Hamilton Amateur Astronomers Event Horizon

May 1996

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'Once in a Blue Moon' in June?

raditionally, the moon can appear blue when its red light is filtered out by dense smoke or dust in the upper atmosphere, leaving only the bluish shades for us to see. This chance occurrence is rare and certainly unpredictable, hence the wellknown expression "once in a blue moon." September 24/25, 1950 saw blue moons when smoke from a Canadian forest fire darkened the sky.

"Perhaps the most widespread and famous blue moon in modern history occurred in 1883, when the Indonesian island of Krakatoa blew apart"

Perhaps the most widespread and famous blue moon in modern history occurred in 1883, when the Indonesian island of Krakatoa blew apart, spewing forth enormous clouds of volcanic ash and dust. For the better part of two years, vivid red sunsets and blue moons were commonly seen.

Thanks to the evolution of language, we will now be more aware of, and can plan ahead for our blue moon event. A very predictable and very unimaginative blue moon appears to have caught the attention of the public. This less colourful blue moon is said to be the second full moon occurring in the same month. Locally we are going to have a second full moon of the month, a so-called 'blue moon', in June. You won't see anything different and unless you're told you won't even know it's 'blue'.

This second-full-moon-of-themonth definition has seen popular use for barely a decade. The origin is uncertain, but the Old Farmers' Almanac may have listed one of these second full moons as "blue" on occasion. It wasn't commonly known by the general public though. Folklore historian, Philip Hiscock, in the May/ June issue of "Sky News", contends that the game of Trivial Pursuit might be responsible in large measure for the revival of this unusual tidbit of folklore. It appears that the popular game, introduced in the early 1980s, used the 'blue moon' as the subject of one of its questions. As a result, when a 'blue



moon' does come along people are more aware of it, though it is certainly not a new concept.

A full moon occurs globally normally only once a month when the sun, earth and moon are lined up and *(Continued on page 4)*



am sad to say that April was my last meeting as HAJA coordinator because I am moving to London (Ontario). I had the best time with everyone who has been involved with me for the past year and a half. I'd like to thank everyone who helped me and came out to the meetings. A special thanks goes out to: Grant for being able to put on a fabulous

planetarium show in a moments notice; Ann for showing the kids the skies through her telescope and for everything else; Patti for helping to set long term goals for the junior group and for helping the kids make a telescope; Nina for her great demonstrations and all her help; Rosa for putting together a great junior newsletter and all her help; and, of course, the kids for being so full of questions and enthusiasm.

As you can tell from the list above, HAJA is a group effort to which

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Editorial

t almost looks like we will get summer again this year and that means lots of warm nights to go observing at our organized observing sessions or attending various star parties.

We will be having our own third annual Hamilton Amateur Astronomers' Star Party (HAASP '96) on June 21, 22 and 23 at the York Soaring Association airfield. Since we have no speakers, displays, meals or door prizes we will cancel (or postpone) this event if the weather is not favourable. What we will have is a good time viewing the night sky and soaring during the day. Camping is only \$2.00 a night per site (no hydro). For those of you interested in flying, \$35 will get you a ride in a glider. A map and directions will appear in next month's Event Horizon. If you want more details just give Ann Tekatch a call at 575-5433.

As if that wasn't enough, Tony Wallace is making arrangements for a weekend trip to Algonquin Park sometime this summer. This will take place at the site of the Radio Telescope. For more details contact Tony at 526-6154.

Anyone who could read the cartoon on page 8 of last month's issue probably deserves a prize. Instead, you will find a readable version on page 8 in this issue.

Stewart Attlesey stewart@io.org



The HAA is an amateur astronomy club dedicated to the promotion and enjoyment of astronomy for people of all ages and experience levels

The cost of the subscription is included in the \$15 individual or \$20 family membership fee for the year. Event Horizon is published 10 times a year.

HAA Council

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Denise Kaisler Patricia Marsh Les Nagy Rob Roy Bill Tekatch



Chair's Report

never have to worry about finding something to write about in these monthly reports. It seems that every month we have another new HAA celebrity! This past month, Aaron Simpson was interviewed by TV Ontario for a special report on amateur astronomers. The show was aired on TVO's Studio 2, April 20th. I was quite impressed with the confidence Aaron displayed during his appearance. He even managed to squeeze in a plug for the Hamilton Amateur Junior Astronomers. Well done, Aaron! By the way, have you decided on a name for that planet, yet?

Meanwhile, Denise Kaisler's report on the newly discovered planets (sorry, Aaron, not yours!) appeared in the recent issue of SkyNews. Congratulations, Denise!

