STAR STUFF
The Newsletter of the Ford Amateur Astronomy Club

July 2004
Volume 13 Number 7

Ford Employees Recreation Association

Editor: Jim Frisbie

A MESSAGE FROM THE PRESIDENT

State of the Club

It has been six months at the helm of the FAAC, and I must say, this is an amazing club, in my experience, as seen from my perch in the highest office.

The interest, energy, and participation of the members remain our club's best assets, as we set about attending to our mission of supporting and spreading the hobby. We have had a great year so far. January featured the Swap Meet, led by Jim Frisbie, bringing a new source of club revenue, as well as providing a yet another means of getting together for our astronomy fix. We joined in the Ice Days at the Lake Erie Metropark site (headed up by Bob MacFarland), giving us some astronomical presence, even amidst a winter's frigid blasts.

Of course, we were able to purchase and break in a new projector this year - thanks in part to Mike Rousseau and others for searching out and purchasing the new projector, and even finding a free screen, to boot.

George Korody's SIG has continued its monthly brainstorming on astrophotography topics. In March we had a great annual dinner at Station 885, and April brought Astronomy Day, and our observation and help at the Detroit Science Center. We've have our beginner's nights, led by John Kirchhoff, and in May – the GLAAC Star Party. June 8 brought an outstanding Venus Transit observation at Lyon Township Municipal Park. We took part in the Nautical Extravaganza on June 24, setting up a small display.

Of late, we've found a new home for the FAAC general meetings, at Henry Ford Community College. Ed Halash led the successful effort, and we will begin having our FAAC general meetings there this month (July). We will meet in a room at the Administrative Services and Conference Center there. See the map (or FAAC website - http://www.boonhill.net/faac/) for directions to the meeting at HFCC. The location at HFCC allows a freer access for members, and has the further advantage of possible future use the of HFCC's planetarium facility. We begin a new association with HFCC, and welcome the participation of students and the general public, as usual.

We may yet have another club star gathering this year – we are kicking some ideas around – and the fall will bring perhaps another Swap meet – we are looking at that, too.

I would like to extend a big thank you to Jim Frisbie, who will be leaving his post as Newsletter editor after three years, after the September edition. Jim will continue with other activities to help the club in so many ways, still, and will be missed as editor. Greg Burnett has graciously accepted the reigns following Jim's departure.

And, don't forget there is a presentation Saturday, July 17, 10:30 am, at the Royal Oak Library, on the "Real Lord of the Rings: Saturn" given by Michael Foerster, of the JPL. If you read this in time, you may want to call ahead to get a reservation – seating is limited – call (248) 246-3725. You can also participate by bringing a telescope and filter, for solar observation. You would receive a certificate of participation Contact Michael Foerster at Skywatch@Starry-Nite.net. Mr. Foerster has agreed to make a similar presentation at one of our future FAAC meetings.

One thing we haven't seemed to have done, this year, is get a break in the clear-sky dept. this year. In case you feel slighted this year - here are some average clear sky statistics from the http://www.weatherbase.com/ site for the Detroit area:

Average Possibility of Sunshine: 53%	Years on Record: 28
Average Number of Clear Days: 76	Years on Record: 35
Average Number of Cloudy Days: 185	Years on Record: 35
Average Number of Partly Cloudy Days: 105	Years on Record: 35

Dale Ochalek

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http://www.boonhill.net/faac

Submissions to STAR STUFF are welcome Please write to the address above or contact the editor:

Jim Frisbie
via tele #: 734-453-1422
or email: w8tu@comcast.net

Dead line is the 15th of each month of publication.

Officers:

President	Dale Ochalek
Vice President	Don Klaser
Secretary	Bob McFarland
Treasurer	Gordon Hansen

General Meetings:
The Ford Amateur Astronomy Club holds regular general meeting on the fourth Thursday of each month (except the combined November/December meeting held the first Thursday of December) at 5:00 PM at the Ford Motor Credit Building off Mercury Drive near Michigan Ave. in Dearborn.

Observing:
The Ford Amateur Astronomy Club observes at Spring Mill Pond within the Island Lake State Recreation Area near Brighton, Michigan. The club maintains a permit for after-hours access. Weather permitting, the club observes on Friday nights, Saturday nights, and nights before holidays.

