ent Horizon

From The Editor

It's ironic that this time of year offers the best opportunity to view all 110 of the deep sky objects on Charles Messier's list. The nights are getting shorter, the weather is wildly unpredictable, our observing skills are rusty and our telescopes sit neglected and gathering dust. It isn't the best time to be putting your equipment and skills as an observer to the ultimate test: an all night observ-a-thon. That's probably what makes the Messier Marathon such a difficult yet appealing challenge. If you can pull it off, if you can see all 110 objects on a single night at this time of year, you deserve the respect of your peers!

Are you up to the challenge? If not, join us for as long as you can or sponsor another observer and give them another reason to push themselves to out-observe, out-wit and out-last the competition!

Clear skies!

Ann Tekatch, Editor Editor@astronomy.org

P.S. Check out Mario's crossword puzzle this month. You can now complete it directly on your screen.

Chair's Report by John Gauvreau

Winter keeps many of us indoors and as amateur astronomers, this means a little less observing during these cold, snowy months. Thinking back on this past month though, I realize that although my telescope may share some characteristics with hibernating animals (and I may experience some torpor myself!) I have actually enjoyed many aspects of this hobby. Only a few days ago the shuttle Discovery lifted off into space on its last mission to the International Space Station. You can see the space station (and space shuttle) from your own back yard as they speed overhead at 25,000 kph. One website I like to use for accurate timings is Heavens Above (www.heavens-above.com). We are right in the middle of a very favourable viewing period for the station, as it passes overhead in the early evening. Only a few days before Discovery's launch, former Canadian astronaut Dave Williams gave a public lecture in Hamilton, describing first-hand the exhilarating sensations of spaceflight, the wonders seen from Earth orbit and the compelling need to care for our fragile world. Earlier in the month the unmanned space probe known as Stardust-NeXT arrived at Comet Tempel 1 where it sent back some extraordinary images. When I started in this hobby as a youth (okay, it has been a few years, but not that many!) I never dreamed that seeing a comet so close would be possible. And I have just finished reading a book on time (the book was about time; I didn't finish it on time, as there was no specified schedule to read it!), by our January speaker, Dan Falk. This month we will be visited by Robert Godwin, from Apogee books and (Continued on page 2)

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Chair's Report (continued)

author of the NASA Mission Reports. So, although for most of us this is a quiet time, there is still much to enjoy in this hobby.



Stardust NeXT image of Comet Tempel 1

The club uses this time to prepare for projects and activities coming up during the year, and there are some exciting ones in the works. This past month Don, Steve and I visited Binbrook Conservation Area, the HAA's darksky observing site, for a meeting with conservation authority members to discuss installing an information kiosk for daytime users of the park. Many people don't even think that after they go home from the park there is another, darker and equally beautiful side that shows itself and this would give them the chance to learn about the night sky. During that daytime meeting, I was reminded of the opposite; that during the day the BCA is a beautiful area, with abundant wildlife and natural scenery. Visiting only at night, we sometimes forget that. After a very favourable first meeting, we look forward to our project advancing over the upcoming year.

Another big step forward for the club this past month is something you can read about elsewhere in the Event Horizon. The generous donation of a telescope will help get a telescope loaner program up and running. Although the night sky is accessible to all, some members of our club don't have the opportunity to use a telescope to enjoy its beauty. Hopefully this will be one more benefit of membership that they can enjoy, and perhaps in the future we can extend the program outside the club and into the community at large, bringing the wonders of the night sky to many people across the city.

For our own members we are planning a trip back to McMaster University's McCallion Planetarium, for another entertaining show or two, and other outings are in the works for the year. And of course, we will have our own public observing nights and sidewalk astronomy sessions starting as soon as the weather improves. So, as you can see, although each of us has our own way of enjoying the hobby on our own, as a club we can do things that we can't as individuals, and that is one of the great benefits of the HAA. Feel free to ask about any of these ongoing projects.



A photo taken during our last outing to McMaster's Mc-Callion Planetarium. Photo courtesy of John Gauvreau.

