



# Event Horizon

Volume 20, Number 2  
December 2012

## From The Editor

There is nothing more daunting to an editor than staring at a blank page, knowing that it needs to be filled before a looming deadline!

Can you tell that's what happened to me this month when it came time for me to write this column??

Fortunately, other club members have more than enough to say this month and your newsletter is so much the richer because of their contributions.

Wishing you all a very Merry Christmas and many clear nights in 2013!!

*(And I desperately hope that this writer's block ends before next issue....)*

Ann Tekatch  
Editor@amateurastronomy.org



## Chair's Report by Jim Wamsley

It's December, and the time of year that The H.A.A. council starts its work. The first job for council is to confirm the appointments of the councillors at large. This term is a little misleading. It may seem that the folks with this title have no job or duties, but there is nothing further from the truth. The councillors at large this year are Brenda Frederick, Harvey Garden, Keith Mann, David Tym, and Leslie Webb. Leslie is new on council this year. These people, and other volunteers, look after many jobs; Keith Mann is our general meeting reporter for the E.H.. Don Pullen is our Web Master. Ed and Kevin Salwach are key holders for the club dark sky site in Binbrook. There are always jobs to be done that are looked after by this group of dedicated people. Just because you're not a member of council, doesn't mean you can't attend council meetings. All council meetings are open to the membership. The dates of meetings vary month to month, so if you would like to sit in on a meeting, just contact me at [chair@amateurastronomy.org](mailto:chair@amateurastronomy.org) and I would be happy to give you the date and time.

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## Chair's Report (continued)

One of the other jobs council tackles this time of year is planning and setting a schedule of public events for the club. Events such as public observing nights, scope clinics, and Astronomy Day must be first scheduled then planned for. The list of events will be posted on the website soon.

November features one of the club's most popular public events, the annual fall Telescope Clinic. This event is a highlight of the year for the H.A.A., because it offers an opportunity for the public to look at, and compare all kinds of different telescopes. This, we hope, helps them to make informed decisions on making a purchase of a scope. This year's scope clinic was extremely well attended by members, too numerous to mention, each of them showing off their prized instruments, and giving good advice to the large number of the public that showed up.

I have good news on the loaner scope front as well. We have had yet another scope donated to the club. This scope is a Sky Watcher 90 mm on an alt-azimuth Mount. If you have visited the club web site, and checked out the blog, you would have learned that John, Mario, and I, have had an opportunity to test this scope out, and have found it to be a fine instrument. I now have it ready for use by the membership; and I think it will be well suited for our newer, less experienced members. Let me know if you are interested in having the use of this scope for a month.

Wow! Would you look at that, the perfect segue to talk about the club's Blog. Did you know the club has a great tool, enabling you to talk about your astro experiences, and ask questions of other club members, on subjects relating to astronomy? If you go to the club website and click on the side bar entitled H.A.A. Blog, and voila! You have found just such a tool. You will find posts there from fellow members, informing you about what they have been doing, or just making announcements on upcoming astro events. You may be happy just reading the blog, or you can get involved and make posts of your own, by simply contacting our web master, Don Pullen at [webmaster@amateurastronomy.org](mailto:webmaster@amateurastronomy.org). I'm sure Don will be happy to set you up with a user name and password, and instructions on posting.

Our meeting on Dec. 14th promises to be an interesting night. We have Brian Dernesch & Brady Johnson of K.W. Telescopes coming to speak, and bring us an assortment of Astro Toys to check out just in time for Christmas, (dreams of sugarplums & new eyepieces Aaah)! At the time of this writing, I don't know the subject they will speak about, but they always have a great talk. Mario Carr will also speak to us about how he promotes the H.A.A., and, as always, everyone's favourite observing director John Gauvreau, will deliver his Sky Tonight talk. See you there.