Club Information:
Observing schedules and additional Club information is available by calling the Observing Hotline at: (313) 390-5456 or via the Ford Intranet: www.be.ford.com/astro/faac.html or the public Internet: www.boonhill.net/faac.

Club Membership:
Membership in the Ford Amateur Astronomy Club is open to Ford employees and non-employees. Write or call for an application.
Annual - New Member: $30; Renewal: $ 25 (before Jan 31 of each year); $15 for new members after July 1.
Lifetime - $ 150

Membership includes:
Discounts on ASTRONOMY and SKY & TELESCOPE magazines, after-hours access to the observing site and discounts at selected area equipment retailers.

Magazine Discounts:
Do not send money to FAAC for SKY & TELESCOPE or ASTRONOMY magazine subscriptions. We have a form that you send in with your subscription directly to the publisher to receive a $10 discount. Pick up a form at the next meeting, or contact a club officer.

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*** NEW MEETING LOCATION - AT HFCC ***

We will begin having our FAAC general meetings at Henry Ford Community College, effective July 22, 2004. We there this month (July). We will meet in a room at the Administrative Services and Conference Center. See the map on page 7 for directions to the meeting at HFCC. Use of parking lot J or H is recommended.

Ed Halash led the successful effort for FAAC, in arranging for the new location, and Charles W. Jacobs, Ph.D., Associate Dean of Science at HFCC, is our contact. We begin a new association wi th HFCC, and welcome participation of students and public, as usual. The location at HFCC allows free access for members, and the further advantage of possible future use the of HFCC's planetarium facility.

MINUTES OF THE JUNE 24th FAAC GENERAL MEMBERSHIP MEETING

Respectfully submitted by Don Klaser for Bob MacFarland

The meeting was called to order by President Dale at 5:00 p.m. Twenty one members & guests introduced themselves, and several individuals talked about their observing exp eriences during the past month including the Venus transit.

George Korody gave a report on the Club's observing session for the transit at Lyon Oaks Municipal Park (better known as Mt. Trashmore).

The Secretary and Treasurer's reports were accepted. Beginning next month (July) our general membership meetings will be held at Henry Ford Community College on Evergreen Rd., north of Michigan Ave., in the Administration Services & Conference Center building, Rosenau conference room. Please see the map that is included with this newsletter for more information.

With the retirement of our current newsletter editor in October, Greg Burnett has agreed to takeover the position. Thanks Greg !

Mike Forester, from JPL, gave a brief talk about an upcoming

presentation he is giving at the Royal Oak Public Library on Saturday, July 17. You can call the Library at 248-246-3725 or e-mail Mike at Skywatch@Starry-Nite.net.

This months Beginners Night will be Saturday the 24th, at our observing site at Island Lake State Rec. Area. And the July meeting of the
Astro-Imaging SIG will be at the Ford Family Learning Center on Rotunda Dr. on Thursday, July 8, from 5:00 to 7:00 p.m.

Because of the Nautical Extravaganza being held tonight at the SRL, there was no technical discussion or main presentation.

The meeting was adjourned at 5:40 p.m.

TREASURERS REPORT June 24, 2004

By Gordon Hansen

Bank Accounts		
Checking	$	236.85
Savings	$	1,036.90
TOTAL Bank Accounts	**$**	**1,273.75**
Cash Accounts		
Cash Account	$	100.66
TOTAL Cash Accounts	**$**	**100.66**
Asset Accounts		
FERA Ticket Sales	$	-
GLAAC	$	795.00
Projector	$	401.20
Scholarship	$	163.13
Swap Meet	$	-
TOTAL Asset Accounts	**$**	**1,359.33**
OVERALL TOTAL	**$**	**2,733.74**

VENUS TRANSIT FROM ROME

By Bob FitzGerald

My legs were burning as I climbed the last few steps to the *Salita del Pincio,* several hundred feet above the *Piazza del Populo* to where I had walked early on the morning of 8 June to gain what I hoped would be an excellent view of the transit. Greg Burnett had suggested that if I was serious about going to Rome to view the event, I contact some astronomy clubs in Rome and solicit suggestions as to good locations. Several E-mails netted only one reply, but it was the one that paid off, recommending a public area just over the Tiber and less than a mile from my hotel with plenty of elevation to clear all obstacles on the horizon. I had scouted the area on the previous evening, climbing all the way to the top (but without equipment) and had been rewarded with a fantastic sunset view of all of Rome west of the river, including the whole of Vatican City.