The HAA Imaging Clinic is scheduled for Saturday March 18th, and this has turned into an annual favourite. Our club is rich with skillful and talented astrophotographers (just look at our calendar!) and each year they give of their time to help the rest of us become better sky-shooters. Our own Kerry-Ann Lecky Hepburn has made quite a reputation for herself (*Continued on page 3*)

Masthead Photo Credits:

Left: A photo montage of the Messier objects from: http://upload.wikimedia.org/wikipedia/commons/6/6c/Messier.all.750pix.jpg

Right: Portrait of Charles Messier, painted by Desportes in March, 1771 when Messier was 40 years old. Charles Messier commented on the back of the portrait, "This portrait is a good likeness, except that I appear younger than I am, and I have been given a better expression than I have." (from: http://seds.org/messier/xtra/history/cm_image.html)

Chair's Report (continued)

over the past few years, having her exquisite images appear in innumerable magazines and exhibits and having her images chosen for NASA's Astronomy Picture of the Day

(<u>http://apod.nasa.gov/apod/astropix.html</u>) three times! We are lucky to have her lead us on this once a year opportunity. Bring your laptop and images for a night that will be both educational and fun!

Another perennial favourite is the Messier Marathon. This time of year gives observers the chance to see the greatest number of Messier objects in one night, and a marathon observing session has become a traditional observing activity each spring. The HAA takes this opportunity to not only have a fun time out at our Binbrook observing site, but also to raise funds for the club. By gathering sponsors for your observing session and collecting donations from them, you can have a great time and help keep the HAA financially viable. If you don't want to collect sponsors and observe yourself, think about sponsoring another member. Sign up sheets are available at the meeting, and even better, you can also sign other's sheets there too!

Speaking of donations, you can also read in the Event Horizon about out efforts to collect food and funds for the local food bank. The response from members and guests has been tremendous, and our own Jim Wamsley deserves a big "thank you" for suggesting the idea and implementing it so successfully. Through this, our public observing programs and other ways, the HAA is truly a valued part of the city.

So you can see how busy one can be without ever taking a telescope out. However, I'm quite willing to be just a bit busier this month if it means getting some good nights under the stars with my scope and fellow HAA members.

See you out there!

John chair@amateurastronomy.org



The Bay Area Science & Engineering Fair

March 23-26, 2011 / Mohawk College / Hamilton ON

BASEF 2011 Big ideas. Infinite possibilities.

The Hamilton Amateur Astronomers continue their support of the science fair in memory of our late Honorary Chair, Jim Winger, by awarding a prize for the best astronomy- or physics-related project. The science fair's award ceremony is scheduled for Saturday, March 26 at Mohawk College. Details regarding public viewing hours and the location of the science fair can be found on BASEF's website at: http://hwhsef.mcmaster.ca/

March Treasurer's Report by Don Pullen

(Unaudited)

Cash opening Balance (1 Feb 2011)		\$ 5756.72
Expenses		\$ 84.75
Revenue		\$ 318.00
Closing Balance	(28 Feb 2011)	\$ 5989.97

Notes:

1. Major revenue sources included: 50/50 (\$48), Memberships (\$240), Calendars (\$30)

2. Major expenses included: Calendar printing (\$84.75)

Ocean Front Astronomy in Puerto Vallarta, Mexico

My wife Janice and I spent the last 10 days of January in Puerto Vallarta. I hoped to do some astronomy while I was there and witness the "green flash" at sunset on the ocean horizon. I won't bore you with travel log style details of the trip. All I'll say is that it was hot, sunny, the bay itself is surrounded by a beautiful mountain range and the people we met were very friendly. We had a great time.

I took my 7x50 binoculars and my 'Sky and Telescope Pocket Sky Atlas' on this trip. I didn't research the sky I would see down there because I was guite happy to 'discover' it in real time. Well, as it turned out, we had a 6th floor view over-looking the ocean right on the beachfront. This turned out very well, as I had the whole western sky as well as an excellent view to the south over the mountains and a reasonable view to the northwest. Because of this turn of luck, I was able to fall out of bed at 3:30 one night and 1:30 on another and observe until around 6:00 before falling back into the bed. On another evening I went out onto the beach around 9:30 and observed until around 11:00. For most of that time, I was the only one on the beach!