Two years ago, we corralled three young McMaster University undergrads into joining our council: Raechel Carson, Nina Snaith and Rosa Assalone. We have come to refer to them collectively as "the girls". As you know from reading your newsletter or attending our meetings, "the girls" have become invaluable council members. Raechel Carson has been marvelous as our junior group co-ordinator. Nina Snaith has provided the most ingenious (and entertaining) demonstrations at our HAJA meetings as well as doing a stellar job of keeping council minutes. Rosa Assalone has quietly and efficiently maintained membership lists. distributed newsletters, published the junior group's newsletter and helped out at the HAJA meetings whenever she was needed. Most importantly, "the girls" have been great fun to work with!

Eventually, however, all undergrads become grads and I'm both pleased and sad to announce that Raechel will be leaving us for teacher's college in London, Ontario shortly while Nina heads off to Bristol, England to join the hordes of quantum chaologists gathered there. I know I speak for all of us when I wish them the very best of luck and happiness!

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Chair's Report ...

(Continued from page 2)

Rosa has put down roots in Hamilton and will continue her studies at McMaster University. She has volunteered to take on Raechel's responsibilities as HAJA co-ordinator, but she'll need help. If you'd like to lend a hand with HAJA, please give her a call at 540-8793.

On April 27th., Bill and I had the pleasure of attending the NFCAAA meeting hosted by the Niagara Centre of the R.A.S.C. at their annual banquet. The NFCAAA(Niagara Frontier Council on Amateur Astronomical Associations) is a very loose knit organization that offers a forum for local astronomy associations in southern Ontario and western New York to gather and share information and experiences.

Bill and I joined Roger Hill, Dave & Pam Coulson and John Kezys of Hamilton Centre for the Niagara Centre's banquet at the Skylon Tower. After an absolutely delicious buffet dinner, we heard brief reports from the groups in attendance and were then entertained by Terry Dickinson with his photos of Comet Hyakutake. It was a wonderful evening and Niagara Centre is to be congratulated for organizing it!

The next day, Charles, Patti & Hypatia Baetsen, Nina Snaith, Bill and I manned an activity centre at the Royal Ontario Museum for their Astronomy Family Day. We demonstrated the arts of shooting elastic bands and cratermaking to about 100 children. Views through a small telescope and a tripodmounted pair of binoculars were also offered to everyone in attendance. We had a great time in spite of getting covered head to toe in flour and cocoa! The HAA was only one of three groups that helped the ROM celebrate Astronomy Family Day. The Toronto Centre of the RASC and the Toronto Sidewalk Astronomers also helped out. I must add that the staff at the ROM went out of their way to make the day



as pleasant as possible for us. We were given parking spots at the ROM lot, free admission and help to carry everything into the museum. For our help, the ROM is also giving us an honorarium of \$125! (All that fun and money, too!!)

Nina Snaith had so much fun at the ROM that she has decided to do a repeat performance at "Kid's World" in Ancaster on June 8th. (There's a rumour circulating that Nina has become a coke addict. Cocoa, that is!) If you can help out on June 8th., please contact Nina at 627-5478. It would be especially nice to see some of our HAJA members in attendance, demonstrating the art of cratering!

Wayne Terryberry has asked fellow members of the HAA to help him host a small star party for McMaster University on Wednesday, June 12th. The location and exact time aren't set as I write this. We need telescope owners to join us in showing the night sky to approximately 15-20 people. Give me a call and let me know if you can come out.

You all know that the new Saltfleet High School is to have its very own observatory, thanks to the efforts of Carmen Martino. Efforts to raise money for a telescope and other equipment are underway and one of the first of these efforts is a joint Climbathon between Saltfleet High School and Participation House on June 1st. Money from the event will be split between the two groups. Participants in the Climbathon will follow a 3 km route which includes 600 escarpment steps at Garth Street and Cliffview Park. It is hoped that members of the local astronomy community including the Hamilton Amateur Astronomers can participate and show our support for the new observatory! Registration is at Chedoke Middle School, 500 Bendamere, Hamilton or contact Carmen **a** 643-7283.

Finally, I'm very pleased to announce the birth of a son to Mickey Copley, one of our newer members. Congratulations, Mickey! Live long and prosper, Gareth Nigel.

Ann Tekatch 575-5433 a7503934@mcmail.cis.mcmaster.ca



Did You Know That

astronomer John Herschel proposed sodium thiosulfate 'hypo' as a fixer for photographic images. Before this breakthrough, pictures would often quickly fade. Herschel also suggested the terms negative and positive and even coined the word "photography".