## Treasurer's Report by Steve Germann

(Unaudited)

Opening Balance	\$6649.07
Revenue	\$2228
Expenses	\$3250.27
Closing balance	\$5626.80

Major expenses were \$45 for a telescope diagonal for one of our loaner scopes, \$75 for a Plossl eyepiece for our loaner scopes, \$911.52 for insurance and \$2118.75 to purchase 250 calendars, and \$100 for 4 gas cards to give to speakers. Major revenue consisted of Memberships \$520, 50/50 \$58, and Calendar sales \$1405, donations \$170, sale of telescope parts, \$75.

**Masthead Photo:** This image by Bob Christmas is IC 1318, the Gamma Cygni Nebula complex. The image is a stack of 9 frames for a total of 18 minutes 25 seconds of exposure time. Taken at Barry's Bay, Ontario on October 8 with his Canon Digital Rebel 300D through a Tamron 300mm f/2.8 lens at ISO 1600.



## The Sky This Month: December by John Gauvreau

### December 2012

December 2 - Jupiter at opposition  
December 3 - Venus, Saturn and Mercury equally spaced  
December 4 - Mercury at greatest elongation (morning sky)  
December 9 - Asteroid Vesta at opposition  
December 9 - Moon less than 1 degree from Spica (morning sky)  
December 10- Moon next to Saturn  
December 11- Moon 2 degrees from Venus  
December 12 - Geminids Meteor Shower at peak  
December 13 - New Moon  
December 18 - Asteroid Vesta at opposition  
December 21 - Winter Solstice  
December 25 - Moon 1 degree from Jupiter  
December 28 - Full Moon

### Under the Sky

December always brings its annual favourites; the Geminid Meteor Shower and the winter solstice (ok, maybe the solstice isn't a favourite, but just think that the days will start to get longer afterwards!), but this year, December is all about just one thing: Jupiter!



Jupiter as seen through a modest telescope

The largest and grandest of the planets is at opposition at the beginning of the month, meaning that it appears in the sky opposite the sun (if you could imagine looking down on the solar system from high above, we would be right in between the sun and Jupiter). So with the sun and Jupiter opposite each other, Jupiter must rise when the sun sets and set when the sun rises. This means that Jupiter is up in the sky all night. What better time to observe this giant?

Along with the December 2<sup>nd</sup> opposition, bookending the month is a pairing of Jupiter and the moon. As the moon orbits the earth once a month, it wanders past each of the planets in our sky. Sometimes they appear close together, but due to timing, geometry or both, often not. This month though we are all given a celestial Christmas present when the moon slides just 1 degree from Jupiter on the night of December 25<sup>th</sup>. After you are filled with the goodness of Christmas dinner, take everyone outside and look to the east for this treat. It will be a spectacular naked eye sight, beautiful in binoculars, and if you want to set up your telescope, you will be able to fit both the moon and Jupiter in the same low-power field of view.

*(Continued on [page 4](#))*



## The Sky This Month (continued)

Jupiter itself is one of the most interesting objects in the sky. Four of its moons are large enough to observe with even the smallest telescope (indeed, good binoculars should do the job). Every night they travel in their orbits around Jupiter, appearing on the left, the right, in front or behind their mighty parent planet. Like reaching into a box of 'Bits and Bites', each night is a whole new ball game. Publications like SkyNews or the RASC Observer's handbook will tell you where the moons will be on any given night, as will planetarium software like Stellarium. The planet's surface is large enough to show detail from here on earth, with its dark bands widening and narrowing, darkening and lightening and showing knots and swirls in a good telescope. The equatorial belts are the easiest to see, but the temperate belts show nicely as does darkening at the poles. Can you see mottling in the polar regions? The Great Red Spot is worth searching for; where else can you actually see a storm that is twice the size of the entire Earth?

All of this takes place against the backdrop of the constellation, Taurus. Jupiter is spending its year nestled between the horns of the bull, and this alone makes for a lovely sight: the Hyades star cluster, the Pleiades, the red giant star Aldebaran and Jupiter, all together. As if that wasn't enough, two bright asteroids join in this month. Both dwarf planet Ceres and asteroid



*(Continued on page 5)*

## The Sky This Month (continued)

Vesta can also be found in Taurus. This is an excellent opportunity to expand your list of observed solar system objects.