Puerto Vallarta's latitude is at 20deg north compared to Brantford's at 43deg north. Therefore a lot of the southern constellations are available to view. This is the first time I've seen any of these, so I spent some of the time getting oriented. One of the affects of being farther south, is that the constellations seem to fall over on their sides as they set in the west. It was interesting to see Canis Major 'sitting' on the ocean horizon like a dog sitting on the rug. Also, constellations like Orion are directly overhead at their highest elevation. I'm not used to lying on my back to get a good view of Orion! Anyway, it turns out that the furthest south I could see was about -67 degrees; just enough to catch the Southern Pleiades (IC 2602) at around 4:30 in the morning. Another thing I noticed was the 'squeezing' of the longitude lines when looking at the southern latitudes. Using my hand to measure degrees of separation between objects just didn't work when I looked that far south. Oddly enough, I've never noticed that when I look to the north at home. I guess that's familiarity for you.

So what did I see? Well, quite a lot actually. Here are the highlights:

The Fornax Dwarf Galaxy. I caught a good look at the Fornax Dwarf galaxy while standing out on the beach. It's quite large and dim (about 2/3 the size of Andromeda), with a very even texture to the light. There didn't seem to be a central bulge that I could see. Here's a NASA picture, which verifies the lack of a bulge:



Bright Stars. I saw some very bright stars including Canopus (next brightest star after Sirius) in Carina, Rigil-Kent aka Alpha Centauri (fourth brightest star in the sky) in Centaurus (with Beta Centauri just west), Alpha and Beta Crux and Alpha Eridanus (Achernar). In fact the brilliance of some of the stars is one of the things that impressed me the most while I was observing. Canopus was spectacular; changing colour constantly, while Alpha Centauri just blazed pure white. While preparing this article, I looked up a list of the 20 brightest stars (visually) and realized I've seen them all now, which is kind of cool. This next image (page 5) shows you just how busy this piece of sky is (credit Akira Fujii, public domain). You can see the Southern Cross down and to the right of Omega Centauri (boxed).

(Continued on <u>page 5</u>)

Ocean Front Astronomy in Puerto Vallarta, Mexico (continued)



The Southern Cross (Crux) was very easy to spot in the south along with 'The Jewel Box' (NGC4755) just east of Beta Crux and the Eta Carina nebula in Carina was quite easy to spot along with some nearby objects from the IC and NGC catalogues. Visually, this is a very busy area of the sky and I spent a lot of time looking here. In this next picture (credit Akira Fujii, public domain), you can see the Coal Sack and Crux on the left edge and Carina in the centre. The Southern Pleiades appears just below the box around Eta Carina.



The Vela supernova remnant. I found the location of the Vela supernova, but I couldn't see it. It's still a pretty area of the sky and worth taking time to explore.

The "star" of the show; Omega Centauri. So after spending a lot of time scanning the Milky Way encompassing Crux, Vela, Puppis and Canis Major, I moved onto Centaurus. Omega is a globular cluster. At first, it didn't click in my head that Omega's symbol on the map is rather large compared to say the symbol for M13 in Hercules. Maybe it had something to do with it being 5:00am! Anyway, none-the-wiser, I star hopped north and east from Crux and there it was. My jaw dropped and I don't mean that in a figurative way! It was bigger in my 7x50 binos than M13 appears in my 80mm refractor; way bigger in fact. I remember staring at it, then turning to Janice and saying "It's huge!" several times in just a few seconds. It's at least 1/2 a degree across and it was the highlight (astronomy wise) of my trip. Here are a couple of NASA images. The first is a 4.6x4.1 degree image, which is similar to how it appeared in my binos, and the second is a close up.



