STAR STUFF

The Newsletter of the Ford Amateur Astronomy Club

July 2002
Volume 11 Number 7

Editor: Jim Frisbie

In This Issue:

STAR STUFF is a monthly publication of the Ford Amateur Astronomy Club, an affiliate club of the Ford Employee Recreation Association.

Ford Amateur Astronomy Club
P.O. Box 7527
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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:

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via tele #: 734-453-1422
or email: w8tu@peoplepc.com

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

Officers:

President	Don Nakic
Vice President	Ken Anderson
Secretary	Don Klaser
Treasurer	Mike Bruno

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 Family Service and Learning Center, 18501 Rotunda, Dearborn, MI 48124.

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: $25; Renewal: $ 20 (before Jan 31 of each year)
Lifetime - $ 150

Membership includes:
A subscription to the STAR STUFF newsletter and the quarterly newsletter the REFLECTOR published by the Astronomical League.
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.

SWAP & SHOP

For Sale: Celestron CG4, equatorial mount & RAmotor. Like-new/excellent condition. Asking $150. Also, JMI Micro Max Computer w/GOTO and memory, Nisur Alt Az Mount w/Digital Encoders 8192 Tick Accuracy (lists for $569) asking $350. Contact: Thomas Blaszak @ Ofc: 313.323.9842 After hours: 313.277.3365

MINUTES OF THE JUNE 27, 2002 FAAC GENERAL MEMBERSHIP MEETING

by Don Klaser

The meeting was called to order by President Don @ 5:00 pm. The members introduced themselves as the pizza & pop were enjoyed. New members introduced themselves and were warmly received. Mike Bruno gave the Treasurer's Report. A motion was made to accept the Treasurer's Report; motion passed. Don Klaser gave the Secretary's Report. A motion was made and seconded to accept the Secretary's Report; motion passed. Janice Kessler presented one of our scholarship awards to Christopher Schulman; he will be studying Engineering beginning this fall. President Don asked about getting suggestions from the membership concerning going on field trips; one suggestion made was going to EMU. A technical discussion on Chromatic Aberration was given by Greg Burnett. The main program was given by Jeff Thrush on Solar Observing. The meeting was adjourned at 6:30 pm.

TREASURER'S REPORT JUNE 27, 2002

by Mike Bruno

Balance on hand:	Checking	$ 759.15
	Savings	$3,390.82
Included in above $1,235.63	Scholarship	
	GLAAC	$ 319.00
Cash Available		$2,595.34
Receivables		$ 116.00

Membership Total = 118

A MESSAGE FROM THE PRESIDENT

by Don Nakic

I can't believe its been six month's as president of FAAC. My charter as president was to promote a higher level of awareness in the science and hobby of astronomy. Looking back on the numerous club achievements, I feel this goal is taking shape. First, the board rolled out a new agenda structure that provides a regular technical forum in every general meeting. This was achieved through a short technical discussion on a specific topic and a main program that is broad based in its subject matter. So far the feedback has been very positive. Next, the club helped celebrate Astronomy and Earth Day at the Detroit Science Center and Kensington Park, respectively. Later that evening club members fielded astronomy, telescope and other related questions during Beginner's Night at Island Lake Park. Club members, in conjunction with other amateur astronomy clubs, pulled forward GLAAC in an effort to celebrate the rare planetary alignment. Furthermore, the club has been active with submitting articles to Star Stuff. Now, the newsletter has more than tripled in size causing us to consider the potential for additional postage or lighter weight paper! Lastly, the club changed its venue to The Family Service and Learning Center. The building offers easier access to non-Ford employees, a more pleasant room to conduct meetings, and an improved multi-media system.

Momentum is building and we must not stop here. We need to further increase club activities and resources. In the July board meeting we discussed holding regular field trips, sponsor more outreach programs, and to establish a club library. These are only a few ideas. The club needs more ideas and we need them from you! In every general meeting I will be soliciting for your ideas, which can include technical topics, field trip ideas, Star Stuff articles, and new club resources to name a few. Without your ideas, the club cannot sustain its present growth. So please take the time to share your ideas and knowledge with fellow FAAC members. Let us all pull together and make this not just any club, but a great club.