As always, feel free to send me any observing reports, photos, questions, or comments that you would like to share with your fellow members. I'm always happy to hear about your observing experiences. See you out there!

John  
observing@amateurastronomy.org

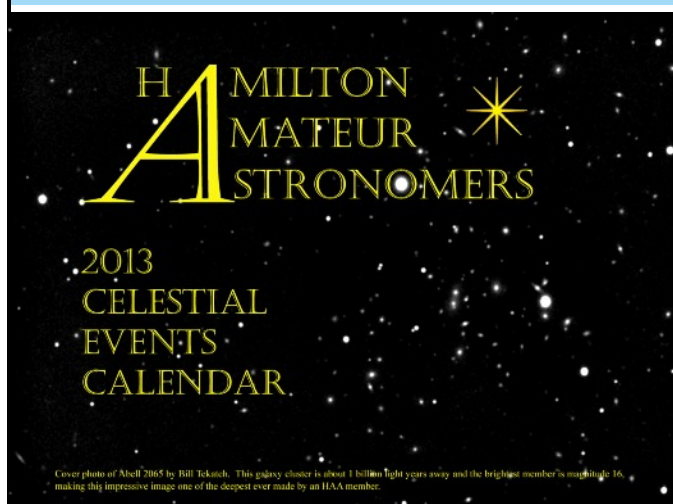


*(Continued on page 6)*

## The Sky This Month (continued)



## 2013 HAA Celestial Events Calendar



The 2013 HAA Celestial Events Calendar is now available for sale. Be sure to get your copies early!

This year's calendar features many beautiful photos of the night sky and its celestial wonders. All photos are by your fellow HAA members and proceeds from calendar sales support your club.

Individual copies of the calendar will sell for \$15.00 each or 2 for \$25.00.

Place your order early by contacting: Ann Tekatch (editor@amateurastronomy.org) or Steve Germann (treasurer@amateurastronomy.org).

These calendars make great Christmas gifts for family and friends!!



## November Meeting Summary by Keith Mann

A new membership year for the Hamilton Amateur Astronomers kicked off with the monthly general meeting on November 9. Our new chair, **Jim Wamsley**, began the meeting with the pleasant duty of presenting member **Dave Gaylor** with a complimentary membership by way of thanks for his remarkably generous donation of a beautiful Celestron Schmidt-Cassegrain telescope. This instrument will certainly see a lot of use, both as a loaner 'scope in the hands of members whose expertise has advanced to the appropriate level, and as a showpiece at the club's public nights and educational events. Plans are being made to outfit the 'scope with a CCD camera, which, when coupled to the club's laptop computer, will enable a wider range of individuals to enjoy the fantastic sights it's sure to reveal.

Our observing director, **John Gauvreau**, and a team of dedicated and hard-working members, have been busy preparing the club's 2013 Celestial Events Calendar. In his inimitable style, John presented the calendar to the assembled members and guests. Between the excellent quality of the calendar itself, the beautiful astrophotographs it showcases, and John's irresistible pitch, it's no surprise that sales were brisk. If you haven't already done so, please consider supporting your club by purchasing one (or more) - remember that they're a great choice for Christmas gifts.

**Don Pullen** is well known to HAA regulars as a council member, our webmaster, and a skilled astronomer. As this month's featured speaker, Don provided us with an informative introduction to amateur radio astronomy. A surprisingly powerful - and not necessarily expensive - range of instruments is available to those wishing to explore this fascinating and often overlooked aspect of our hobby. A particularly rewarding benefit is the opportunity to contribute to scientific research conducted by organizations such as the Stanford Solar Center (<http://solar-center.stanford.edu>). Members are invited to see Don if they have any questions or want advice or assistance in getting started with their own radio astronomy projects.