The trek upward (I learned later that *Salita* is Italian for "ascent") seemed much more difficult than the previous day. Perhaps it was the weight of the equipment, or the anticipation that everything go smoothly, or maybe just because I was a day older. It certainly wasn't concern about the weather: since arriving in Rome the preceding Saturday, there had been nothing but low humidity and blue skies with the promise of the pattern's continuing for five more days. In any event, the stone steps, with no handrails, were a challenge for me, but the top was finally reached without incident (it was on the way down that I fell!) and again there was the panoramic view, although this time I was literally alone with the scores of acres all to myself.

The sun was just ready to clear the trees with about 20 minutes remaining until Contact I--plenty of time to set up and get the sun in the frame using the method that John Kirchhoff and I had rehearsed a couple of weeks earlier, utilizing the scope as a gnomon and looking for the smallest shadow. I had elected to forego the binoculars, saving only one of the two homemade solar filters: because of the extreme altitude of the sun (the latitude is about the same as our local area, but I would be viewing the event for six-plus hours), without benefit of a diagonal, one would almost have to be on his back to avoid terrific neck pains. It was a simple matter to adapt the panhead decannibalized from the parallelogram to the rainpipe refractor that Clay Kessler, Mike Adamson and I had thrown together (I did the throwing, they did the precision work) using a focuser supplied by Mike Rousseau. The entire arrangement was mounted on an old Velbon tripod (Alitalia is very strict about the weight of carry-on luggage, and the eyepieces had to be stuffed into a fanny pack separate from the carry-on), just waiting for the big moment.

And would you believe it, I missed it! Not by much, not more than a minute or so. But I had been looking for Venus to come in from the left, not from below. Had completely forgotten to take into consideration the orientation of the earth and sun at that early hour. Fortunately, the conditions were so perfect that Venus caught my eye just after it entered the sun's disk, and it was followed until it became that perfect black circle for which everyone was looking.

It was at this point that the realization hit me that six hours of staring at two spheres might become just a little boring, especially since there were no other astronomers of any variety present with whom experiences could be swapped, save for the young lady with the smoked glass. But while evaluating the decision of having traveled six time zones as opposed to a short trek to Mt. Trashmore West, salvation arrived in the person of an early morning jogger who had some awareness of the event and rightfully assumed that that was what my presence was all about. Of course, she had to look, as did a young lady (from Russia, I believe: we eliminated English and Italian as common languages, and I knew enough from *Hogan's Heroes* to assure her that German was not my strong suit, and we finally settled on the smattering of Spanish that each of us could muster) who had brought along a piece of smoked glass for her viewing. After a few minutes, the jogger took off to continue her run, downhill this time, but her place was soon taken by

more runners up until about 0800 when the floodgates seemed to open and the entire plaza was inundated with tourists, locals and police, most of whom spoke English and all of whom wanted to view what would likely be a once-in-a-lifetime event for most of us inasmuch as the 2012 transit, except for the last seven minutes, will not be visible from Italy.

The steady stream of viewers continued right up until Contact IV, with my spending one third of my time trying to answer the questions of those in line (no, the Ford Club [this from the Island Lake T shirt I was wearing] is NOT a national organization; yes, I really came all this way just for this one astronomical event; yes, to a family from Holland, it's o.k. for you to look because you were nice enough to invent the telescope for us; and, yes, if you want to go back to your father's car and get your camera, you can take a picture through the scope [actually, it probably turned out o.k.: it was a digital camera, and the view was not all that bad]), and one third learning that I had been pronouncing the name of my hotel incorrectly, using the wrong word for Venus, and had not climbed one of Rome's fabled seven hills --it just seemed that way.

