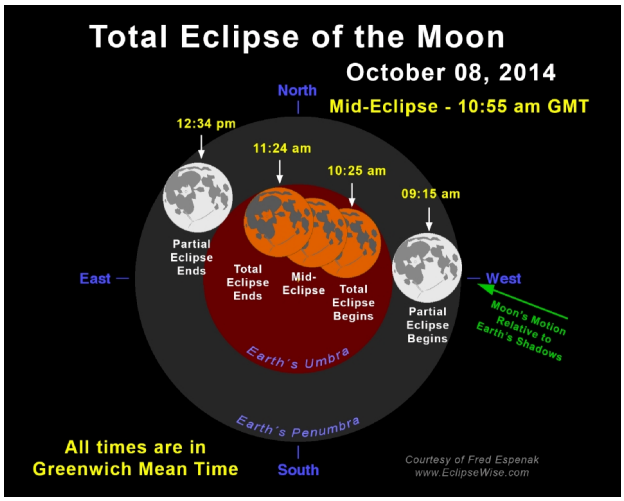
I also want to try making a decent GOTO out of my EQ5 mount, and I've got a couple of heavy duty stepper motors. There's a guy in the UK who makes a "black box" called AstroEQ that acts like the SynScan handpad so you don't need the expensive upgrade. By all accounts it works incredibly well. So, since I like to do DIY astronomy, I think I'm going to give it a try.

See you next month...unless someone else would like to try their hand at producing Orbit...

Clear skies and happy observing!

There is a total eclipse of the moon on October 8, 2014.

This is the Northern Hemisphere's Hunter's Moon – the name for the full moon after the Harvest Moon. It's also a Blood Moon, and this eclipse is the second in a series of four so-called Blood Moon eclipses. For North America and the Hawaiian Islands, the total lunar eclipse happens in the wee hours before sunrise on October 8. For New Zealand, Australia and eastern Asia, the total eclipse is seen after sunset on October 8. A partial lunar eclipse can be seen before sunrise, October 8, from much of South America, or after sunset, October 8, from western Asia. Follow the links below to learn more about the 2014 Hunter's Moon and the October 8 total lunar eclipse.



When is the October 2014 moon exactly full? Generally speaking, we in the Americas will say the moon stays full all through the night tonight, October 7-8.

But to astronomers, the moon turns full at a well-defined instant: when it's most opposite the sun for the month.

That instant happens on October 8, 2014 at 10:51 UTC. At our time zones, that places the precise time of full moon on October 8 at 6:51 a.m. EDT, 5:51 a.m CDT, 4:51 a.m. MDT or 3:51 a.m. PDT. At that time, because there's an eclipse happening, the moon will be totally submerged in the Earth's dark umbral shadow.

Meanwhile, because of the difference in time zones, this same full moon happens at local midnight (October 7-8) for far-western Alaska and the Aleutian Islands. It's sunrise (October 8) for northeastern North America and far-western South America, and it's sunset (October 8) in Asia.

Watch the full-looking moon on the night of October 7-8 rise in the east as the sun goes down. Like any full moon, the Hunter's Moon will shine all night long. It'll soar highest in the sky around midnight and will set in the west around sunrise.

Who will see the October 7-8 total lunar eclipse? The October 2014 full moon passes directly through Earth's dark (umbral) shadow. The total part of the October 8 eclipse lasts nearly 1 hour. A partial umbral eclipse precedes totality by about one hour and 10 minutes, and follows totality by about the same period of time, so the moon takes about 3 and 1/3 hours to completely sweep through the Earth's dark shadow.

North and South America, the Pacific Ocean, New Zealand, Australia and eastern Asia are in a good position worldwide to watch the total eclipse of the moon on October 8. If you live in the Americas or Hawaii, the total eclipse happens before sunrise October 8. In the world's eastern hemisphere, the total eclipse happens after sunset October 8.

A very light penumbral eclipse comes before and after the dark (umbral) stage of the lunar eclipse. But this sort of eclipse is so faint that many people won't even notice it. The penumbral eclipse would be more fun to watch from the moon, where it would be seen as a partial eclipse of the sun.

Who will see the partial lunar eclipse on October 8? A partial lunar eclipse may be visible in the haze of morning dawn from the extreme eastern portion of North America (Newfoundland), before sunrise on October 8. A partial lunar eclipse can also be observed from western Asia (eastern India, Nepal, western China) after sunset on October 8.

Partial umbral eclipse begins: 5:15 a.m. EDT on October 8
Total eclipse begins: 6:25 a.m. EDT
Greatest eclipse: 6:55 a.m. EDT
Total eclipse ends: 7:24 a.m. EDT
Sunrise: 7:25 a.m. EDT
Moonset : 7:32 a.m. EDT
Partial eclipse ends: 8:34 a.m. EDT

How to photograph the October 23rd partial solar eclipse.

If you took pictures of the Transit of Venus in 2012, then use the same techniques that worked. Again we have a Sunset event, which could make for some dramatic pictures, if properly composed. If you get the chance, check out your observing site a few days beforehand to give you an idea of what to expect.