*Chair, Jim Wamsley, thanked Dave Gaylor for the generous donation of an 8" computerized SCT telescope to the club's loaner scope program. Photo is courtesy of John Gauvreau.*

Following the intermission we were treated to another installment of "Today In Astronomy" by one of our most accomplished young members, **Kevin Salwach**. Kevin's talk highlighted the anniversary of Carl Sagan's birth, among other events from the history of astronomy.

*Kevin Salwach presented the latest installment of his "Today in Astronomy" series. Photo is courtesy of John Gauvreau.*

*(Continued on [page 8](#))*



## November Meeting Summary (continued)

John Gauvreau returned to the stage to present “The Sky This Month”, pointing out upcoming celestial events worth braving the cold, dark, early hours to witness. As always, John used Stellarium (<http://www.stellarium.org>), the popular, free astronomy software package, to illustrate his talk and guide us through the sky.

The meeting closed with Jim’s reminders about upcoming club events, such as the telescope clinic and cosmology discussion group meeting, and a promise of another great meeting next month, featuring our friends from KW Telescope.



*During his presentation about distances relative to the speed of light, John Gauvreau snapped this photo of his attentive, and smiling, audience using a flash. He explained that the light from the flash would have travelled to Toronto in 1/4000 of a second - the same amount of time of the flash’s duration.*



### HAA Helps Hamilton

To support our community, we will be collecting non-perishable food items and cash for local food banks at our general meetings. Please bring a non-perishable food item to the meeting or a donation of cash and help us help others in these tough economic times.

If you would like to help or have any questions about this initiative, please contact Jim Wamsley at 905-627-4323.



## November 23 Telescope Clinic by Ann Tekatch



The evening of our annual telescope clinic at the Spectator Building was dreary with snow flurries, but the weather didn't dampen members' spirits and we had many different types of telescopes on display for the public.

Jim Wamsley brought along two of the telescopes available through our Loaner Scope Program and these attracted a steady crowd throughout the night. No doubt they will entice people to join our club!

Many of this year's guests stopped to speak to me about my 6" Skywatcher Dobsonian telescope. It is one of the scopes that we recommend to newbies. It is a very well made design with terrific optics and sells for around \$300 - less than some department store telescopes. In fact, our local astronomy shop, The Scope Store at Camtech on Concession Street, now sells the excellent Skywatcher line of telescopes. (See *Camtech's ad on p.14 of this newsletter - a shameless plug for our longtime advertiser! - Editor*)

There were various other Dobsonian telescopes on hand: Matthew & Janice's 12" Skywatcher, Kevin's 10" Starquest, Joe's 8" Skywatcher foldable Dob and Tony's beautiful, custom-made 16" Dobsonian.

Some members of the public brought their own telescopes to get some help with them. Judging by their smiles, they were not disappointed with the answers they received.

Meanwhile, Alex Tekatch and her friend, Nicky Grisch, did a brisk business selling our 2013 HAA Celestial Events Calendars.

Our scope clinics are always a great introduction to the types of telescopes available in the market. Both club members and the public benefit from them.