OBSERVATIONS

by Greg Burnett

[This article was first published in Star Stuff*, the newsletter of the* Ford Amateur Astronomy Club*, in November, 1996.]*

…have to step outside for a dose of two-million-year-old light. The Andromeda Galaxy is floating above my house. By the most recent measurement, it is 2,500,000 light-years away. The light I see, the light passing through my binoculars, being bent by the lenses, is old. For 2-1/2 million years it has been traveling in a dead-straight line through space. During the most recent millisecond or so, its path was slightly disturbed by the atmosphere of the Earth. It bobbled just a bit as it passed through layers of air at various temperatures, pressures, and densities. In its final moment, encountering the lenses and prisms of my binoculars, it popped through in a twinkling, and became part of me, combining with the chemistry of my retinas. Perhaps one or two photons were a gleam in someone's eye, a glint of summer light off a cresting wave, or a remnant of pale starlight through dark trees, softly illuminating lovers' passions; so very far away and long ago.

Nothing is lost from a photon. Though perhaps Doppler-shifted in color, it remains otherwise perfect through all its travels. Millions, billions may be launched from some tiny event, and many, perhaps most, may be absorbed immediately, their journeys measured in inches, meters, maybe a few miles. But some escape to us. They arrive intact, still fresh, still warm, still flush with the energy of their creation. Still perfect, having lost nothing, they bring us tidings from other worlds.

DIGITAL IMAGING

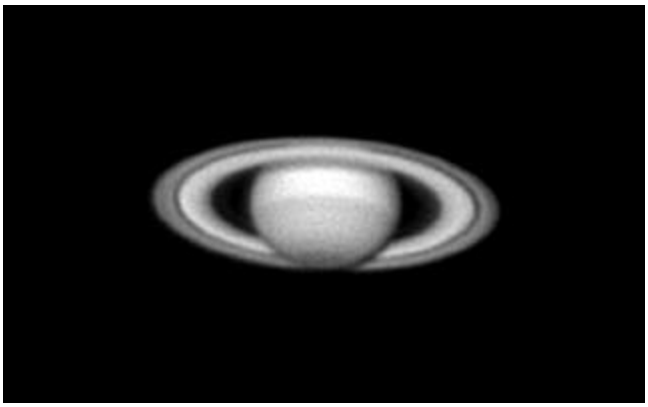
By Jim Frisbie

My interest in astronomy and astrophotography began in 1998 when my wife surprised me with a brand new ETX-90 to celebrate my 30th anniversary with Ford. I was amazed by the optical quality and versatility of the little scope. It was not long before I had purchased and modified a QuickCam VC to capture what my eyes could see through the eyepiece. The QuickCam was easy to use and did an admirable job of capturing photons at prime focus on a chip that was only 320 x 240 pixels.

ETX-90 & QC VC – Crater Plato

I was inspired by the fine work of Antonio Cidadao. His website: **http://astrosurf.com/cidadao/** illustrates what can be accomplished with a 10" LX-200 and various ccd imaging devices. I soon purchased a 10" LX-200 to further pursue my interests. And, along with the new scope I had to have a more elaborate digital camera…right! The SBIG ST-5C seemed to have all the features I was looking for and a price that I could afford.

With advice and council of George Korody, it was not long before I was taking pictures through the 10" LX-200 like the following image of Saturn



Although the ST-5C provides great images, it is not as much fun to use as the QuickCam. The ST-5C is more of an observatory instrument than a point and shoot camera. It is a lot like work to focus, expose and download good pictures. I was looking for something a little more fun to use.