I guess I should mention a chance meeting on the beach while observing. A couple approached and the husband asked if he could look at the Orion nebula. I said "sure" and that was the start of an interesting conversation with another astronomer. His name is Randy and he's a member of the Thunder Bay RASC. It turns out that he has built a couple of observatories on his property about 20 minutes from the city. He (Continued on page 6)

Ocean Front Astronomy in Puerto Vallarta, Mexico (continued)

has a web site <u>www.thunderbayobservatory.com</u> and he is very active, educating the public.

That concludes my trip report from the sunny south. I think next time I'll take either my 9x63 binos and/or my 80mm refractor. I've wanted to see this region of the sky for years and it was great to finally get the chance. By the way, we never did see the green flash at sunset, although the sunsets were spectacular. Here's one of them, just for you.





A Surprise Phone Call by Jim Wamsley

For the past couple of years, my phone number has been the contact number for the Hamilton Amateur Astronomy club. Therefore my phone number has

been posted on our flyers, the 'Welcome to the H.A.A.' publication, our website and most newspaper articles. This results in me being the club's ear to the public.

In this capacity I have received many interesting calls: most calls are just people checking on dates and times of our public events. I have received calls reporting meteorite sightings, questions about auroras and X class solar flares, among other celestial



Jim Wamsley accepts the donation of a very nice 8" Dobsonian Skywatcher telescope from Don Pfeffer.

events. Some, however, are of a much different type, people seeing strange lights in the sky, as well as others claiming to have definitely seen UFOs.

Answering the questions of the first group is easy, just consulting my H.A.A. calendar. For the second

Carr, and I had to tell him that Mario was not available, and he must, unfortunately, speak to me. He then identified himself as Don Pfeffer, a member of the Hamilton Naturalist Club. He had been reading Mario's Sky This Month articles in the Wood Duck, their monthly newsletter. During the course of our conversation, Don (Continued on page 7)

group, I answer them to the best of my ability and knowledge; sometimes referring them to publications and websites that may help them. The final

> group is much more challenging to field. I try to explain that our current understanding of physics would rule out the chance of extra terrestrial travel, while trying to reassure them that they saw something with a simpler explanation. Although fielding these calls can be very challenging and at times humorous, I have really enjoyed doing this.

> Recently, I received a totally different type of call. The caller first asked to speak to Mario

A Surprise Phone Call (continued)

asked if we (the club) would like to have an 8" Sky Watcher Dobsonian telescope. I replied: "Would we!" He explained that he had this scope, but found it too large and unwieldy to use. He was happy just using his birder scope. He said he was willing to donate his Dob to us for our use, in any way we saw fit. I told him that we were looking at the possibility of starting a telescope loaner program, and that an 8" Dob would be a perfect starter. We quickly made arrangements to meet and he dropped off his scope, pictured here. We, in turn, gave him a copy of our calendar, a copy of the 'Welcome to the H.A.A' pamphlet and an H.A.A brochure, as well as an invitation to join us at our club meetings. I thanked him profusely, on behalf of the club, for his generous donation.

The Council is working out details of the loaner program, and these details will be forthcoming. If you would like more information about this donor scope, or wish to donate one of your own, please feel free to call me. My number is 905-627-4323.

Clear Skies, Jim Wamsley



Through the Looking Glass by Greg Emery

If all has gone well, then by the time you are reading this, I will be somewhere in Arizona. I will be there for 7 days with my family. Originally we had planned to go to Kitt Peak Observatory for a tour and guided observing session. The weather looks poor, and I had to cancel the reservations. But all is not lost. Near the end of our stay we will be in Flagstaff. So the chances of getting to Meteor Crater and/ or Lowell Observatory look fairly good. If I get some good pictures, I will show them to you in April.

In February, I wandered aimlessly through a description of the basic structure and classification of galaxies. This month I would like to look at star clusters. Before that, however, I would like to consider one other thing - asterisms. An asterism is a group of stars that form a recognizable shape in the sky. The stars may all be in the same constellation or in different ones.

An example is the Big Dipper in Ursa Major. The Big Dipper is an asterism as it is not the entire constellation. Other well known asterisms are The Square of Pegasus, Keystone of Hercules, Summer Triangle and the Northern Cross. Smaller asterisms abound as well. Look for the Coat Hanger Cluster in Vulpecula as an example.