*(Continued on page 10)*



## November 23 Telescope Clinic (continued)

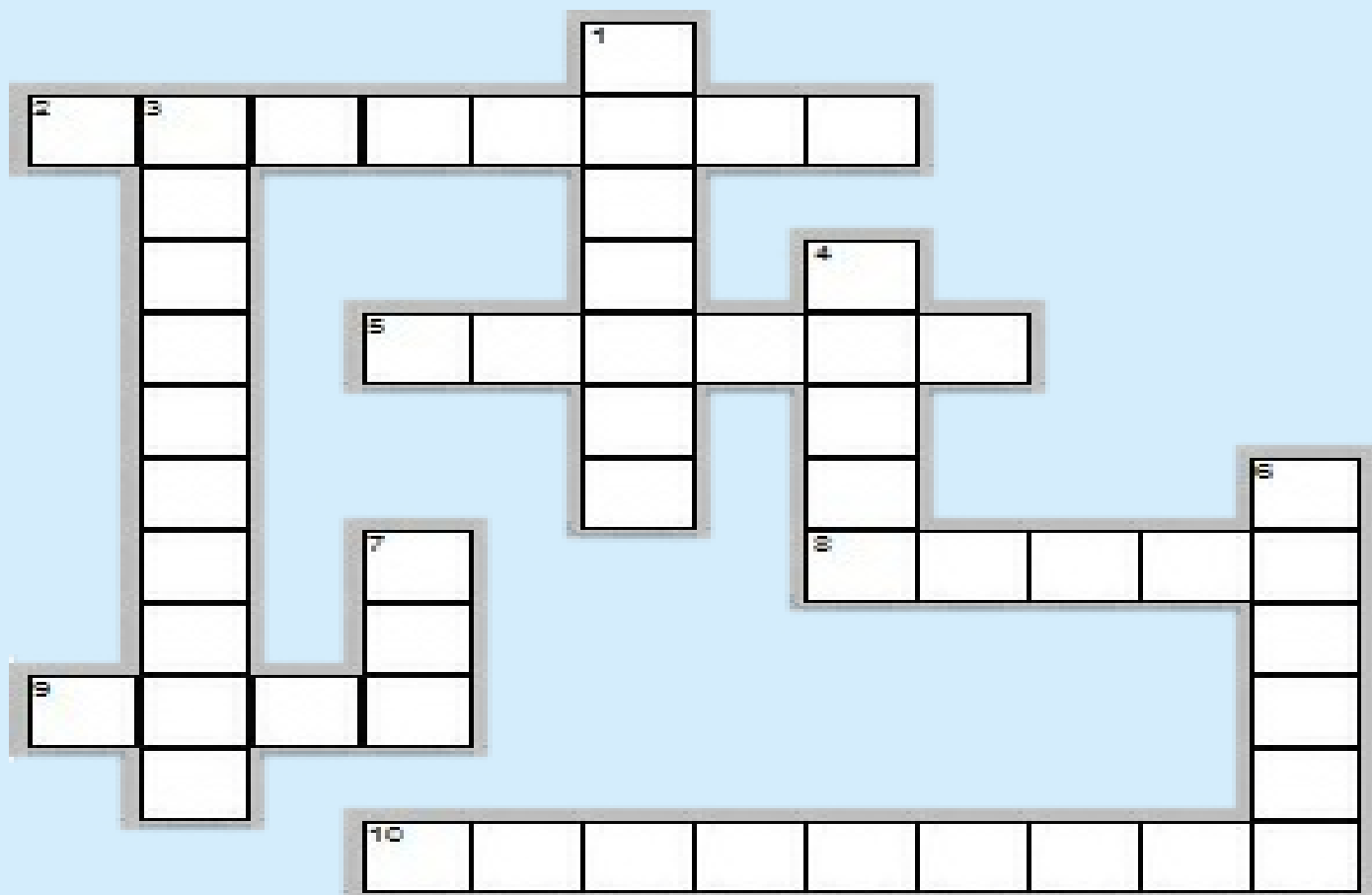


*Clockwise from upper left: Tony's custom-made 16" Dob, Kevin's 10" Sky-Quest Dob, Jim handling the crowds at the loaner scope display, Alex & Nicky eager to sell calendars and Joe describes his 8" Dob to Rosa (a former EH editor!) and her friend, Tyler. Photos by Ann Tekatch.*





## Astronomy Crossword by Mario Carr



### Across

2. The sky on Dec. 13 will be excellent to see meteors because it will be
5. It comes with a freezing vengeance on Dec. 21
8. On Dec. 9, the crescent moon is close and below this star in the dawn sky
9. On Dec. 10 this object is below Saturn in the dawn sky
10. This star is near the moon and Jupiter on Christmas Day

### Down

1. This meteor shower peaks Dec. 13
3. On Dec. 2 Jupiter is at
4. On Dec. 11 the waxing crescent moon is below this object in the dawn sky
6. On Dec. 3 Mercury, Venus and this planet are equally spaced in the dawn sky.
7. On Dec. 4 Mercury is at its greatest angle away from this object

**Answers on page 15**  
**No peeking!**





## The Model For Meaningful Space Exploration by Mike Jefferson

This article represents another in my investigations and reports of this topic. I hope that all of my readers enjoy it and will approach me if they have any questions about this or about related material not covered herein.