WARNING: Never stare directly at the sun without a proper, safe filter. Failure to do so can result in serious eye injury or permanent blindness. No. 14 welder's glass filter is acceptable, but ordinary sunglasses and polarizing or neutral-density filters used in regular photography are not safe and should not be used.

- Look for a clear, unobstructed view of the western sky. If you are planning to use a digital single-lens reflex (DSLR) camera, shoot through a telescope or telephoto lens with a focal length of 400 millimeters or more to give you a fairly large image of the sun's disk in the frame.
- To get steady shots, use a sturdy tripod or mount to support your camera setup. Don't try to hand-hold it.
- Don't forget to use a large-capacity memory card and set the camera to its highest resolution so you can capture as much detail and color information as possible. Consult your camera manual on how to change the settings.
- Switch your camera mode from Auto (A) to Manual (M) so you'll be able to control its focus as well as lens aperture, shutter speed and white-balance settings.
- Remember to focus carefully to get sharp images. Use your camera's Live View feature, if it has one, to achieve accurate focus. You can pre-focus the camera (without the solar filter) before the eclipse using Mars or Jupiter or a bright star. Otherwise, you can focus on distant ships or clouds along the horizon; you can also use the sun's edge or sunspots (viewed through the solar filter) on the morning of the eclipse.
- To minimize vibrations that can blur your images, use your camera's mirror lock-up feature before each shot. You should also operate the shutter with an electronic cable release to eliminate camera shake. Keep your exposures very short by using a high ISO setting (400 or higher).
- Use the "bracketing" technique for your exposures — that is, taking a series of shots at various shutter speeds and/or apertures. This will increase your chances of getting the appropriate exposure for the scene you're interested in.
- Make sure your camera battery is fully charged, and keep a spare one handy, just in case. You don't want to get that flashing low-battery icon at the critical time.
- Be sure to test your camera setup before the eclipse. If possible, take some trial shots of the sun to give you an idea on what exposure settings to use with your particular telescope/filter combination.
- When composing your shot, try to include some interesting elements in your foreground, such as trees, a barn, or city buildings silhouetted against the horizon.

Note the two pictures to the left, taken just before the Transit of Venus in 2012. The top one is overexposed. Small sunspots are washed out. The bottom picture is a lot better. The contrast is higher, and details are visible in the sunspots. This is why you should test your set up before eclipse day. October 24 is not the time to find out your exposures were wrong!

Local circumstances for Hamilton, ON

Eclipse Begins	17:40
Maximum Eclipse	18:22 (Sunset)
Sun Altitude	0
Sun Azimuth	254
Eclipse Magnitude	0.456
Eclipse Obscuration	0.337

The Great Moon Hoax—Dr. Tony Phillips

February 23, 2001 -- Last week my phone rang. It was my mother ... and she was upset.

"Tony!" she exclaimed, "I just came from the coffee shop and there's an [adjective omitted] man down there who says NASA never landed on the Moon. Everyone was talking about it ... I just didn't know what to say!"

That last bit was hard to swallow, I thought. Mom's never at a loss for words.

But even more incredible was the controversy that swirled through her small-town diner and places like it across the country. After a long absence, the "Moon Hoax" was back.

All the buzz about the Moon began on February 15th when Fox television aired a program called Conspiracy Theory: Did We Land on the Moon? Guests on the show argued that NASA technology in the 1960's wasn't up to the task of a real Moon landing. Instead, anxious to win the Space Race any way it could, NASA acted out the Apollo program in movie studios. Neil Armstrong's historic first steps on another world, the rollicking Moon Buggy rides, even Al Shepard's arcing golf shot over Fra Mauro-- it was all a fake!

Fortunately the Soviets didn't think of the gag first. They could have filmed their own fake Moon landings and really embarrassed the free world.

Shows like Conspiracy Theory ought to be as tongue-in-cheek as they sound. Unfortunately, there was an earnest feel to the Fox broadcast, enough to make you wonder if the program's makers might have fallen under their own spell.