(The asterism of the Big Dipper (left) and the Constellation Ursa Major on the right. Taken from http://my.execpc.com/60/B3/culp/astronomy/Winter/Bears.html) (Continued on page 8)

Through the Looking Glass (continued)

Open clusters are groups of stars that are not necessarily full of stars or tightly packed together in a relatively small space. Trumpler developed a classification for open clusters that depends upon how well the cluster stands out from the surrounding (background) stars, how bright the stars are and finally how many stars there are in the cluster.

Concentration and detachment from the surrounding star field	Range in brightness	Number of stars
Class I: The cluster is strongly de- tached from the stellar background with a strong core stellar density.	Class 1: All the stars present about the same brightness.	p: The cluster is poor in stars (less than 50 stars).
Class II: The cluster is detached from the stellar background with a light core stellar density.	Class 2: The stars present a regular range of brightness.	m: The cluster has a medium num- ber of stars (from 50 to 100 stars).
Class III: The cluster is detached from the stellar background with- out a denser core.	Class 3: Beside some very bright stars, many weaker stars with a wide magnitude range.	r: The cluster is rich in stars (more than 100) The letter 'n' at the end of the classification indicates a nebula linked to the cluster.
Class IV: The cluster is weakly de- tached from the stellar back- ground, the area having a higher stellar density but no visible core.		

As an example, the Wild Duck Cluster (image below from http://apod.nasa.gov/apod/ap030122.html), which when viewed through a telescope or binoculars is a cluster which is very distinct from the back-ground or surrounding stars, has stars that are more or less the same brightness and has a large number of stars (50-100). From the table above the cluster is then classified as 12 r



Globular Clusters are star clusters that are just like open clusters, except they are completely different. Globular clusters are more or less spherical collections of stars. The stars are all of a similar age which tends to be quite old. These spherical balls of stars orbit around the halo and central bulge or core of the galaxy. There are of the order of 250 of these in our Galaxy.

A classification for theses types of clusters assigns a Roman numeral based the density of stars within the cluster specifically in the central region: I being very dense and XII being evenly distributed. Some pictures on the next page show the ranges. The classifications of the clusters are: M75(I); M13(V); M22(VII) and M55(X).

(Continued on page 9)

Through the Looking Glass (continued)



M22 Photo from: http://seds.org/messier/m/m022.html



M75 Photo from: <u>http://www.sidleach.com/m75.htm</u>



M13

Photo From: http://www.nightskyinfo.com/archive/m13_globular_cluster /m13.jpg



M55 Photo from: <u>http://seds.org/messier/Jpg/m55.jpg</u>

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 new initiative, please contact Jim Wamsley at 905-627-4323.

February 11, 2011 Meeting Summary by Bob Christmas

The February HAA Meeting was kicked off by HAA Chair John Gauvreau, who welcomed everyone in attendance to the Spec Auditorium, then reminded everyone about the upcoming Messier Marathon, and the HAA Book Club meeting of the month.



HAA Chair, John Gauvreau, helps Dr. Chou set up for his talk at our February general meeting. Photo courtesy of Steve Germann.

John then introduced our main speaker of the night, Dr. Ralph Chou, an associate professor of Optometry at the University of Waterloo, as well as an avid amateur astronomer who currently heads up the RASC Toronto Centre, and who represents Canada at the International Standards Organization (ISO) with respect to Solar Filter standards. Ralph's topic was optometry, and how it applies to astronomical observing and how eye problems associated with age affect the way we see, and what we can see, through the telescope.

He gave an overview of the eye's overall structure, describing a few details about the cornea, lens, and retina, including how the retina's "rod" and "cone" light receptors work.

Ralph then talked about various eye diseases and ailments, common and uncommon, including presbyopia ("far-sightedness"), diseases of the eyelids, iris, lens, cataracts, loss of contrast, detached retina, dry-eye, glaucoma, and two types of macular degeneration, "wet" and "dry".