A friend of mine showed up one day with a consumer digital camera and peaked my interest with easy to use quality digital imaging. This prompted me to do an extensive study on the Web into consumer digital cameras. I selected the Olympus C-3000Z. Before I bought the camera, I purchased a 32mb smart media card and a smart media reader to expedite information transfer from the camera to my computer. The standard method of using a serial port was too slow for me. Using the smart media card reader plugged into a USB port I was able to achieve very acceptable transfer rates of 32mb in 45 seconds. Another trick that I learned via my Web study was to use rechargeable Nickel Metal Hydride (NiMh) batteries.

I have owned the C-3000Z for almost 2 years and I am still amazed by the fantastic daylight and flash pictures that come out of the camera with little or no effort on my part.

Once I became comfortable with the C-3000Z I began an effort to couple it to my telescopes. The only drawback that I was concerned about was the inability to remove the camera lens to allow prime focus photography. This constraint permits only Afocal images to be taken. After several months of effort, I was unsuccessful in being able to optically couple the C-3000Z to different eyepieces. The problem centered around the cameras rather large lens size (42mm) not being able to match the light cone generated by each eyepiece. If I was willing to limit use to a 50 mm eyepiece, I could take quality images. When I attempted to increase magnification by using a shorter focal length eyepiece, my images were overcome by vignetting. So much so, that I was not satisfied with the results. The pursuit continued.

In August 2001, I noticed Sky & Telescope was publishing quality images being generated by readers using the Nikon CoolPix 950 consumer digital cameras. Arpad Kovacsy seemed to be on the cutting edge of fine lunar astrophotography with the Coolpix 950. See
http://msnhomepages.talkcity.com/PassportPl/csillagkep/

As before, an extensive web search followed. This time I was more focused on how the camera would perform when coupled to different eyepieces. The CoolPix 950 seemed to have the versatility I was looking for, so you guessed it, I had to have one! The knowledge gained in learning to use the Olympus C-3000Z helped me get a running start with the Nikon Coolpix 950. Since the C-3000Z and the CoolPix 950 use different storage media, I purchased a 32mb smart card and a smart card reader. The data transfer rates of the smart media and the smart card readers were comparable. The NiMh batteries work in both cameras. With the CoolPix 950, I was able to take over 100 images before the 32mb card was full or the batteries were fully discharged. I was happy!

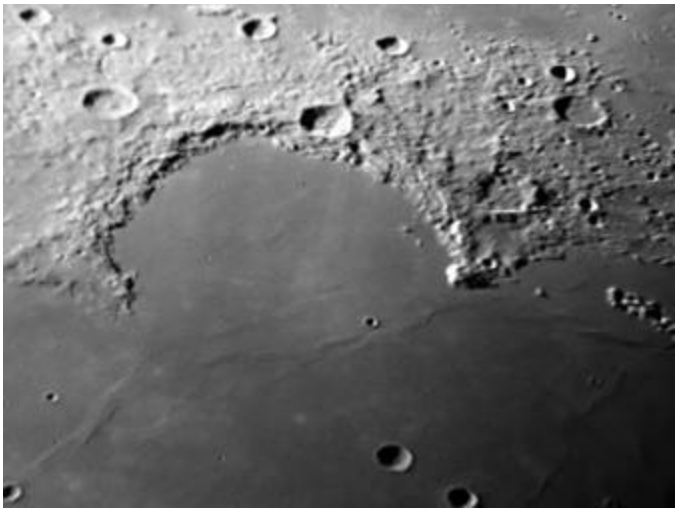
While learning the CoolPix 950, I took over 100 pictures before I ventured out of the program mode and tip-toed into the myriad of manual mode options. Again, since I could not remove the camera lens, I was concerned over the limitations of Afocal imaging and subsequent quality. But that concern soon subsided.

The very first picture taken by hand holding my CoolPix 950 to a 26mm eyepiece in a 4" refractor is shown below.