Rob Roy

Roman Around

ulcan (Greek - Hephaestus) was one of the oldest of Latin gods, ante-dating even Jupiter. Under the name Volcanus, he was the first Jupiter of Rome whose foundation he protected. In his aspect of Jupiter he formed a couple with Juno. He was also associated with Maia. an incarnation of the Earth Mother, and with Vesta, considered as goddess of the earth. He was not allied with Venus who in those remote times still played a small part in Roman mythology. Volcanus was the father of Cacus who was attributed the paternity of Servius Tallius, King of Rome.

"Vulcan was the god of the thunderbolt and of the sun"

maiden in the А neighbourhood of Praeneste was seated one day near the fire when a spark fell on her; some months afterwards she gave birth to a son. She exposed him in the forest where some girls found him beside a lighted fire. For this reason he was regarded as a son of Vulcan and because of the smallness of his eyes they named him Coeculus. When he grew up he founded the town of Praeneste, celebrating the occasion with public games. As some of those present cast doubts on his paternity he invoked his father Vulcan and the crowd was immediately surrounded by flames.

Did You Know That

R recently, the Hubble Space Telescope took a ten day exposure of the same small part of the sky, recording galaxies up to 30th magnitude. This is like seeing a glowing cigar on the moon!

Rob Roy

Vulcan was the god of the thunderbolt and of the sun, then the god of fires whose ravages he could arrest, and finally became **h**e god who was associated with the attribute of lifegiving warmth.

He was invoked as the divinity of the hearth and, as he was united with Maia, mother of springs, he was considered the first god of the Tiber. He even possessed warlike functions and may have preceded Mars as god of battles. In the early history of Rome, then, Volcanus was a more important personage than the later Vulcan.

The Volcanalia were celebrated on the August 23rd in his role of god of the Tiber, Volturnus being one of this river's religious names. August 17th was the festival of the *Portunalia* also consecrated to the

Blue Moon...

(Continued from page 1)

the moon's face is evenly and fully illuminated from side to side. The local time of a full moon depends on the time zone of the location. For instance, in our Eastern Daylight time zone the first full moon of June is in the afternoon of June 1 at 4:47pm. It can be seen only from the other side of the earth where it is dark and the moon is visible in the night sky. We are very close to missing a second full moon in June, a 'blue moon', because it occurs at 11:58pm on June 30, just two minutes before July 1.

Because of the one hour timezone difference, Atlantic Canada sees this full moon at the same time, but 'one hour later.' One hour later for them is 12:58am, which is the next day, July 1. Their second full moon of the month doesn't occur until July 30. East of the time zone border between Eastern Daylight Time and Atlantic Daylight Time, July has the 'blue moon'. As already explained, people west of this border witness a 'blue moon' in June. Tiber. During the festival of Vulcan, little fish and often other animals were sometimes thrown into the fire. These offerings represented human lives and they were offered to Vulcan in order to preserve lives. His altar in the Forum was the Volcanal.

The Romans always represented him as bearded, sometimes with a slight facial deformity which doubtless recalled his infirmity. Near him stand the hammer, tongs and anvil, attributes which came from Greece. He wears a bonnet (*pileus*) and a short tunic which leaves his right arm and shoulder free.

Ev Butterworth

There are approximately 29.5 days between full moons, one lunar month. February, therefore, even in a leap year, can never have a 'blue moon', although it could have a <u>blue</u> moon. Because of the extra day the seven 31-day months have a better chance of having a 'blue moon' than the others. What are the odds for a <u>blue</u> 'blue moon'?

On average, a 'blue moon' comes around once every two and a half years or so. If you want to plan something special for this particular "once in a 'blue moon'," don't wait, the next one won't be along until 1999. That year, however, both January and March will have second full moons, while February has no full moon at all, a 'once in a blue moon' event indeed.

Rob Roy a5817394@mcmail.cis.mcmaster.ca

A New Theory of Sonoluminescence

S ound energy, in the form of a beam of ultrasonic waves, can be partly converted into light energy by aiming the sound at an air bubble in a sample of water. The sound causes the bubble to collapse and to emit sharp (less than 12 picosecond) light pulses. The light's spectrum