Today, in the field of space exploration, there is a rivalry between the exponents of manned investigation versus the supporters of robotic probing into the realms of the universe. The clash occurs, not only because there are differences of principle over which venue is best, but also over issues of effectiveness, safety and cost.

When one considers the history of the Russian and American space programmes, it becomes immediately obvious that robotic craft have contributed vastly more to our knowledge of the universe, and even the supporting developments that make them possible, than all of the manned activity that has occurred out there since the days of Yuri Gagarin. And yet, the general population still thrills to the most meager of human space accomplishments. Stunts such as para-dropping from 39 km altitude, riding in Spaceship I and 'cookbook' space station and space shuttle experiments cost enormous sums of money and reveal almost nothing about the realities of nature. Most of these are of inconsequential value when held up against the amount of money they consume and when compared to the findings they reveal. Most space scientists have serious reservations about sending people into the realms of space at all. They state, categorically, that there is simply no reason to replace robots with people and that manned activity steals monetary support from much more 'productive' instrumental exploration.

Dr. Robert Park, of the University of Maryland, has stated in his book, "Voodoo Science: the Road from Foolishness to Fraud", that Pathfinder-Sojourner is the real model by which we will explore the cosmos. The scientists at Jet Propulsion Laboratories and in other control stations around the planet are the real 'astronauts', the 'virtual astronauts', who are really 'flying' these telerobots. He maintains

that nothing of any significance has ever been achieved by the International Space Station, that it consumes vast resources, is now dependent on Russian heavy-lift capabilities and is siphoning monies away from real space science endeavours. It is, instead, the space telescopes, landers, satellites and deep space probes coupled with the internet that have made 'space explorers' of all of us, allowed us to be participants in a very human endeavour and have fostered the huge spread of knowledge around the planet.



The idea of manned exploration as the model for scientific enterprise came from the days before, during and after World War Two, when our 'automata' were crude and our electronics were large, heavy, 'dumb' and cumbersome. Coupled with that was the myth of intelligent life on Mars and that we had to go there to meet our 'broth-

ers' from another world. This idea had been further driven by science fiction tales of Flash Gordon, Tom Corbett, Space Commander Corey and the stories of a whole host of other writers before and since. After all, up to very recent times, humans had done all of the exploration on this planet. So, why not in space too?

The main arguments are as follows: there is no valid reason for people to go there, just as there is no reason for them to descend to the bottom of the sea or dig deep holes and climb down to explore Earth's crust; the risks to human health and safety are very great; and the time required to travel anywhere out there is, in many cases, insurmountable and a waste of human productivity, leading to problems of boredom and other ills.

For Dr. Park, the model for overcoming the above problems is Pathfinder- Sojourner. He is correct. However, I tend to look at things historically, because that is my background. I would go him a step or two farther back and choose, instead, Mariner 4. That was back in 1964, when it returned 22 pictures in a Martian flyby. It created, in my terms, a revolution in our thinking (Continued on [page 13](#))

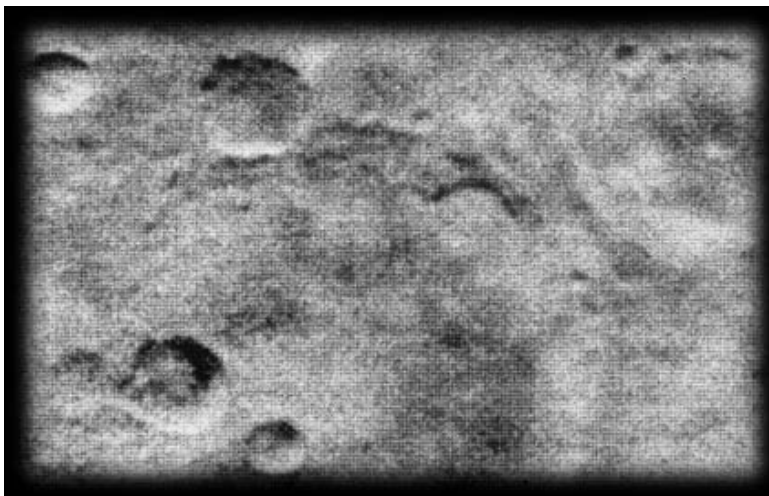
## The Model For Meaningful Space Exploration (continued)