The other third was spent keeping the transit in the eyepiece. One thing I learned was that with inexperienced observers, more is not always better: the new eyepiece from Rider's, with its greatly increased magnification, was great for me. But because the sun filled the entire field, some folk were seeing Venus, thought that was the sun, and then couldn't "find" Venus. Going to the lower magnification gave a smaller sun and Venus, but made it readily apparent what one was looking at.

The crowds continued until the very end of the transit, and I estimate that over two hundred viewers joined me that day. Not a single person seemed to be disappointed by what he or she saw or didn't see, and my personal reward was the same that I experience at one of our star parties or other outreach events. It was obvious from the languages and ethnic make-up that the composition of my group represented many areas of the world. The trip was more than worthwhile, and the only question now is where to go in 2012 for a repeat.

BOOK REVIEW – DEEP SKY COMPANIONS THE MESSIER OBJECTS

By Clay Kessler

Author: Stephen James O'Meara
Publisher: Cambridge University Press
Publish Date: 1998
Pages: 304
Cost: $34.95 (hardcover)

From the cover you might expect this to be "just another Messier guide". If so you would be doing this book an injustice! Yes, this book will tell you how to find all of the Messier objects and it includes finder charts. The departure from "just another" guide comes in the "readability" of the information presented. Mr. O'Meara presents these objects as a combination of historical information and his own impressions and experiences at the eyepiece. The author is methodical in his observations. He uses the same telescope for all of them and he operates from an enviable site in Hawaii. All of the objects are examined at length at low power, medium power and high power. A complete description of the authors' impressions is recorded and to top it off, a pencil sketch of each object is included.

This pencil sketch is important. It gives an idea of what to expect to see in the eyepiece (given the fact that you are observing under pristine sky in Hawaii!). I was especially taken with the patterns of stars in open clusters. Mr. O'Meara's sketch shows precisely why M18 is also known as the "Black Swan" cluster, and adds many more like this. I now find myself looking harder at all of these objects, taking not just a glimpse but a long hard look before moving on to the next one.

Every object includes a pencil sketch, a high quality astrophoto of the object, the author's impressions, the discoverers' comments (Messier did not find them all!) and the NGC description. Also included is a finder chart for the object and the relevant size, position and brightness data that you would expect.

The author includes chapters on Charles Messier (written by David Levy), Spectacular non-Messier objects, "Objects Messier Could Not Find", "Messier Marathons" and "A Guide to Navigating the Coma-Virgo Cluster". Add to this a forward by David Levy and this book is truly a treasure.

I really enjoyed reading this book. The information presented was interesting and understandable. Mr. O'Meara's writing weaves a spell that made me feel I was there, observing with him. While I have never been a "Messier Maniac" the descriptions, sketches and photographs in this book have me itching to set up a scope and look, **really look**, at these celestial treasures. I can recommend this one without reservation.

NASA's Space Place

SCIENCECRAFT

by Patrick L. Barry and Tony Phillips

Probes that can distinguish between "interesting" things and "boring" things are vital for deep space exploration, say JPL scientists.

Along with his colleagues in NASA's Space Technology 6 Project (ST6), JPL's Steven Chien is working to develop an artificial intelligence technology that does just that. They call it the Autonomous Sciencecraft Experiment, and it's one of many next-generation satellite technologies emerging from NASA's New Millennium Program.

As humanity expands its exploration of the outer solar system-or even neighboring solar systems!-the probes we send suffer from two unavoidable handicaps. First, commands radioed by mission scientists on Earth take a long time to reach the probe: six hours for the planned New Horizons mission to Pluto, for example.

Second, the great distance also means that data beamed back by the probe trickles to Earth at a lower bandwidth-often much less than an old 28.8 kbps modem. Waiting for hundreds or thousands of multi-megabyte scientific images to download could take weeks. And often many of those images will be "boring," that is, they won't contain anything new or important for scientists to puzzle over. That's certainly not the most efficient way of using a multi-million dollar probe.

Even worse, what if one of those images showed something extremely "interesting"-a rare event like a volcanic eruption or an unexpected feature like glaciers of methane ice? By the time scientists see the images, hours or days would have passed, and it may be too late to tell the probe to take a closer look.

But how can a probe's computer brain possibly decide what's "interesting" to scientists and what's not?