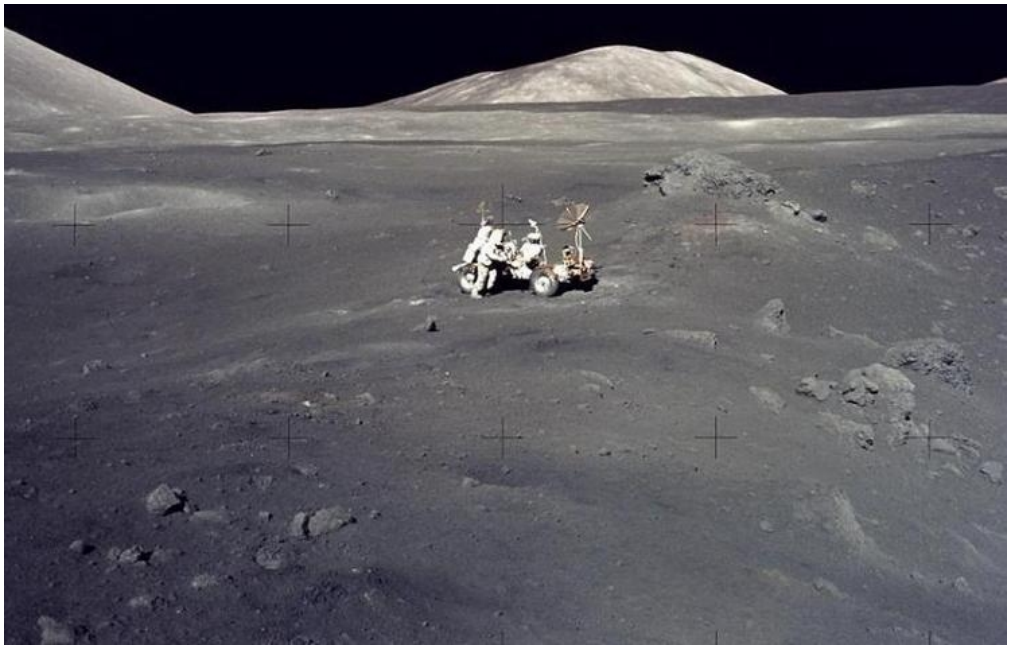
According to the show NASA was a blundering movie producer thirty years ago. For example, Conspiracy Theory pundits pointed out a seeming discrepancy in Apollo imagery: Pictures of astronauts transmitted from the Moon don't include stars in the dark lunar sky -- an obvious production error! What happened? Did NASA film-makers forget to turn on the constellations?

Most photographers already know the answer: It's difficult to capture something very bright and something else very dim on the same piece of film -- typical emulsions don't have enough "dynamic range." Astronauts striding across the bright lunar soil in their sunlit spacesuits were literally dazzling. Setting a camera with the proper exposure for a glaring spacesuit would naturally render background stars too faint to see.

Here's another one: Pictures of Apollo astronauts erecting a US flag on the Moon show the flag bending and rippling. How can that be? After all, there's no breeze on the Moon....

Not every waving flag needs a breeze -- at least not in space. When astronauts were planting the flagpole they rotated it back and forth to better penetrate the lunar soil (anyone who's set a blunt tent-post will know how this works). So of course the flag waved! Unfurling a piece of rolled-up cloth with stored angular momentum will naturally result in waves and ripples -- no breeze required!

The Fox documentary went on with plenty more specious points. You can find detailed rebuttals to each of them at BadAstronomy.com and the Moon Hoax web page. (These are independent sites, not sponsored by NASA.)



The best rebuttal to allegations of a "Moon Hoax," however, is common sense. Evidence that the Apollo program really happened is compelling: A dozen astronauts (laden with cameras) walked on the Moon between 1969 and 1972. Nine of them are still alive and can testify to their experience. They didn't return from the Moon empty-handed, either. Just as Columbus carried a few hundred natives back to Spain as evidence of his trip to the New World, Apollo astronauts brought 841 pounds of Moon rock home to Earth.

"Moon rocks are absolutely unique," says Dr. David McKay, Chief Scientist for Planetary Science and Exploration at NASA's Johnson Space Center (JSC). McKay is a member of the group that oversees the Lunar Sample Laboratory Facility at JSC where most of the Moon rocks are stored. "They differ from Earth rocks in many respects," he added.

"For example," explains Dr. Marc Norman, a lunar geologist at the University of Tasmania, "lunar samples have almost no water trapped in their crystal structure, and common substances such as clay minerals that are ubiquitous on Earth are totally absent in Moon rocks."

"We've found particles of fresh glass in Moon rocks that were produced by explosive volcanic activity and by meteorite impacts over 3 billion years ago," added Norman. "The presence of water on Earth rapidly breaks down such volcanic glass in only a few million years. These rocks must have come from the Moon!"

Right: A glass spherule (about 0.6 mm in diameter) produced by a meteorite impact into lunar soil. Features on the surface are glass splashes, welded mineral fragments, and micro craters produced by space weathering processes at the surface of the moon. SEM image by D. S. McKay (NASA Photo S71-48109).

Fortunately not all of the evidence needs a degree in chemistry or geology to appreciate. An average person holding a Moon rock in his or her hand can plainly see that the specimen came from another world.

"Apollo moon rocks are peppered with tiny craters from meteoroid impacts," explains McKay. This could only happen to rocks from a planet with little or no atmosphere... like the Moon.

Meteoroids are nearly-microscopic specks of comet dust that fly through space at speeds often exceeding 50,000 mph -- ten times faster than a speeding bullet. They pack a considerable punch, but they're also extremely fragile. Meteoroids that strike Earth's atmosphere disintegrate in the rarefied air above our stratosphere. (Every now and then on a dark night you can see one -- they're called meteors.) But the Moon doesn't have an atmosphere to protect it. The tiny space bullets can plow directly into Moon rocks, forming miniature and unmistakable craters.

"There are plenty of museums, including the Smithsonian and others, where members of the public can touch and examine rocks from the Moon," says McKay. "You can see the little meteoroid craters for yourself."

Just as meteoroids constantly bombard the Moon so do cosmic rays, and they leave their fingerprints on Moon rocks, too. "There are isotopes in Moon rocks, isotopes we don't normally find on Earth, that were created by nuclear reactions with the highest-energy cosmic rays," says McKay. Earth is spared from such radiation by our protective atmosphere and magnetosphere.