"sonoluminescence may represent the first observable manifestation of quantum vacuum radiation"

implies that the source of the radiation is similar to a black-body object at a temperature of tens of thousands of Kelvins. Theorists have tried to explain sonoluminescence by saying, for example, that the radiation comes from a plasma formed by the collapse of the bubble. But mostly the mechanism behind the production of the pulses Now Claudia remains a mystery. Eberlein of Cambridge University (cce20@phy.cam.ac.uk, 44-1223-337-458) offers a more daring explanation. She believes the light is being emitted by the vacuum surrounding the bubble. Modern quantum theory holds that unseeable virtual photons abound in the vacuum. The behavior of these "zeropoint fluctuations" is influenced by the properties of the surrounding medium. The rapidly moving air-water interface (where two media different indices of refraction come together) may facilitate the conversion of virtual photons into real photons. In fact, Eberlein says, sonoluminescence may represent the first observable manifestation of quantum vacuum radiation. This scenario can be compared to the "Unruh effect," a hypothetical phenomenon in which photons are emitted by a mirror accelerating through a vacuum. "Hawking radiation," the hypothetical emission of particles from black holes, is yet another example of energy seemingly coming out of nowhere; at the black hole's Schwarzschild radius (inside of which, light cannot escape), space is so warped that energy from the black hole can be converted into particle-antipartic le pairs; one particle falls back into the hole while its partner

escapes. Eberlein asserts that researchers can put her theory to an experimental test and compare the results to other models of sonoluminescence. (Claudia Eberlein, upcoming article in Physical Review Letters.)

Bill Tekatch

from:

PHYSICS NEWS UPDATE The American Institute of Physics Bulletin of Physics News Number 267 April 23, 1996 by Phillip F. Schewe and Ben Stein http://aip.org/pinet/listserver/PHYSNEWS.latest.html



he flowers are blooming and everything is green again. Soon it will be what you call hot. How's the observing going this year? Mine has taken great strides. It never ceases to amaze me how curious humans are. Everywhere I go, I meet people who have questions and love nothing better to do than answer them. So here you go. More!

1) (a) The Sea of Clouds. (b) The Bay of Heats, (c) The Marsh of Clouds (d) The Central Bay, (e) Humbolt's Sea.

2) True. The barycentre is the centre of gravity of the Earth-Moon system; because the Moon has only 1/81 the mass of the Earth, the barycentre lies deep within the Earth's globe.

3) True, because the atmosphere of Venus acts as a 'greenhouse' and raises the temperature above that of airless Mercury - even though Mercury is considerably closer to the Sun.

4) Thuban (Alpha Draconis). It is no longer the pole star because the north celestial pole has since been shifted, by the effect known as precession. As the Earth spins, it is 'wobbling' very slowly in the manner of a gyroscope which is starting to topple. The effect is very slight, but over the centuries it becomes appreciable. Today, the Earth's axis points northward to a point within one degree of Polaris. In 12,000 years' time Vega will be the north pole star.

5) True; it covers only 68 square degrees. The next smallest constellation is Equuleus (72 square

degrees).

6) Iris, which is an asteroid. All the rest are planetary satellites.

The trees are budding and the grass is green. Take a blanket and cold drink outside and enjoy the fresh air as you answer these questions.

1) T/F The only month which can lack a new moon is February.

2) T/F The brightest comet of the twentieth century, so far, has been Kohoutek's Comet of 1973.

3) T/F Aurorae or polar lights are caused by electrified particles sent out by the Sun.

4) The UHURU satellite, launched in 1971, carried a special type of telescope. What was this telescope designed to study?

5) What is meant by escape velocity, and what is its value in the case of the Earth?

6) T/F Forbidden lines are works condemned as heretical by the Inquisition before the trial of Galileo in 1634.

This is the month for fire crackers. Enjoy the splendour, but be safe. Nights are still a bit cool so bundle up. Keep observing.

Io, Keeper of the Flame Jupiter Co-ordinator



Halley's Comet of 684

Event Horizon - Hamilton Amateur

HAJA ...

(Continued from page 1)

many people have contributed. Rosa has kindly agreed to take my place in May. But, Nina will be leaving in the fall which means that Rosa is going to need to recruit some new helpers. It is very rewarding and enjoyable being a part of HAJA. If anyone is interested in helping Rosa, please come out to a junior group and see how much fun it

is,

or talk to Rosa at a general meeting.

One of HAJA's members, Aaron Simpson, was interviewed by TVO a few weeks ago and he appeared on the TV program Studio Two on April 18th! He did a really great job, and even mentioned Hamilton Amateur Junior Astronomers during the interview! Way to go Aaron! I hope that some of you had a chance to see it because the date on which the show aired was not what we expected.

I hope that everything goes as well for Rosa as it did for me! Thanks everyone!

Raechel Carson



HAA Crests anyone?

ou liked the t-shirts. You <u>loved</u> the sweatshirts!! You'll go *wild* over the crests!!! We're thinking of putting in an order for embroidered crests (about 2" x 4" in size). These will be black with our logo in yellow/gold. The cost will be \$4. each or 3 for \$10. They can be sewn onto your favourite baseball (or Tilley) hat or jacket.