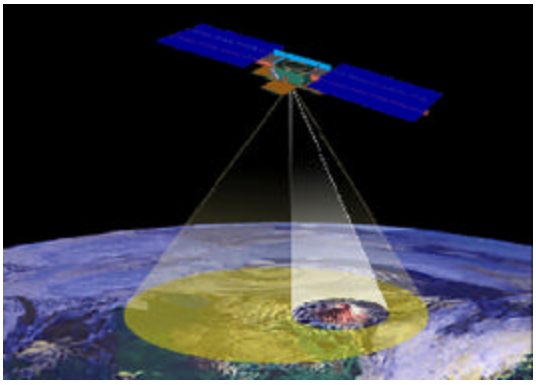
"What you really want is a probe that can identify changes or unique features and focus on those things on its own, rather than just taking images indiscriminately," says Arthur Chmielewski, one of Chien's colleagues at JPL.

Indeed, that's what Chien's software does. It looks for things that change. A mission to Jupiter's icy moon Europa, for instance, might zero in on newly-formed cracks in the ice. Using artificial intelligence to set priorities, the probe could capture a complete movie of growing fractures rather than a single haphazard snapshot.

Until scientists can actually travel to deep space and explore distant worlds in person, they'll need spacecraft "out there" that can do some of the thinking for them. Sciencecraft is leading the way.

Learn more about Sciencecraft at nmp.nasa.gov/st6. Kids can make a "Star Finder" for this month and learn about another of the ST6 technologies at spaceplace.nasa.gov/st6starfinder/st6starfinder.htm .

This article was provided by the Jet Propulsion Laboratory, California Institute of Technology, under a contract with the National Aeronautics and Space Administration.



The Autonomous Sciencecraft technology that will be tested as part of NASA's Space Technology 6 mission will use artificial intelligence to select and transmit only the scientifically significant images.

ASTROPHYSICS PHUN PHACTS

By Vicki Burnett

ARECIBO RADAR-RADIO TELESCOPE

The Arecibo radio telescope is huge! It is currently the largest single-dish telescope in the world. First opened in 1963, the main dish has a diameter of 1,000 feet, a depth of 167 feet, and resides in a natural valley in Puerto Rico covering approximately 20 acres.

Suspended 450 feet above the dish is the dome containing the instrument's Gregorian reflector system (named after the 17th century mathematician who devised the concept) involving a parabolic mirror with a small concave secondary reflector. The Gregorian at Arecibo uses two reflecting surfaces or mirrors, one 72 feet in diameter, the other 26 feet. The dome contains these two reflectors as well as the radar transmitter and microwave receivers. The Arecibo telescope has the largest collecting area of any radio or radar antenna built on Earth giving it unrivaled sensitivity and allowing those who use it to study weaker radio-emitting objects and to make more accurate measurements of particularly interesting sources.

This year, on April 21, 2004, the telescope got a new "eye on the sky" that will turn the huge dish, operated by Cornell University for the National Science Foundation, into the equivalent of a seven-pixel radio camera. Radio telescopes traditionally have been limited to seeing just one spot -- a single pixel -- on the sky at once. Pictures of the sky have been built up by painstakingly imaging one spot after another. But ALFA (for Arecibo L-Band Feed Array) lets the telescope see seven spots -- seven pixels -- on the sky at once, slashing the time needed to make all-sky surveys. Steve Torchinsky, ALFA project manager at Arecibo Observatory, says the new device will make it possible to find many new fast-spinning, highly dense stars called pulsars and will improve the chances of picking up very rare kinds of systems -- for instance, a pulsar orbiting a black hole. It also will map the neutral hydrogen gas in our galaxy, the Milky Way, as well as in other galaxies. Hydrogen is the most abundant element in the universe. "A whole range of science is planned for ALFA, " says Torchinsky. "Arecibo's large collecting area is particularly well-suited to pulsar studies."