Even if scientists wanted to make something like a Moon rock by, say, bombarding an Earth rock with high energy atomic nuclei, they couldn't. Earth's most powerful particle accelerators can't energize particles to match the most potent cosmic rays, which are themselves accelerated in supernova blastwaves and in the violent cores of galaxies.

Indeed, says McKay, faking a Moon rock well enough to hoodwink an international army of scientists might be more difficult than the Manhattan Project. "It would be easier to just go to the Moon and get one," he quipped.

And therein lies an original idea: Did NASA go to the Moon to collect props for a staged Moon landing? It's an interesting twist on the conspiracy theory that TV producers might consider for their next episode of the Moon Hoax.

"I have here in my office a 10-foot high stack of scientific books full of papers about the Apollo Moon rocks," added McKay. "Researchers in thousands of labs have examined Apollo Moon samples -- not a single paper challenges their origin! And these aren't all NASA employees, either. We've loaned samples to scientists in dozens of countries [who have no reason to cooperate in any hoax]."

Even Dr. Robert Park, Director of the Washington office of the American Physical Society and a noted critic of NASA's human space flight program, agrees with the space agency on this issue. "The body of physical evidence that humans did walk on the Moon is simply overwhelming."

"Fox should stick to making cartoons," agreed Marc Norman. "I'm a big fan of The Simpsons!"

CARRYING THE SHUTTLE HOME

A quick "trip report" from Triple Nickel, the pilot of the 747 that flew the shuttle back to Florida after the Hubble repair flight - a humorous and interesting inside look at what it's like to fly two aircraft at once.

Well, it's been 48 hours since I landed the 747 with the shuttle Atlantis on top and I am still buzzing from the experience. I have to say that my whole mind, body and soul went into the professional mode just before engine start in Mississippi, and stayed there, where it all needed to be, until well after the flight...in fact, I am not sure if it is all back to normal as I type this email. The experience was surreal. Seeing that "thing" on top of an already overly huge aircraft boggles my mind. The whole mission from takeoff to engine shutdown was unlike anything I had ever done. It was like a dream—someone else's dream.

We took off from Columbus AFB on their 12,000 foot runway, of which I used 11,999 1/2 feet to get the wheels off the ground. We were at 3,500 feet left to go of the runway, throttles full power, nose wheels still hugging the ground, co-pilot calling out decision speeds, the weight of Atlantis now screaming through my fingers clinched tightly on the controls, tires heating up to their near maximum temperature from the speed and the weight, and not yet at rotation speed, the speed at which I would be pulling on the controls to get the nose to rise. I just could not wait, and I mean I COULD NOT WAIT, and started pulling early. If I had waited until rotation speed, we would not have rotated enough to get airborne by the end of the runway.. So I pulled on the controls early and started our rotation to the takeoff attitude. The wheels finally lifted off as we passed over the stripe marking the end of the runway and my next hurdle (physically) was a line of trees 1,000 feet off the departure end of Runway 16.

All I knew was we were flying and so I directed the gear to be retracted and the flaps to be moved from Flaps 20 to Flaps 10 as I pulled even harder on the controls. I must say, those trees were beginning to look a lot like those brushes in the drive through car washes so I pulled even harder yet! I think I saw a bird just fold its wings and fall out of a tree as if to say, "Oh, just take me."

Okay, we cleared the trees, duh, but it was way too close for my laundry. As we started to actually climb, at only 100 feet per minute, I smelled something that reminded me of touring the Heineken Brewery in Europe. I said, "Is that a skunk I smell?" - the veterans of shuttle carrying looked at me, smiled, and said, "Tires"! I said, "TIRES? OURS?" They smiled and shook their heads as if to call their Captain an amateur. Okay, at that point I was. The tires were so hot you could smell them in the cockpit. My mind could not get over, from this point on, that this was something I had never experienced. Where's your mom when you REALLY need her?

The flight down to Florida was an eternity. We cruised at 250 knots indicated, giving us about 315 knots of ground speed at 15,000'. The miles didn't click by like I am use to them clicking by in a fighter jet at MACH .94. We were burning fuel at a rate of 40,000 pounds per hour or 130 pounds per mile, or one gallon every length of the fuselage. The vibration in the cockpit was mild, compared to down below and to the rear of the fuselage where it reminded me of that football game I had as a child where you turned it on and the players vibrated around the board. I felt like if I had plastic clips on my boots I could have vibrated to any spot in the fuselage I wanted to go without moving my legs...and the noise was deafening. The 747 flies with its nose 5 degrees up in the air to stay level, and when you bank, it feels like the shuttle is trying to say, "Hey, let's roll completely over on our back" - not a good thing I kept telling myself. So I limited my bank angle to 15 degrees and even though a 180 degree course change took a full zip code to complete, it was the safe way to turn this monster.

