

The **BSE**SERVER



The Newsletter of the Twin City Amateur Astronomers, Inc.

November 2001 Volume 26, Number 11

Adventures in Meteor Hunting

— Duane Yockey

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GREETINGS to my brother and sister sky watchers,

The long awaited day of the Leonid meteor shower arrived Saturday. I was really looking forward to going out to the observatory with other Twin City Amateur Astronomers and seeing the "show" from 2:00 a.m. to 6:00 a.m. early Sunday morning. So I packed my car early with a lawn chair and threw in my telescope, star charts



and binoculars just in case the meteors didn't live up to their billing. Saturday was clear here in central Illinois, and

when I got back from a play at Illinois State University around 10:30 p.m. the sky was still showing lots of stars. I called Laura (my oldest daughter), who said the skies were clear down in southern Indiana and I could drive down there, if the clouds rolled in (ha, ha). I assured her that the sky would cooperate, and it was looking good then, and I wished her good luck (if she

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Is it December already? Then it's time for the

TCAA Holiday Bash!

See p. 3 for details

TCAA Calendar

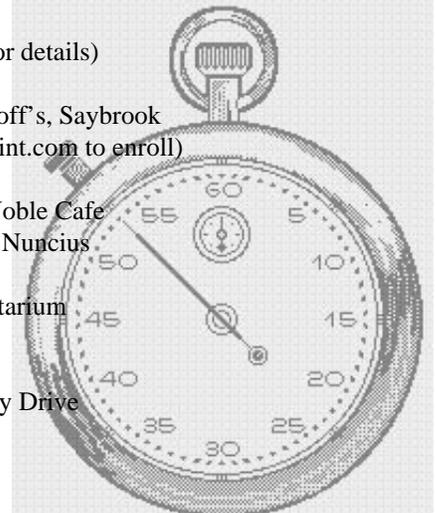
Friday, 30 November, 6:15 PM, SGO
Lunar occultation of Saturn. (see-mail list for details)

Sunday, 2 December, 7:00 PM, Joseph DeHoff's, Saybrook
ATM Class (contact josephd@connectingpoint.com to enroll)

Monday, 3 December, 7:30 PM, Barnes & Noble Cafe
TCAA Reading Group: Selection: Siderius Nuncijs

Monday, 10 December, 7:00 PM, ISU Planetarium
TCAA Monthly Meeting. Topic: TBA

Saturday, 15 December, 6-8 PM, 302 Melody Drive
TCAA Holiday Bash (see p. 3 for details)



The Observer

The Newsletter of the TCAA, Inc.

The Observer is a monthly publication of the Twin City Amateur Astronomers, Inc., a non-profit organization of amateur astronomers interested in studying astronomy and sharing their hobby with the public.

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Articles, ads, etc., are due by the 1st weekend of each month. Items may be e-mailed to: mprogers@mail.millikin.edu, or jmemken@ilstu.edu

Dues

\$25.00 per household, per year
\$15.00 for members over 60
\$12.00 for newsletter only
\$ 1.25 for a single newsletter copy

continued from p. 1

managed to wake up to view the sky down there).

So, after a brief nap, I went out on the back porch at 1:15 a.m. and saw clouds.....arrghhh!!! I hurried down to turn on the Weather Channel, which showed clouds throughout Illinois, turning to dense fog at the Indiana border. It seemed that I had two choices: 1. go back

ner patches. Just past Champaign/Urbana, the clouds started to disappear. I decided to head for Kickapoo State Park to be sure of being past the worst of the clouds. However, as I was approaching that area, the fog started rolling in. I could see stars overhead through my sunroof, but couldn't see much past the hood of my car. So I continued past the barely visible Kickapoo



Mark A. Brown, east-central AL; 200mm lens @f4.5; 3.5 minutes; Fuji Superia 800

to bed like a normal, sane person, or 2. drive east and get ahead of the clouds. So obviously I hopped in my previously packed car and started east at a speed, let us say, faster than the clouds were traveling.

I kept a lookout through my sunroof (finally a useful thing to have) and kept seeing mostly clouds, with an occasional glimpse of a bright star through the thin-

exit looking for a break in the fog, only to drive into even denser fog, all the way into that dreaded state of Indiana (ha, ha?). I found the Indiana Welcome Center through the fog and stopped there to check out the map. It was a beautiful surreal scene with clouds suspended about 20 feet above the ground illuminated by the invisible overhead lights. I checked out the map and decided to head for Turkey

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The TCAA Annual Holiday Bash!

Where: Vic & Mary's — 302 Melody Lane, Normal

When: Saturday, 15 December, 6 - 8PM

Bring: A treat to share

Why: Why not??

Directions: From the planetarium take College Avenue east about a mile and a half, to Towanda Avenue. Turn north (left), pass the Sugar Creek Elementary School and turn east (right) on the first street called Adam. Adam turns into a U-shaped street and becomes Melody Lane; 302 Melody Lane is the 2nd house on the right.