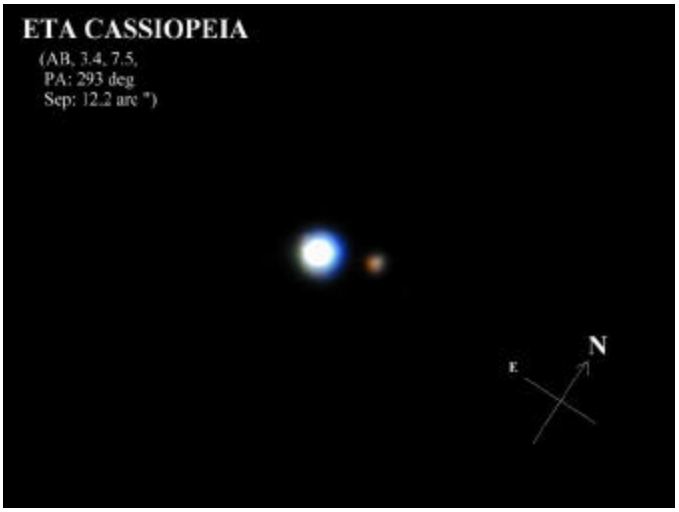
I soon did more Web research to determine which adapter to purchase for coupling my CoolPix 950 to various eyepieces. I selected the ScopeTronix adapter. It threaded into the filter treads on the front of the CoolPix and attached to most any 1 ¼" eyepiece. This allowed the camera and eyepiece assembly to be inserted into any telescope that would accept a 1 ¼" eyepiece. I have been able to physically and optically couple to a 12.5 mm, successfully with no signs of vignetting. This combination allows pictures to be taken at approximately 200X with my 10" LX-200.

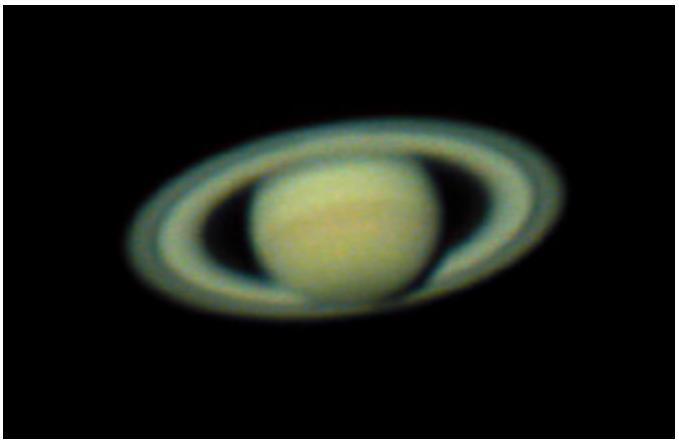
Typical CoolPix settings that I use are as follows: Focus @ Infinity (for afocal use), self Timer @ 3 or 9 sec (to reduce

vibration), Shutter Priority @ 1/500th to 1 sec (depending on available light), Aperture @ F3.9, Quality: Fine, 1600 X 1200 pixels (renders file size between 150kb and 650kb).
The following pictures are samples of what I have been able to achieve with my LX-200 and CoolPix 950:

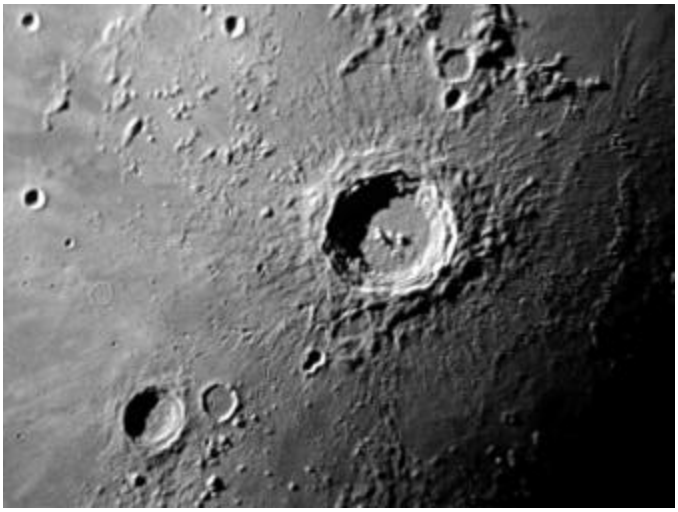


Sinus Iridum





Saturn



My Personal Favorite – Crater Copernicus

I have spent many hours learning the "Art" of image processing. I have settled on using 2 commercially available software packages. My primary tool for image processing is Adobe Photoshop. The most effective functions I have found include levels, curves, brightness/contrast and unsharp masking. I use Paint Shop Pro to browse image files and for user friendly printing control. Both Ron Wodowski at http://www.multimediamadness.net/wodaski/ and Jerry Lodriguss at http://www.astropix.com/ offer tutorials and helpful hints on using Adobe Photoshop for astrophotography.