Airliners and even a flight of two F-16s deviated from their flight plans to catch a glimpse of us along the way. We dodged what was in reality very few clouds and storms, despite what everyone thought, and arrived in Florida with 51,000 pounds of fuel too much to land with. We can't land heavier than 600,000 pounds total weight and so we had to do something with that fuel. I had an idea....let's fly low and slow and show this beast off to all the taxpayers in Florida lucky enough to be outside on that Tuesday afternoon.

So at Ormond Beach, we let down to 1,000 feet above the ground/water and flew just east of the beach out over the water. Then, once we reached the NASA airspace of the Kennedy Space Center, we cut over to the Banana/Indian Rivers and flew down the middle of them to show the people of Titusville, Port St. Johns and Melbourne just what a 747 with a shuttle on it looked like. We stayed at 1,000 feet and since we were dragging our flaps at "Flaps 5", our speed was down to around 190 to 210 knots. We could see traffic stopping in the middle of roads to take a look. We heard later that a Little League Baseball game stopped to look and everyone cheered as we became their 7th inning stretch. Oh, say can you see....

After reaching Vero Beach, we turned north to follow the coast line back up to the Shuttle Landing Facility (SLF). There was not one person laying on the beach... they were all standing and waving! "What a sight" I thought.....and figured they were thinking the same thing. All this time I was bugging the engineers, all three of them, to re-compute our fuel and tell me when it was time to land. They kept saying, "Not yet Triple, keep showing this thing off," which was not a bad thing to be doing.

However, all this time the thought that the landing, the muscling of this 600,000 pound beast, was getting closer and closer to my reality. I was pumped up! We got back to the SLF and were still 10,000 pounds too heavy to land. So I said I was going to do a low approach over the SLF going the opposite direction of landing traffic that day. So at 300 feet, we flew down the runway, rocking our wings like a whale rolling on its side to say "hello" to the people looking on! One turn out of traffic and back to the runway to land.....still 3,000 pounds over gross weight limit. But the engineers agreed that if the landing were smooth, there would be no problem.

"Oh, thanks guys, a little extra pressure is just what I needed!"

Well, we landed at 603,000 pounds and very smoothly if I have to say so myself. The landing was so totally controlled and on speed that it was fun. There were a few surprises that I dealt with, like - with the orbiter on it - the 747 falls like a rock if you pull the throttles off at the "normal" point in a landing and secondly, if you thought you could hold the nose off the ground after the mains touch down, think again - IT IS COMING DOWN!!! So I "flew it down" to the ground and saved what I have seen in videos of a nose slap after landing.

Then I turned on my phone after coming to a full stop only to find 50 bazillion emails and phone messages from all of you who were so super to be watching and cheering us on! What a treat, I can't thank y'all enough. For those who watched, you wondered why we sat there so long. Well, the shuttle had very hazardous chemicals on board and we had to be "sniffed" to determine if any had leaked or were leaking. They checked for Monomethylhydrazine (N2H4 for Charlie Hudson) and nitrogen tetroxide (N2O4). Even though we were "clean", it took way too long for them to tow us in to the mate-demate area. Sorry for those who stuck it out and even waited until we exited the jet.

I'm sure I'll wake up in the middle of the night here soon, screaming and standing straight up dripping wet with sweat from the realization of what happened. It was a thrill of a lifetime. Again, I want to thank everyone for your interest and support. It felt good to bring Atlantis home in one piece after she had worked so hard getting to the Hubble Space Telescope and back.

Triple Nickel, NASA Pilot

Some things I learned in Chile by Roger Hill

There are several lagoons that are actually a saturated salt solution. It really hurts the eyes of those who are stupid enough to try to swim in the stuff, like me. This was one of the most bizarre swimming experiences in my life: we floated upright in the water, hands above our heads, but the water came to just below our armpits.

Raul, the Bolivian helper, and general handyman, has three years of a four year Civil Engineering degree, but in Chile he makes an excellent wage: $20 a day— three times the amount he could earn in Bolivia. Raul and his wife, Soledad—the housekeeper, had two delightful children (boys, 3 and 5 years old), but they rarely smiled or laughed, until we bought a soccer ball for them, and we kicked it around for an hour. Every boy needs a ball to play with.

I have to mention Alain Maury, the proprietor of the place, who looks like Odo from Star Trek: Deep Space 9. He gives talks twice every clear night to 40 or 50 people, and hates having to drive to Calama, the major town of 150,000 people, just two hours away on the other side of a 12,000 foot high mountain range. He has a wicked sense of humour, loves his wife Alejandra, and is as knowledgeable as anyone I know about astronomy. It was he who coined the term “Canadian Hello”, wondering if a certain vulgar phrase (not fit for such an august publication as this), was Canadian for “Hello”. His wife loves Maple Syrup, and if you ever travel down there, take some for her, along with the Maple Cookies made by Christies.

If you ever want to see what a Telescope Graveyard looks like, visit Alain Maury during the day, and see bits and pieces of all sorts of telescopes lying around. At 5% humidity, they’re not going to rust very quickly! You have to do it during the day, because you don’t want to look down at night.