He also explained the adverse effects that too much ultraviolet exposure, high blood pressure and diabetes have on the eye.

As he described the various eye conditions, Ralph explained how these would affect observing at the telescope eyepiece, particularly how much more difficult it is to see the faintest fuzzies visually.

Thanks go to Dr. Chou for an interesting and informative talk!

There was an intermission as usual, followed by Alex Tekatch picking the winning tickets for the door prizes and the 50-50.

(Continued on <u>page 11</u>)

February 11, 2011 Meeting Summary Meeting Summary (continued)



Left: Matthew Mannering and Alex Tekatch congratulate one of our prize winners, Joe Hilliard. Photo courtesy of Steve Germann.

HAA Observing Director Steve Germann took the floor after that to present The-Sky-This-Month for February 2011. He showed new images taken by Kerry-Ann Lecky Hepburn of IC 417 in Auriga, and by HAA EH Editor Ann Tekatch of the winter sky above the houses on her street. Also shown were Kerry's image of the open clusters M35 and NGC 2158 in Gemini, as well as an anonymous pic of M1, the Crab Nebula in Taurus, deep sky objects that are must-sees in the Winter Sky.

Steve also talked about the planets, including Mars, which is near superior conjunction, on the other side of the Sun from where Earth is now. Because of that, the Mars Reconnaissance probe in orbit about Mars is not communicating with mission control, not until Mars has rotated sufficiently back out from the Sun's glare in the morning sky.

He also talked about the network of Iridium Satellites orbiting the Earth, and how their appearances and brightnesses can be accurately predicted for various nights and various times at various locations around the globe.

Steve also touched upon double-stars in the Winter Sky, including Sirius and its white dwarf companion, Sirius B, the catalog of double-stars of the Astronomical League (the U.S. equivalent of the RASC), as well as the HAA's own "Rising Star" certificates, which recognize the accomplishments of up-and-coming HAA members.

Steve concluded by reminding the audience of the increasing activity of the Sun these days as it approaches solar-max (the peak of flare activity during its 11-year cycle) in a couple of years, and to keep an eye open for more displays of aurorae as a result. On that note, Steve mentioned the Canadian Space Agency's AuroraMAX website, the URL for which is:

http://www.asc-csa.gc.ca/eng/astronomy/auroramax/default.asp

Enjoy!

Right: Matthew and Don welcome members and guests to our February general meeting. Photo courtesy of Steve Germann





Mario's monthly crossword is now a "fillable" form - editor

Across

- 2. On March 6, 2011 the moon is at
- 4. On March 25, 1655 this astronomer discovers Titan
- 8. On March 1, 2011 the moon nears this planet before dawn
- 9. During March 2011 this planet rises mid-evening and will be high in the south after midnight
- 12. On March 14, 1879 this physicist was born
- 13. This planet can't be seen since it's lost behind the sun this month
- 14. During March 2011 this object will be very low in the west at dusk and lost in twilight by mid-month
- 15. On March 13, 1855 this astronomer was born.

Down

- 1. On March 19, 2011 the moon is at
- 3. As of Nov. 2010 astronomers found more than 500 of these.
- 5. During March 2011 this planet will be low in the western sky at evening twilight.
- 6. During March 2011 this object will be low in the western sky at dusk and lost in twilight later in the month.
- 7. On March 23, 1912 this rocket man was born
- 10. On March 19, 2011 the full moon is also known as this type of moon
- 11. On March 4, 1781 this astronomer discovers Uranus.

Answers can be found on p.17

The Sky For March 2011 by Steve Germann

This month's featured constellation is Leo, the lion. It follows Cancer and Gemini through the sky. Being on the Zodiac line, Leo is regularly visited by planets. Not many years ago, Saturn was in Leo; Saturn has now moved on to Virgo, spending an average of 2.5 years in each zodiac sign. However, there's plenty left in Leo for us to see.