We have to place an order for at least 100, so we need to know that you'll want one (or three!). Contact me and let me know if you'd like one (or more) set aside for you.

Don't miss out on the latest fashion

Event Horizon - Hamilton Amateur

craze....

Ann Tekatch (905) 575-5433

Announcements

une 14, 1996 Hamilton Amateur Astronomers general meeting will be held at 7:30 p. m. in the Spectator Building. Our speaker will be Dr. Peter Sutherland of McMaster University, topic: black holes. Ann Tekatch



This month's trip to Pt. Pelee to view Omega Centauri has been cancelled. The regular Binbrook observing session will take place on the first clear night of May 11,17 or 18. Charles Baetsen

charlesb@abelcomputers.com

June Skies

Event Horizon - Hamilton Amateur

Letter to the Editor

i Stewart. Here it is time again for another EH, eh? I said I was going to lie low for a while, but I can't help myself. I started looking into this "blue moon" thing and before an asteroid occultation was over, I had another article for EH. If you asked frequent contributors like Ev and Bob, I'm sure they would say that it's fun, it's addictive and it gets easier and easier.

I started sending one-line "Did you know that..." because I remembered what Sally went through for 18 years, as editor of a newsletter. Lack of contributions forced her to write 90% of the stuff herself- not fair. Everybody can write some little thing.

You should let members know that they don't have to start with a full page. Anything, one line, or a short paragraph would be plenty. Are they worried about spelling and grammar, maybe? Doesn't your computer fix up all of that stuff?

They don't need to discover anything, either. Even popular authors like Terry Dickinson and Patrick Moore don't do original research, do they? For the most part, they have to dig up their material from somewhere; they just happen to be the best at presenting it to the public. You only have to keep your eyes open for interesting tidbits here and there.

We already have the best amateur newsletter going, but wouldn't it be terrific to be able to boast that over 90% (or even 80%) of the membership contributed something at one time or another? Wouldn't it be great if you had to spend as much time on the phone apologizing, that since you had so much, "Would you mind if I kept your article until next month?" Meanwhile, are you going to get another one from me for the next issue? Well...... maybe!

Happy editing. Rob

Cosmology

he next Cosmology Discussion Group meeting will be held on Saturday May 25, 1996 in the Burke Science Building, the room beside the planetarium, B148, at 8:00 PM. Our topic will be "Early Life on Earth" and how it relates to cosmology. "Early" in this case is from the time that complex organic molecules began to form to the time of that the Burgess Shale was laid down.

Bill Tekatch

CALENDAR OF EVENTS

•	May 11, 17 or 18, 1996		BINBROOK OBSERVING NIGHT - On the first clear night of the three dates
	•	Call Ch	arles Baetsen (524-0148 or e-mail charlesb@abelcomputers.com) for details
•	Mon. May 13, 1996 7:30 PM		AMATEUR TELESCOPE MAKERS - are meeting at the home of Jim Winger
	•	in Cale	donia. For directions and details please call Jim at 765-4649.
•	Tue. May 21, 1996 7:00 PM		HAMILTON AMATEUR JUNIOR ASTRONOMERS - Mac Burke Science
	2 · ·		Building, Rm B148 (beside the planetarium)
			The topic will be "Exploring Jupiter, Saturn, and Uranus."
•	Fri. May 24, 1996 7:30 PM		COUNCIL MEETING- at the home of Ann and Bill Tekatch
	•	Call A	nn Tekatch at 575-5433 if you're interested in attending.
•	Sat May 25, 1996 8:00 PM		COSMOLOGY DISCUSSION GROUP - Mac Burke Science Building
			Rm B148 (beside the planetarium) "Early Life on Earth"
•	Mon. May 27, 1996 7:30 PM		AMATEUR TELESCOPE MAKERS - are meeting at the home of Jim Winger
	·	in Cale	donia. For directions and details please call Jim at 765-4649.
•	Thu. June 6, 1996 8:00 PM		ROYAL ASTRONOMICAL SOCIETY OF CANADA Hamilton Centre-
			General Meeting - McMaster University Medical Building Room 1A6
•	Fri. June 7, 1996 11:59 PM		EVENT HORIZON DEADLINE - Please submit your articles and pictures to
			Stewart Attlesey, stewart@io.org or modem (905)827-9105 or snail mail to
			1317 Mapleridge Cres., Oakville, L6M 2G8
•	Fri June 14, 1996 7:30 PM		H.A.A. GENERAL MEETING - Spectator Auditorium. Our speaker will be
			Peter Sutherland and the topic: "Black Holes".
•	June 21, 22 and 23		H.A.A. STAR PARTY - York Soaring Association airfield near Arthur
			č