Can’t leave out the climb up an extinct volcano called Cerro Toco, where 2/3rds of the group got a chance to see inside the groundshield of the Atacama Cosmological Telescope, and spoke to the lead researcher for the telescope, a really nice guy from Princeton called Mark Devlin. He was most concerned about our adaptation to altitude. I didn’t expect to see him as an email indicated that the place would be closed, and he didn’t expect to see us, as he thought we’d be by earlier in the week. At 17,030 feet above sea level, it is currently the highest permanent, ground-based telescope in the world. Of course, we’d nearly killed ourselves getting up there, when we were laughing so hard, we literally couldn’t catch a breath.

Bolivia must be an awful place to live...about 90 percent of the nights they had lightning there. The border with Bolivia is only about 50 km away. So is Argentina. To get there, you have to go over a 15,000 foot high “pass”. Some cars can’t go that high. They won’t let the rental vehicles in to either of those countries.

I can’t not discuss the stars. The first night, we walked out of a restaurant and looked up. To the first glance, it looked like it was cloudy, and then we realized it was the Large Magellanic Cloud and the Milky Way we were seeing. Awesome, just, well, awesome!
The Southern Cross. There’s a couple of “false crosses” in the southern skies, but only one has the Coal Sack beside it. Makes it stand out a lot more. It’s used to point to the south pole, too. 4.5 times the distance of the long axis from the bright star Alpha Crucis will get you pretty close.

Polar aligning can be real tough down there. You don’t know how bloody handy Polaris is until you try to polar align below the equator.
Andy and Gordon were having a real tough time getting aligned properly. Fortunately, right beside where they were set up was a Takahashi. The mount had a polar bore scope, so I shone my green laser through the bore scope so they could see where to align to. Worked perfectly.

Another tip...when you travel, leave your fancy power bars at home, and just get one of the cheapest ones you can find at the local dollar store. Surge protectors don’t like 220 volts, and the so called intelligent power bars have a conniption fit and flat out refuse to work when there is no ground worthy of the name. Finally, take nothing that won’t work on 220Volts.

I have a horrible reputation for bringing cloud and rain wherever I go observing. I went to the Mexican desert for a solar eclipse, and had to observe it through some pretty major clouds. In the satellite weather pictures, there is a single cloud visible on the entire Baja Peninsula. That’s where I was. Les and I went to Texas and had 1.5 good nights out of 7. When a fog bank rolled on to the upper observing field at 3am, Les started to believe I was jinxed. There’s a standing joke around the Centre that if I announce an occultation then it WILL be cloudy. I’m 0 for 9 in asteroid occultations. Well, I’ll have you know there was only a single cloudy night while I was there. The irresistible force of my clouds met the immovable object that is the Atacama Desert. This desert won. Which is good...it means I got to live!

One night, around 3am or so, after the Moon had set, Steve and I just looked in slack-jawed wonder at the Milky Way. There’s no doubt that you’re looking at an edge-on spiral. If you’ve never seen it like that, you’ve never seen it properly.

You don’t need a lot of Spanish. “Por Favor” and “Gracias” will take you a long way. People will generally smile as you mangle their language, as long as you’re trying. However, this sometimes means that six guys all order the exact same thing.

There’s a pretty good chance that one of the guys you have to room with snores. Loudly. He will feel very badly about it. Earplugs really help. Should he move out to a different room, the guy who replaces him will be worse. This is called Kevin's Law.

Never stand behind a vehicle after Steve starts it up. This is called Derek's Law.

Can you stand this story??? Dr. P. Clay Sherrod

Okay - we've heard it all, right? Got a call late last night from a guy driving in from Oklahoma City next week....needs some help with his NEW 8" LX 200 GPS.

Just got it in and decided that the optics were NOT clean enough, being new and all. He was crying into the phone....voice trembling....the guy needed help. Clearly.

He followed my instruction on the 'net completely. First you blow off all the particles of debris (he admitted there WERE NOT any, but did this anyway....) from the corrector plate prior to cleaning. He mixed up the proper solution of isopropyl alcohol 1/4 to 3/4 distilled water and added a small amount of Ivory liquid to the solution in the proper amount. All is good and the sun is shining bright!

Even went to the store make SURE he had distilled water and ONLY Ivory liquid as prescribed by Doc Clay.... Smart man, really smart man. (but remember, this is in Oklahoma!) But, he does not find "compressed air in a can." Nor does the gentleman pursue the fine arts so an artist's paint brush is not a common item around the house.

So....he remembers that he has this nice rubber ear syringe in the bathroom....never used on nary an ear in the house! One good shove on that rascal and it will blow the crap all the way to Arkansas! Little did he know! So off comes the dust cap, exposing the virgin glass to the elements of Oklahoma for the first time....lights from the hanging bulbs (poetic license here....) reflect near perfect images unimpaired by the elements of mankind upon this pristine surface.....and he proceeds to BLOW!

Out comes the viscous glob of spewing yellow liquid....in its purest form, the saving grace of mankind's winter months, the chemical we know and love as ETHYLENE GLYCOL, our automobile knows as "anti freeze." Little droplets like a sneeze from Tuberculosis Tommy, spread in a pattern across the coated corrector plate that only God could know and love.