I have taken over 1500 images in 10 months with the CoolPix 950. My recommendation is to shoot, shoot, shoot. Not all images are created equal. At 200X, the atmospheric stability becomes a major concern. All things being equal, shutter speed, focus, aperture setting, etc. one picture can be great and the next wiped out by changes in seeing conditions. My experience has been, the yield of acceptable raw images is on the order of 1 %. Yes, that is 1 out of 100 images. Shoot first and sort them out later.

I find the CoolPix 950 quick, easy and fun to use. I love it!

FUSION

by Greg Burnett

[This article was first published in Star Stuff*, the newsletter of the* Ford Amateur Astronomy Club*, in August, 1999.]*

Fusion power is back in the news. Government and university research programs continue to pour millions of dollars into efforts to harness nuclear fusion energy. Of the two basic types of nuclear reactions, fission and fusion, fusion is by far the cleanest and most efficient. Fusion holds the promise of cheap, inexhaustible energy from a mere whiff of hot hydrogen gas. By comparison, present day fission reactors require expensive and dangerous radioactive fuels, and produce considerable

quantities of very undesirable waste products.

"Cold fusion*" notwithstanding, there are basically two techniques under investigation for controlling a fusion reaction: inertial confinement and magnetic confinement. *(* The cold fusion theory proposed by Fleischmann and Pons a few years ago has been largely discredited, although there are a few zealous holdouts still experimenting with it.)* Inertial confinement essentially means causing the fusion fuel to react so quickly that it can't get out of its own way. In current prototype reactors, this is accomplished with Armageddon-class banks of high-power lasers, which heat small fuel pellets to the required temperatures almost instantaneously (on the order of 10^{-9} second), so the pressure of the resulting fusion reaction is "confined" by the inertia of the fuel pellet itself (it isn't "confined" very long!). Such reactors have produced some energy output, but so far they have not been able to produce as much energy as is required to get the fusion reaction started. Thus, they are not "self-sustaining."

Magnetic confinement employs elaborate arrangements of superconducting magnets that attempt to hold a hot plasma of hydrogen isotopes captive within a structured magnetic field. The plasma is heated by electric current, microwaves, or neutron beams until it is hot enough for fusion to occur. Existing reactors have produced momentary bursts of fusion energy, as much as 20 million watts, but sustained energy production continues to be confounded by persistent instabilities in the plasma, which allow it to escape its magnetic cage.

I have a proposal for a controlled fusion technique that the scientific community has overlooked, even though it is right under their noses: gravitational confinement. Here's how it works…

First, one obtains a considerable quantity of hydrogen gas, say about $2x10^{33}$ grams of it. That's a lot, but hydrogen is cheap and plentiful---it is, after all, the most abundant element in the universe. Now, (and this is the cool part!) left to itself, this hydrogen will collapse under its own gravitational attraction, and begin to compress itself and heat up. While this is happening, it is highly recommended that the experimenter(s) remain at a safe distance, say about $93x10^{6}$ miles. Eventually, the resulting ball of hydrogen (this much hydrogen will have a strong tendency to form a sphere, regardless of any attempts you may make to direct it otherwise) will become hot enough, through compression heating, that a fusion reaction will begin at its center. Once the whole thing stabilizes, the reaction will continue for a long time, possibly as long as 10^{10} years, maybe longer. As a result of this process, a great deal of energy is liberated.