Start with Regulus. It's in opposition this month, rising at about 6 PM. At magnitude 1.45 it's the 22nd brightest star in the sky. Not surrounded by dazzling competitors, it's a bright beacon in Leo, attributed to the heart of the lion.

Regulus is a 4-star system, 3 of which have been directly observed, and 2 of which we can see with a good pair of binoculars. First, you need to be able to find the whole constellation. You can use Rigel, the southwest star in Orion, and Procyon to find Regulus.

How to find Procyon, you say? Well, let's get the chickens and eggs in a row. To get to Procyon, go east from Orion's belt, to Sirius, turn 90 degrees North and go about the same distance. Procyon is bright; you won't miss it. Now having Procyon, proceed to locate Regulus. Draw a line from Rigel to Procyon, and continue the same distance in the same direction, and you will get to Regulus. In reality you would cover 700 light years in the process, because Rigel is about 777 light years away, and Regulus is only 77 light years from here.

Once there, first admire the inverted '?' of Leo's mane. That's the most lion-like part and given only a few stars, I have to admit that the lion shape is quite appropriate for this one. The ancient Chinese considered the stars of Leo to make a horse. No telling if they had knowledge of lions in ancient China. Tigers would not have been a compelling alternative.

(Continued on <u>page 14</u>)

The Sky For March 2011 (continued)

Here's a great page about the constellation with an account of the story of Leo, Hercules, and Coma Berenices

http://starryskies.com/The_sky/constellations/leo.html

Let's think about Regulus for a while. It's spinning faster than the earth, with a rotation period of only 15.9 hours. If it spun in 12 hours, it would fly apart. As it is, it's flattened, and the poles of Regulus are more than 5 times brighter (per unit area) than its equator. Compare this to the stately rotation of the Sun, taking 1 month to rotate once.

Regulus is a multiple star system with 4 stars. It appears as a binary in the sky, with a separation of 177 arc seconds, or about 1 tenth the apparent diameter of the moon. Can you spot the dimmer companion, with a brightness of about 8.5? It helps to know where to look. If the line from Regulus to the bottom star of the mane (the stem of the '?') is called 12 o'clock, then look in the 1:30 PM direction for the companion, called Regulus B and Regulus C. Yes, you need to know how to imagine a clock if you want to do astronomy. The companion of Regulus A is too dim to observe, being a white dwarf too close in.

Leo has several worthy deep sky objects. In the order from West to East, the Messier objects in Leo are M95, M96, M105, M65 and M66. The latter 2 are part of the Leo Trio, along with the slightly fainter NGC3628. The brightest of the one, by a shade, is M66, at magnitude 9.0



If you have a big scope and some time, you can seek out Wolf 359, the 3rd closest star to our solar system, and very faint at magnitude 13. It's also about the reddest star you will ever see, since it's very cool and very close. (Photo at left from Wikipedia.)

http://en.wikipedia.org/wiki/Wolf_359

tells the whole story. The highlights are, magnitude 13, and about as close to the ecliptic as you can get.

Here's a link to a plan for making your own model of the nearest stars, in 3D!

http://www.niac.usra.edu/files/discover/Star%20Map%2 0Outreach%20Project.pdf

You can point your telescope and see light from a star

that will burn for 8 trillion years. It would appear 10 times as bright as the full moon if it were placed 1 AU from the Earth. Because its power output is low, and its being stirred by convection, it does not have a 'core' that will fill up with Helium and halt fusion.

This is definitely the best time of the year to go have a look at the Full Moon. The Worm Moon, so named for the time of year when the robins start to return from the south, is closest to earth at this time of year, so it's going to be the biggest and clearest full moon. Tell your friends that this is the closest full moon of the year. (But it's not going to appear the size of Mars.)

Now, if you want a really detailed view of the moon, here's a link to a 500 megabyte tiff file of the 'near side' of the moon, with pixels only 150 meters in size. That means the smallest crater you can see is still bigger than a stadium, but it's amazing what LRO sent us.

http://wms.lroc.asu.edu/lroc_browse/view/wac_nearside

The website allows you to pan and zoom, much like Google maps. Unlike Google maps, the finest scale is still too coarse to see things like the lunar lander. For that you would need a trillion pixels.