And then he "remembered." No, this had NOT been used on anyone's ears...ever. It had, however, been used several times last year when he overfilled his car's radiator getting it winterized for the season. Oh my God! What should he do?? Well, Hell! Wipe the damned stuff OFF....of COURSE! So he runs out to his shop to get - what else, when you get anti-freeze all over something> - SHOP RAGS! Of COURSE!

So he rubs it down really hard to get all the gooey yellow stuff off—except that which has already seeped down inside the corrector retaining ring. His story continued, his sobs getting deeper although over the phone I could tell this was an Okie with pride, his best attempts made to cover his sobs....

Oh NO....he knew that wasn't the thing to do....there were huge gaps starting to show up in the UHTC coatings that he had just paid $300 for! So he quickly rushed back to the shop for just what YOU and I would get at this point! ALLEN WRENCHES!!Drop and roll, baby!

He quickly disconnected the OTA from the fork arms and jerked the scope tube assembly off and rushed it to the bathroom where the tub had been started, hot water rapidly filling the Baptism cavity at that point.

And down it went....once, twice, many times thereafter, the healing hot waters scalding and penetrating, permeating the work of art that had just been shipped out of the manufacturer....the first to go was the Inspection Sticker, floating away in the tub as if to surrender early in this fight.

But THEN, he did the right thing! He rinsed with distilled water, just as Doc Clay prescribes! Got to do that final rinse!! A careful one hour session with the hair dryer finished off the story....and the telescope.

"It all seems to be okay, but I just know it's not perfect anymore," he cried, periodically removing the mouthpiece of the phone away so that ears could not detect his weaker side.

In front of him, he admitted, was only a part of a telescope....the coatings here in some places, gone in others....the finder was full of water, dripping out the eyepiece end. Droplets still oozed from the small seal behind the focus knob.... "I just can't bring myself to using this - you know, NEW and all, - until I bring it by for you to look at and tell me it's O.K.!" he begged.

OKAY??!!? What? First you squirt anti-freeze on the poor devil, then rub it down real good with a shop towel, then dunk it in a tub of boiling water and try to kill it off with a blow dryer?? And YOU want ME to fix it??
And the moral of the story....it's on its way to Doc Clay Monday.

A Sidewalk Astronomy Experience—Tom Field

Wow! If you've never tried sidewalk astronomy, you oughta! Last Saturday I set up in town at the monthly the Denver Astronomical Society's first quarter star party. The moon got a little low (and there were 30 or so telescopes there) so I viewed Albireo. Having an eleven year old go inside and drag his mother out to see the colors was the high point of the evening! People like to see color!! (Hint: after they've seen the stars, tell them you're going to defocus a little to bring out the color. Then do it. It works) Albireo is visible 1 mile from downtown Denver with street lights making it almost daylight. And it's easy to find. I enjoy pointing out to viewers the similarities between the colors they're seeing and the different colors in a candle or campfire. "They're different temperatures..."

The next night, Sunday, having read a little about Dobson (and his merry band of sidewalk astronomers) I screwed up my courage dragged by C8 out to the sidewalk right in front a local ice cream parlor on a busy street. Sure I was blushing and sweating a bit as I set up. "Will anyway come or will I look like a propeller-hat nerd?!" I had a non-stop line of viewers for two hours! Having Rukl's text (mostly the full moon view inside the front cover) to help them navigate and to point out what they were seeing was *very* helpful. Also, coaching them on finding the right viewing position to actually see the image in the eyepiece was occasionally necessary: "Yeh, take your time. Sometimes it can take a minute or so to get your eye positioned right. Try moving away from the eyepiece a little..." [Usually it's only 5 or 10 seconds with the long eye relief LV eyepiece] "Uh, you don't have to touch the eyepiece..."

Often I will help them see things that I believe they'd not otherwise see. "See that smooth area [Serenity]. Well just above it, see those two craters? [Eudoxus & Aristoteles].. Okay, can you see how the left rim of the crater is glowing in the sunrise. See those points of light to the left... etc. etc." "Notice the rippling? That's just like the ripples in the air you see over a hot car or above a campfire. The waves of heat in the air above us..." Even a little science: "Now that smooth area is the result of ..."