Once the fusion reaction is underway, it is a simple matter to extract useable energy from this device. Radiant heat will be absorbed by any object exposed to the thermal radiation emanating from the device--the darker the object the more efficiently it will absorb the energy. This heat can then be used directly for a number of purposes, or it can be converted into other forms of energy, such as chemical or electrical. Photovoltaic cells can be employed to generate electricity directly from the incident radiation. Chlorophyll in green plants will convert some of the energy to chemical forms. Most of these are somewhat bulky and inefficient, but they have the advantages of a long shelf life and convenient handling characteristics. Some can be used to build houses, and other stuff.

Therefore, I recommend that the scientific community abandon present efforts to harness fusion, which have produced only marginal results to date, and adopt my proven technique. As it happens, there are already a number of these devices in operation, which are available for your examination---consult any reputable astronomy supplier for a catalog.

A CALL FOR PAPERS!

Star Stuff is looking for FAAC Member written articles, topic of your choice, for the August edition. Please submit articles by 15 August 2002 to Jim Frisbie, email: w8tu@peoplepc.com

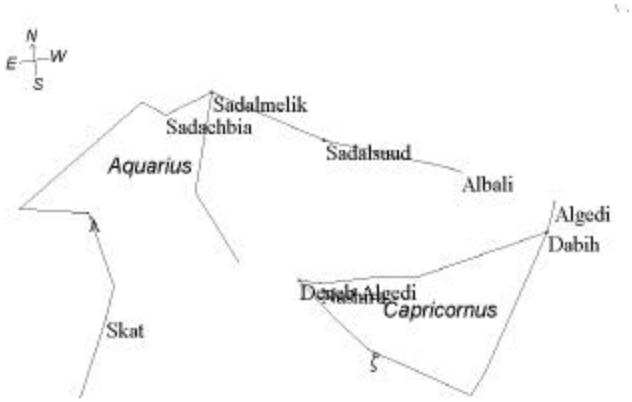
CONSTELLATIONS FOR THE BEGINNER

By Janice A. Kessler

August — Aquarius and Capricornus

Aquarius and Capricornus can be seen in the southern sky somewhat low to the horizon. Their bright stars include:

Star #	Star Letter	Name	Constellation	Mag
76	δ	Skat	Aquarius	3.27
73	λ	lamba Aquarii	Aquarius	3.74
48	γ	Sadachbia	Aquarius	3.84
34	α	Sadalmelik	Aquarius	2.96
22	β	Sadalsuud	Aquarius	2.91
2	ε	Albali	Aquarius	3.77
49	δ	Deneb Algedi	Capricornus	2.87
40	γ	Nashira	Capricornus	3.68
9	β	Dabih	Capricornus	3.08
6	α	Algedi	Capricornus	3.57
34	ξ	zeta Capricorni	Capricornus	3.74



All maps and facts are courtesy of Chris Marriott and SkyMap Pro 4.0.

All maps were designed to be viewed from Southeastern Michigan at Midnight around the 15th of the month. If you are at another location or viewing at another time, you may not be able to see this constellation.

FAAC
July 25, 2002
General Membership Meeting
5:00 pm to 6:30 pm
Agenda

- Introductions	Don Nakic	20 min
- Reports: Treasurer's Secretary's	Mike Bruno Don Klaser	5 min
- Old/New Business	Don Nakic	5 min
- Upcoming Events	Don Nakic	5 min
- Technical Discussion	Greg Burnett	15 min
- Solar Observing II	Norb Vance	30 min