Some of Arecibo's past contributions have been:

Saturn: indicated that the rings of Saturn are composed of chunks of ice and are many layers thick (later confirmed by the Voyager spacecraft);

Venus: found that the planet rotates clockwise, unlike all the other planets except Uranus;

Comets: in 1980, radar signals from Arecibo bounced off a comet, proving that cometary nuclei are solid, not gaseous;

Gravity Waves: working with pulsars found by Arecibo, Joseph H. Taylor, Jr. and Russell Hulse confirmed the existence of gravity waves, as predicted by Einstein. They shared the Nobel Prize in 1993 for their work;

Star Search: Arecibo was featured in the 1995 James Bond flick *Goldeneye* and in the 1997 film *Contact*.

(*Time, Great Discoveries*, Time, Inc., First Edition 2001)
(David Brand, *Cornell News*, April 21, 2004)

BEGINNER'S NIGHT AT ISLAND LAKE

By Dan Wellbaum

On June 26th we had our second beginners night out at Island Lakes Recreational Park. This evening was blessed with clear skies and lots of telescopes. There were around 50 to 75 people out for the event some old timers and some first timers too. The Moon and Jupiter were the favorite objects early in the evening and brighter deep sky objects as the moon began to set. We were treated with Bino views of M13 thru Eric's big Dob, Mike Fisher had his Celestron 14 SC CGE out, and Diane Worth got first light thru her new Meade 8" LX200 GPS.

The big treat was a huge fireball that traveled across the sky. It took nearly 3 minutes for it to move from the northwest to the southeast and was one of the biggest and brightest falling objects that most of had ever seen. As it turns out, it was a Russian rocket booster launch in 1992. The next beginners night will be Saturday July 24th from 7:30 until midnight. I can't promise that we will see another fireball but you never know what wonderful things we might see.

ASTRONOMICAL IMAGING S.I.G.

By George Korody

The next meeting of the Astronomical Imaging S.I.G. is scheduled for Thursday, August 5 from 5:00 to 7:00 PM at the usual location (Ford Family Service and Learning Center Dearborn West). Jeff Thrush will lead a demonstration and discussion on photometry, which is an interesting branch of astronomical imaging. Photometry is the science of measuring, recording, and studying visible light to reveal stellar composition, close double stars, planets orbiting other stars (exoplanets), etc.. All FAAC members are welcome and encouraged to attend this discussion.

NEW MEMBER WELCOME

FAAC welcomes the following new members:

Jim & Sharon	Betzhold
Colin	Farrell
Matt	Gasperoni
George	Jones
Richard	Maisonville
Gary	Walter

July 22, 2004
General Membership Meeting
5:00 pm to 7:00 pm
Agenda

- Opening	Dale Ochelak	8 min
- Observing	All	10 min
- Reports: Treasurer's	Gordon Hansen	7 min
Secretary's	Bob McFarland	
- Old/New Business	Dale Ochalek	15 min
- Upcoming Events	Dale Ochalek	15 min
- Technical Discussion	TBD	15 min
- Main Program	TBD	30 min

FAAC CALENDAR

Activity	Date	Time
- General Meeting	Jul 22	5 pm
- Beginners Night	Jul 24	6 pm
- Board Meeting	Aug 12	5 pm
- Beginners Night	Aug 21	6 pm
- General Meeting	Aug 26	5 pm
- Board Meeting	Sep 9	5 pm
- Beginners Night	Sept 11	6 pm
- General Meeting	Sep 23	5 pm

ASTRONOMICAL CALENDAR

All times are Eastern Standard Time or Eastern Daylight Saving Time, whichever applies

July

- ● 17 Sa New Moon
- 18 Su Moon near Mars (See Star Chart)
- 19 Mo Moon near Mercury
- 21 We Moon near Jupiter
- ◐ 24 Sa First Quarter Moon
- 26 Mo Mercury at Greatest Elongation East
- ○ 31 Sa Full Moon