about the universe. I was in my upper school year of secondary school education and still carried with me the vestiges of my elementary school passion for space exploration. Was I one of the 'space cadets'? Probably! Our model for investigating the universe back in those times was the 'manned route'. It really was the only one available then. We 'confronted' such problems about how we would 'land' on Jupiter (never mind the crushing gravitational forces) and explore other dangerous places in the solar system! I think that, even back then, it was becoming painfully obvious that humans would be hugely challenged when it came to exploration beyond Earth's atmosphere. I can even remember losing sleep over worrying about such problems!

After the launch of Explorer I, in 1957, the Eisenhower administration was looking seriously at the economics of robotic endeavours. However, modern electronics were still in their infancy and the public maintained its concepts of lunar colonies and glass-domed cities on Mars. So, I was very anxious to know what Mariner 4 would discover.

Mariner 4 had come from a series of previous Mariners and Mariner concepts, that were the first vehicles designed to explore space beyond the near-Earth regions and in the vicinity of Mars. In fact, Arthur C. Clarke had even boasted of his pride at seeing that these craft bore a very strong resemblance to his "Automatic rocket surveying Mars" on the colour frontispiece of his earlier work, "The Exploration of Space". This had already been written in 1951. "An impression of such a missile is given in the frontispiece. The little rocket (the last step of a far larger machine) left the Earth 250 days ago and during that time has been coasting freely, like a comet, along the path that leads to Mars with the least expenditure of fuel. It has now exhausted its last reserves, changing its orbit into one which will make it circle Mars for ever. Under

the guidance of a tiny yet extremely complex electronic brain, the missile is now surveying the planet at close quarters. A camera is photographing the landscape below, and the resulting pictures are being transmitted to the distant Earth along a narrow radio beam." (p. 42) However, Clarke wanted manned flight there, with visions of some possibility of plant life (at the very least) and possibly the existence or remains of an advanced civilization from whose accomplishments we might take some advantage after we had landed. Such was not to be the case!



*One of the photos taken by Mariner 4.  
Photo courtesy of NASA*

Mariner 4 found an atmospheric pressure  $> 1/100$  that of Earth. Oxygen was almost non-existent. The Martian atmosphere was mostly carbon dioxide, nitrogen and argon. The mean temperature was  $\sim -100^\circ\text{C} \pm 20^\circ\text{C}$ . "No matter which of the alternative atmospheric estimates from Mariner 4 readings one chose, the possibility for life,

past or present, seemed diminished." ("Mars: The NASA Mission Reports"). All of the 22 images taken by the spaceship cameras showed a pocked and cratered, desert-like landscape. The only redeeming feature was that it seemed to be brighter than our moon, likely due to there being a comparatively much denser atmosphere. This would cause more scattering of sunlight and foster more even illumination of features.

The 22 pictures were a devastating blow to our previous concepts of Mars, many of which dated back hundreds of years. Gone were the canals of Percival Lowell and Schiaparelli. Gone were the futuristic Martian cities. Gone were the Earth invaders of H.G. Wells. Gone was the Martian civilization of Ray Bradbury and the Land of Barsoom of E.R. Burroughs. Mars was more like the Moon than like Earth. However, because of its atmosphere, it might shed light on early Earth history. Because of its cratered surface, it is probably very ancient. Because of its

*(Continued on [page 14](#))*

## The Model For Meaningful Space Exploration (continued)

good state of ancient preservation, its atmosphere has probably always been very tenuous. Significant amounts of free water have likely never been present because of the state of the ancient preservation - the observed erosion is not severe enough. The planet is not internally dynamic and the surface features are generally far less bold than those of Earth. The magnetic field is extremely small. As such, it is probably bathed in cosmic radiation. The Mariner 4 photos do not say that there was life or no life on Mars. If it never had oceans, fossils would not exist. However, if it is in its near-original state, it may be the only place in the Solar System where we can expect to find the remains of life in its original forms - forms that have long disappeared from Earth.