ASTRONOMICAL CALENDAR 2002

July

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

July 19	Moon near Antares (19 & 20 dusk)
July 24	Full Moon 5:07 am *(Buck Moon)*

August

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

August 1	Last Quarter 6:22 am During August, Venus appears low in WSW at dusk and sets about 1.5 hours after the Sun by month's end.
August 3	Moon near red Aldebaran (dawn)
August 4	Moon-Saturn-Aldebaran triangle (dawn)
August 5	Moon near Saturn (dawn)
August 6	Jupiter begins to reappear in morning sky low in ENE before sunrise, with Saturn far to its upper right. For rest of month, Jupiter climbs higher in the sky each day.
August 7	Moon above Jupiter, with the Gemini Twins above them (dawn)
August 8	New Moon 3:15 pm
August 10	Moon 16° right of Venus (dusk)
August 11	Moon near Venus (dusk) Perseid Meteor Shower peaks. Best nights Aug 11 & 12. Most activity toward dawn.
August 12	Moon 8° upper right of Spica (dusk)
August 15	First Quarter 6:12 am
August 16	Moon near red Antares (dusk)
August 22	Full Moon 6:29 pm *(Sturgeon Moon)*
August 25	During last week of August, watch Venus close in on Spica low in WSW at dusk.
August 30	Last Quarter 10:31 pm
August 31	Moon near Aldebaran, with Saturn far to their lower left (2 am to dawn) Venus and Spica 0.8° apart (dusk)

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

FAAC CALENDAR

Activity	Date	Time	Contact
- General Meeting	July 25	5 pm	
- FAAC Board Mtg	Aug 8	5 pm	
- General Meeting	Aug 22	5 pm	
- FAAC Board Mtg	Sep 12	5 pm	
- Island Lake Star Party	Sep 14	-	-
- GLACC Star Party	-	-	-
- General Meeting	Sep 26	5 pm	
- FAAC Board Mtg	Oct 10	5 pm	
- General Meeting	Oct 24	5 pm	
- FAAC Board Mtg	Nov 14	5 pm	
- General Meeting	Dec 5	5 pm	
- Lake Erie Ice Days	-	-	-

The Ford Amateur Astronomy Club
Presents:

THE TENTH ANNUAL

ISLAND LAKE STAR PARTY

Island Lake State Recreation Area
Brighton, Michigan

Saturday September 14th 2002
6 PM – ??

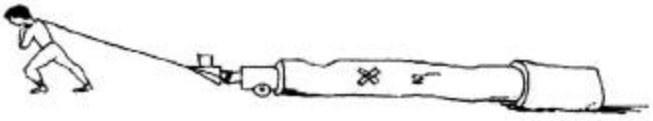
This event will be held rain or shine – cloudy or clear!!

Our Sponsors:

RIDER'S HOBBY SHOPS

Event Listing:

- **Telescopes of all kinds** – these are available to look at and look through . Have questions? Just ask!
- **Presentations and Demonstrations by local Technical Experts**. These are designed to answer your questions about equipment and observing techniques and help you to get the most from your telescope.
- **Astronomical Equipment** – educational material, books and star charts will be on display and made available by our sponsors.
- **PRIZES!!!** - There will be door prize drawings for telescopes and other items.
- **Observing Tour for Children** – Kids who register will be given an observing list. Marked telescopes will be on the field for the challenge. A certificate of achievement, and a gift from the Ford Amateur Astronomy Club, will be awarded to all who complete the observing list!