(Continued on <u>page 15</u>)

The Sky For March 2011 (continued)

This is also the best time of the year to look for Mercury. Around March 7, you will see bright Mercury close to bright Jupiter, just after sunset. Over the next week they will move apart again. Bag Mercury while you can... it will never be easier. No telescope required, it's brighter than Regulus!

With the Messier Marathon coming up, the topic of M1 keeps coming back. This animation shows the actual expansion of M1 over the last 72 years (it's less than 1000 years old now, so that's a significant time).

http://api.ning.com/files/GALUJAwI5NfcWh13f8CPhH1yjRXE6TN2I4vTPMInxEchAeYM87QRGp0Py8hYDYo0NAQgJDUZqEy8soQcl8pIWYx7iVdKGoz/19392011Crab.gif

Using measurements of that expansion, and spectroscopic measurements of (related) expanding gases, we can estimate the distance to M1 very accurately.

If you can get out and look for Messiers, this is the month to do it. Just about every one of them is visible at some point in the night.



App-stronomy App of the Month: "Pocket Universe"

by Andrew Bruce

Is that a Type II supernova in your pocket, or are you.....well, you know the rest. When I first

started in astronomy, I found myself often going to my favourite observing site with briefcase full of star charts and reference guides. Often fumbling with them in the dark and having to routinely wipe the collected dew off the pages, I have found that it can be, at times, a little inconvenient to lug these things around with me. My iPod Touch has made these charts and guides ALMOST obso-



lete with the release of "Pocket Universe". Pocket Universe is an iPod/iPhone Application that includes almost everything you need to spend a night under the stars. This application not only gives you an incredibly detailed planetarium (displaying over 10,000 stars and Deep Sky objects), but also includes a "Tonight's Sky" and Astronomy News features, a lunar map and phase calendar, real time positions for Saturn and Jupiter's moons, ISS predictions, star and constellation quizzes and much, much more. A cool feature built into this App is the ability to point your device at the night sky, and have it display exactly what you are looking at (with labels, constellation lines and position info) in real time, using the built in compass and accelerometers. Simply scan the skies with your device, for an evening tour of the night sky, or punch your favorite object, and have the device guide you there with on-screen directions. Note: the iPod Touch does not have a compass, the up/down movement is automatic, but you will need to drag the display left/right yourself.



At a meager \$2.99, this app is WELL worth the money. The only drawback is that some users may find it difficult to see the screen and manipulate the device on the iPod or iPhone, but that's what the iPad is for! This certainly falls within my top ten list of Astronomy Apps, and for the cost of a cup of Starbucks Coffee, you can't go wrong!

Food Share Report by Jim Wamsley

Over the past 2 months, I have dropped off more than 150 lbs. of food to the Salvation Army for their food share, along with \$10.00 in cash.

The food bank tells me that the need is great and they thank us very much for our contribution. This is all thanks to members and guests contributing at our meetings.

We will continue to have the food donation box at our meetings, and anything you can contribute either in food or cash will be gratefully appreciated. Thank you for all your help in this endeavour. Keep up the good work.

Clear Skies Jim





UPCOMING EVENTS

March 11, 2011 - 7:30 p.m. General Meeting at the Hamilton Spectator Building. Robert Godwin of Apogee Books will be our main speaker.

March 18, 2011 - 7:30 p.m. Imaging Clinic at the Hamilton Spectator Building. Join fellow HAA members at this informal workshop and learn about astro-imaging and processing.

March 26, 2011 - Bay Area Science & Engineering Fair, Public Viewing. For times and info, see: <u>http://hwhsef.mcmaster.ca/schedule</u>

March 26, 2011 - 7:30 p.m. Cosmology Discussion Group meeting. All are welcome. If anyone would like to join the group, please contact John Gauvreau at chair@amateurastronomy.org.

April 1-3, 2011 - tentative dates for Messier Marathon. Watch our website for updates: <u>www.amateurastronomy.org</u>

2010-2011 Council

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