August

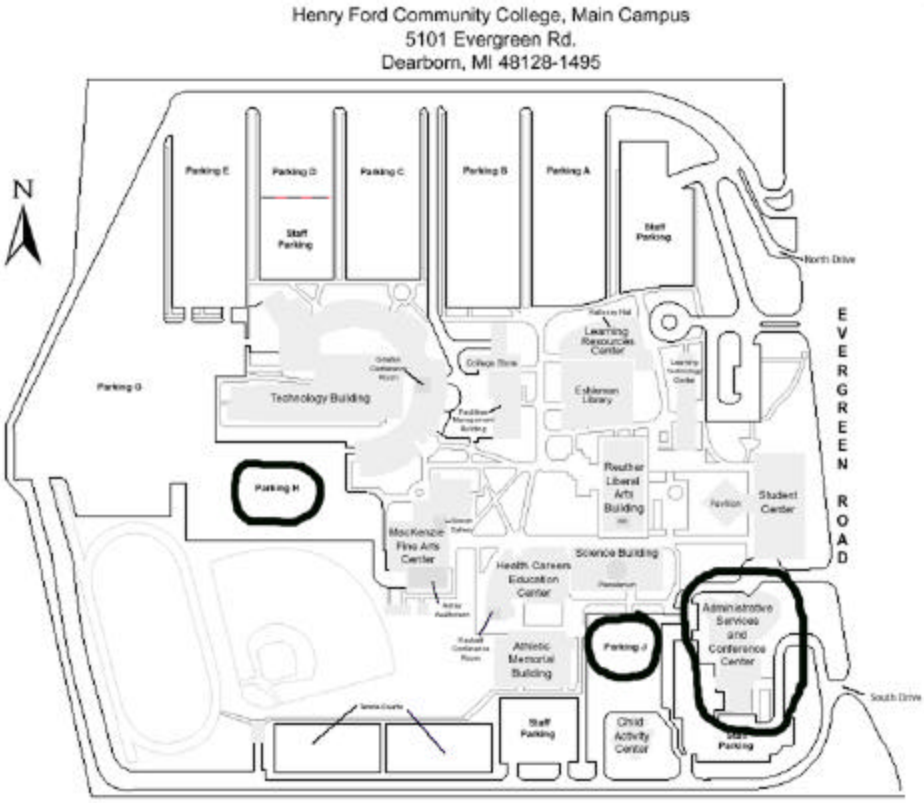
- 1 Su 1818 Astronomer Maria Mitchel born
  3 Planets in sight (See Star Chart)
- ◑ 7 Sa Last Quarter Moon
- 11 We Moon near Venus
- 13 Fr Moon near Saturn
- ● 15 Su New Moon
- 16 Mo Mercury near Mars
- 17 Tu Venus at Greatest Elongation West
- 18 We Moon near Jupiter
- ◐ 23 Mo First Quarter Moon
- ○ 29 Su Full Moon
- 31 Tu Venus near Saturn

This information was obtained from the Henry J. Buhl, Jr. Planetarium in Pittsburgh, PA.

NEW MEETING LOCATION

For FAAC General Meeting

July 22, 2004 @ 5:00 pm



NOTE:

- HFCC is located on Evergreen Road between Ford Road and Michigan Avenue.

- Suggested parking lots H and J have been circled.

- The meeting will be held in the Administrative Services and Conference Center which has also been circled.

Ford Amateur Astronomy Club

Beginner's Night at Island Lake

Saturday from 7:30pm to Midnight

July 24th, August 21st, and Sept 11th

Do you have a new telescope that you would like to learn to use? Do you want to see samples of what the night sky has to offer (weather permitting)? You should consider coming out to Island Lake Recreation Area on Beginner's Night. These nights are dedicated to providing equipment and observing assistance to new astronomers.

(The event will take place on the date indicated regardless of sky conditions, cloudy or clear. If it is raining, the event will be cancelled.)

The exact location of the observing site is the "Spring Mill Pond" parking lot and picnic area, at the Island Lake State Recreation Area, on Kensington Road, south of I-96 between South Lyon and Brighton.

For more info or details on this event, send an E-mail message to riderslivonia@aol.com or check the club website at www.boonhill.net/faac

You may also contact John or Dan at Rider's Hobby Shop 734-425-9720

The Ford Amateur Astronomy Club observes at the Island Lake site on Friday and Saturday evenings year round, provided skies are clear. You are welcome to visit the observing site on any weekend, but you must be with a club member if you plan to observe after 10PM. Call 1-313-390-5456 to find out if anyone is going out on any particular night.

Ford Amateur Astronomy Club
Star Stuff Newsletter
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