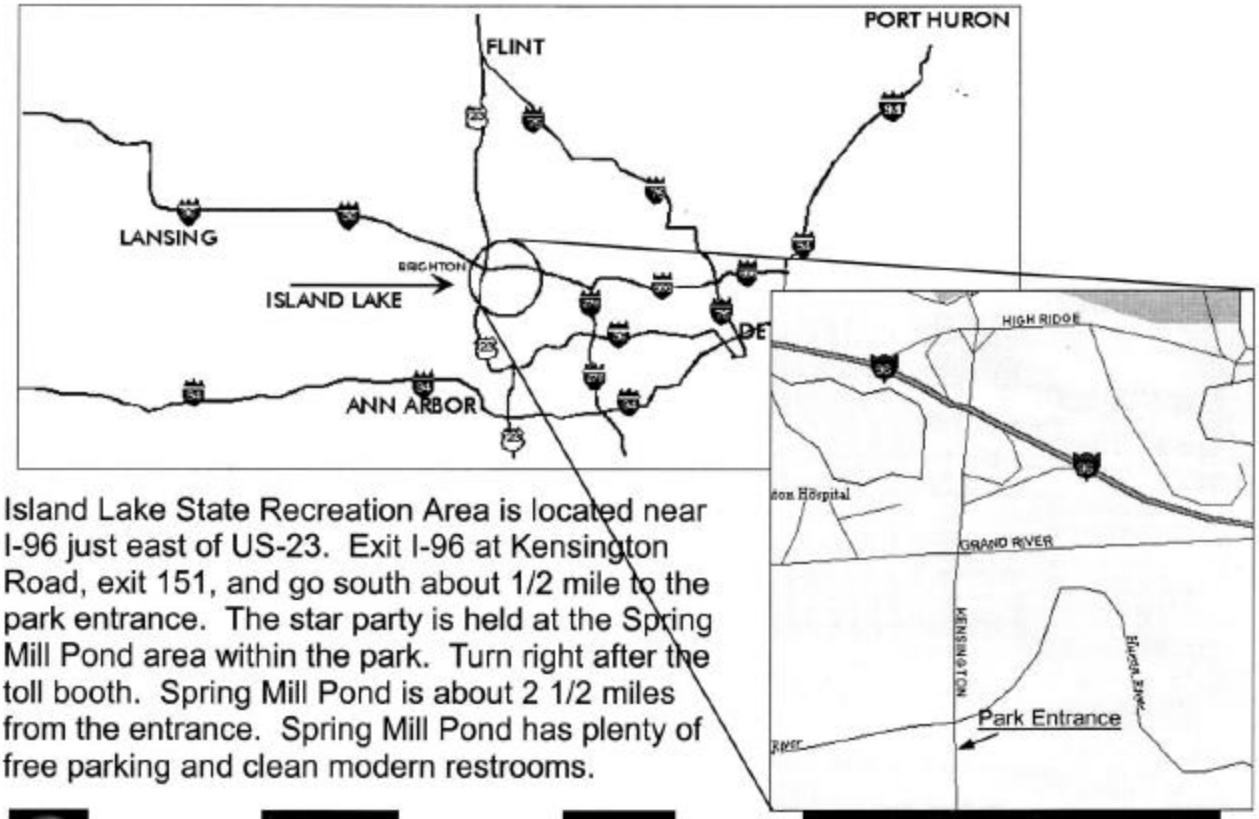
Your Telescope is Welcome!!

If you have questions about your equipment this is the perfect opportunity to get the helpful advice you need. Limited AC power and plenty of space is available. Please arrive before dark to allow for set-up time.

No telescope? No Problem! There will be lots to look through – just bring your curiosity!

Admission is Free* and Children are Welcome!

* You need a State Park Vehicle Permit if you don't have one – a daily permit is $4.00



Island Lake State Recreation Area is located near I-96 just east of US-23. Exit I-96 at Kensington Road, exit 151, and go south about 1/2 mile to the park entrance. The star party is held at the Spring Mill Pond area within the park. Turn right after the toll booth. Spring Mill Pond is about 2 1/2 miles from the entrance. Spring Mill Pond has plenty of free parking and clean modern restrooms.

Please Remember – Clear Autumn nights can get very cool. Bring warm clothes. And don't forget the State "Bird" - bring mosquito repellant.

It is polite to cover your flashlight with a red filter so as to avoid spoiling anyone's night vision.

Comet Ikeya-Zhang - By Clayton Kessler

FERA
Ford Employees
Recreation Association

The Island Lake Star Party is an ideal outing for Scout Troops and Class Trips. We strive to provide an atmosphere where presentations are educational and FUN. Don't forget – Spring Mill Pond is our regular observing site. Members are there most clear Friday and Saturday evenings. Call our Observing Hotline at (313) 390-5456 to confirm an observing weekend and join us! Check out our Web site at http://www.boonhill.net/faac/. E-mail faac1992@hotmail.com

CCD Image of Saturn by George Korody, CCD Image of Jupiter by Doug Bock, Northern Cross Observatory

Ford Amateur Astronomy Club
Star Stuff Newsletter
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