In one flyby, one robot not only re-evaluated our 'visions' of Mars, but pointed to the directions we needed to be following to explore the universe and find our place in it. "Whereas 1964 was a year of optimism for the burgeoning field of exobiology, 1965 was one of external criticism and reapprais-

al." (Mars: The NASA Mission Reports") Not only was there criticism of the exobiology programme, there was also much concern expressed about all of NASA's work and its benefits for the American population. While this attitude was short-sighted overall, it was probably well-placed regarding concepts about launching humans into the cosmos.

Our future space missions and telescopic endeavours should probably leave the human astronaut segment out of the equation, altogether. As Bob Park says, our future will be to learn how to go to and explore places where we cannot.

### Bibliography

=====

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Godwin, R. "MARS: The NASA Mission Reports" - Apogee Books

Park, R. "Voodoo Science: The Road From Foolishness To Fraud"

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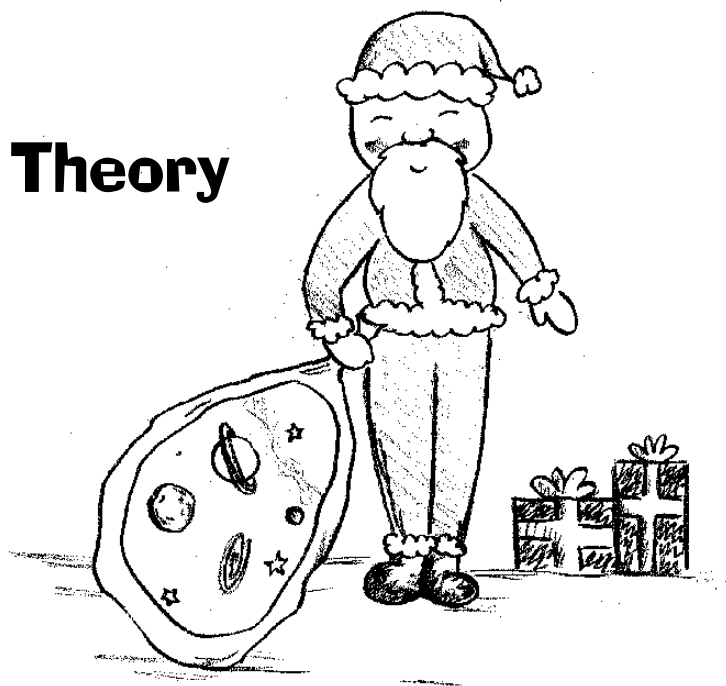
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## The Big Bag Theory



### Answers to Astronomy Crossword on Page 11



## UPCOMING EVENTS

**December 1, 2012 - 7:30 pm Cosmology Discussion Group** meets in the basement rec room of 75 Main St., Dundas, ON. Contact Jim Wamsley for details ([chair@amateurastronomy.org](mailto:chair@amateurastronomy.org)).

**December 14, 2012 - 7:30 pm General Meeting** at the Hamilton Spectator Auditorium. Our speakers will be Brian Dernes & Brady Johnson of KW Telescopes.

**January 11, 2013 - 7:30 pm General Meeting** at the Hamilton Spectator Auditorium. Guest speaker to be announced.

**January 26, 2012 - 7:30 pm Astrophotography Group** meets in the basement rec room of 75 Main St., Dundas, ON. Contact Jim Wamsley for details ([chair@amateurastronomy.org](mailto:chair@amateurastronomy.org)).

### 2012-2013 Council

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