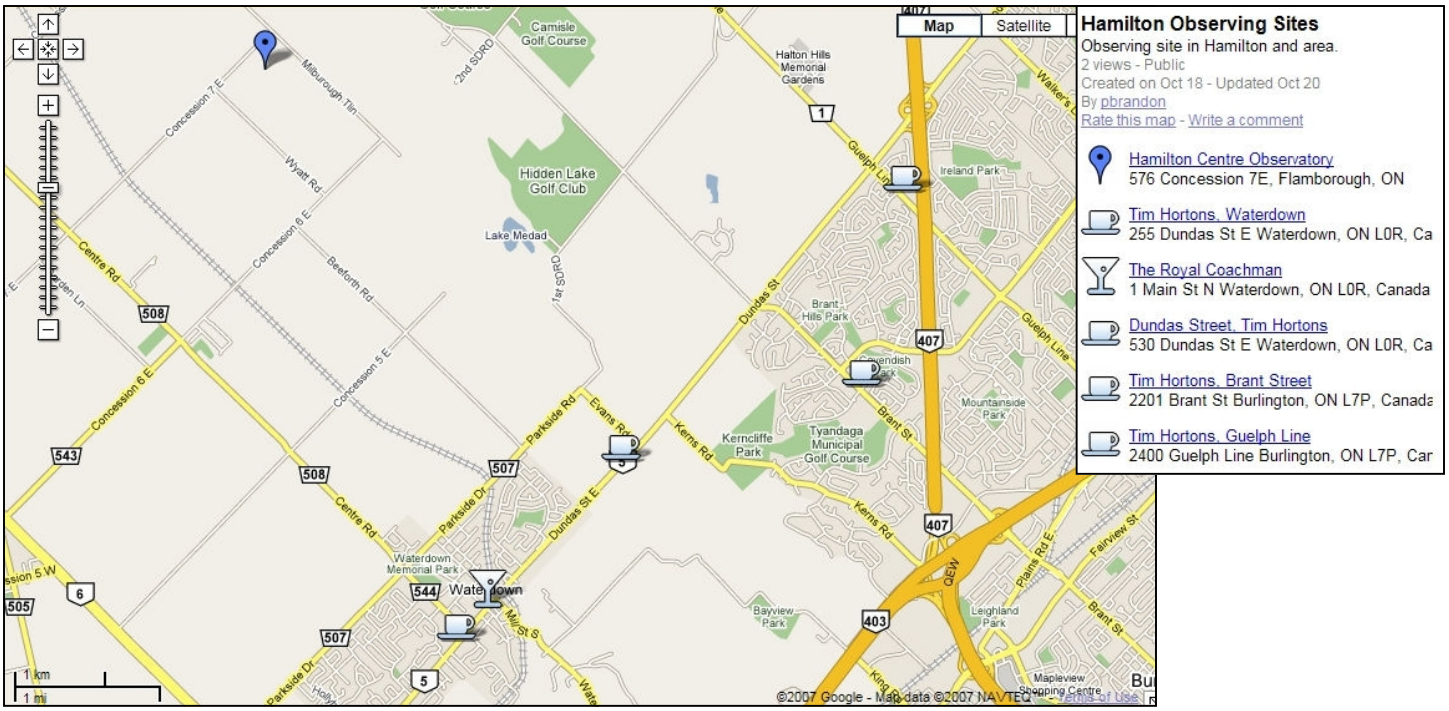
I debate whether to instruct them on the focus knob, but usually show them by pretending to grab it and rotating my hand (not the knob) a tiny bit, "This is just like focusing binoculars. Turn it just a little, like this until the view isn't blurry." I also watch them as they focus, because some people crank it a half turn or more and I then have to refocus it for them. The sloppiness of the SCT focus is a bother. I don't think JMI's motorized focus (on the drawtube) would be any easier for them, since there is no intuitive feedback from the buttons). A manual drawtube focuser would be best I believe.

Standing by the telescope, people would ask me, "why are you doing this?" I'd suggest they have a look through he eyepiece at the moon, "take a look!" To their totally spontaneous exclamations of "Wow!", "Oooouuuu", "Oh my god", "I can't believe it", "I never knew you could see it so close", "Let me go get my wife..." I'd respond, "I do it because I like hearing people say what you just said!" and we both laugh. There's a real joy in sharing something beautiful, especially if the other has never seen such a thing.

I was surprised how many people expressed an interest, or confessed they had a telescope (often, perhaps a Tasco,) they never used. The kids were wonderful. They'll talk and talk ... with their parents beaming on. It was also a good opportunity to talk about light pollution, solicit new club members, and meet new people.

So, I urge you to try it. You've got to be a little tiny bit of a showman, but not too much. Once you've set up, one or two (if that) "You want to look at the moon?" queries to passers by is all it'll take to get things going. (Next time I'll have a small sign: "Free views of the moon" that I'll hang from the "No Parking sign or the newspaper box I leaned on)

It's not often (in my life, anyway) that I've felt I gave so much so easily. And the joy of giving is wonderful...



576 Concession 7 East, Flamborough ON
N43° 23’ 27” W79° 55’ 20”

Hamilton Centre, RASC
c/o Mr. A. Blanchard
2266 Lakeshore Rd. W.
Oakville, Ontario
L6L 1G86L 1G8

Gary Colwell, President
Gary Bennett, Membership Director / AstroCATS Chairman
Jason Blane, Observatory Director
Roger Hill, Orbit Editor
Bill Legitt, Treasurer
Mark Pickett, Outreach Director / National Council
Shawn Preston, IT Director
Dave Surette, Secretary
Andy Blanchard, Past President / AstroCATS Co-Chairman

Calendar for September, 2014

Mon	Tue	Wed	Thu	Fri	Sat	Sun
01	02	03	04 • 8pm» Public Monthly Meeting	05	06 • Family BBQ at the Observatory	07
08	09	10 • 7:30pm» Star Gazing at the Observatory	11 • 8pm» RASC Board Meeting	12	13	14
15	16	17 • CANCELLED - Scouts Night at the Observatory	18	19	20	21
22	23	24	25 • 8pm» Henry's Astrophotography Night	26	27	28
29	30					