Search for Intelligent Gifts

Yes, it's that time of year again, a time to brave the malls, lose your credit card in an internet scam, or... could there be a better way?

There is! With nothing more elaborate than a 34 cent stamp and a crayon, you can send your loved one(s) the gift that keeps giving all year long, TCAA membership!

Bonus Offer! For each new member you refer, you'll get a free 8x10 glossy of the Hubble Space Telescope! Naked!! Act now, supplies are limited.

To: Duane Yockey, TCAA Treasurer & Leonid Hunter
508 Normal Avenue,
Normal, IL 61761

Name: _____

Address: _____

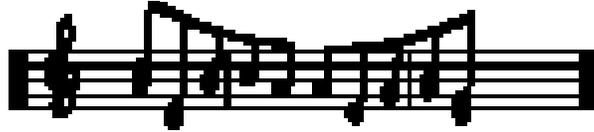
City: _____ State: ____ Zip: _____

Referring Member: _____

Membership is only \$25/year! Cheap as borscht, & less likely to stain!!

Club Notes

— Sandy McNamara



HOLIDAY FUN - Vic and Cindy Connor have graciously offered their home for the TCAA annual holiday party. The gathering is planned for Saturday, December 15, beginning at 6 PM (see complete directions elsewhere in this issue). Attendees are asked to please bring a treat to share (but you are still very welcome to come even if circumstances prevent you from being able to do this!). If you are new to the TCAA or just haven't had time to join in our many summer activities, this is the perfect occasion to become acquainted with some of your fellow club members in a pleasant, informal setting. For longer time members, this is the perfect place to catch up on all the personal news and gossip that we don't have time for during much of the year.

ATM CLASS - There is still time to join in the telescope/mirror making class being offered by Joseph DeHoff; classes will held in Saybrook beginning the first week in December. This will be an easy project for beginners to make a completely safe solar viewing telescope and cost will be minimal. Contact Joe (josephd@connectingpoint.com) or any board member for information on joining the class.

GENERAL MONTHLY MEETING - Meetings are held on the second Monday of each month beginning at 7 PM at the ISU Planetarium. Attendees at the last meeting were introduced to "Deep Space Explorer" software program from Sienna-Soft that allowed everyone to explore the structure of our universe. Planetarium director Tom Willmitch also surprised us with a quick view of the evening skies when he turned on the planetarium's sky projector to point out a few constellations in explanation to a member's question. Perhaps we can talk Tom into making a quick review of the current skies a standard meeting item if we all beseech him nicely enough? The next meeting is scheduled for Monday, December 10.

TCAARG - The reading group is still discussing the classic "Sidereus Nuncius" or The Sidereal Messenger by Galileo Galilei, translated by Albert Van Helden. The TCAARG meets the first Monday of each month at the Barnes & Noble Cafe starting at 7:30 PM; the next meeting will be December 3. Having read the selected book is NOT a prerequisite for joining this informal discussion group <g>.

SPECIAL PRESENTATIONS - Michael Rogers & Co did a fine job with their presentation at the Bloomington Public Library on the life and work of Charles Messier. TCAAers have also been busy with talks at SGO (see below) as well as ongoing presentations given for teachers by Mike Rogers and Dan Miller at Millikin University. Requests for presentations can be forwarded to any board member or to educational director, Jim Swindler, at jkswind@ilstu.edu.

SGO UPDATE - The TCAA has had another telescope donated to our telescope loaner program. I *think* this is a 6-in reflector but will have more information after I have a chance to check the telescope out and perform a badly needed collimation.

MOOS - The last MOOS turned into an all night party for at least a dozen TCAAers. The evening began with a presentation under clear skies to a large group from Trinity Lutheran as well as a smaller group of Boy Scouts that were camping at SGNC. All attendees were also treated to a wiener roast supplied and hosted by our observatory manager, Dan Miller. TCAA members then stayed to man a watch for the Leonid meteors — along with gradually increasing cloud cover that completely hid the storm which hit around 4 AM :-(. Nonetheless, the members that spent the night comfortably cuddled in their sleeping bags were rewarded with a nice view of several bright meteors (including one exploding bolide that cast shadows)

ANNUAL BANQUET - I need some input from members for this. Last year we had a buffet dinner at Sugar Grove Nature Center (which has a nice meeting room which can be set up for dinners). Would this be acceptable for the next one also? We are also still looking for a possible speaker for the banquet. The annual banquet is also the time when new board members are elected for the year. Please start thinking about whether you might be able to accept a nomination for the new board of directors. This is your chance to make sure the club continues to develop in a direction that gives everyone a reason to be happy being a member.

Remember...

ISUTCAA Skyline is waiting for you!

438-5007

Software Review: Deep Space Explorer

— Michael P. Rogers

DEEP SPACE Explorer (DSE) is the newest software creation from SPACE.com, also, and perhaps more famously, known for Starry Night Pro.

The strength of SNP — as you may recall from previous reviews or the countless occasions on which this author has demonstrated it at TCAA functions — lies in its realistic and accurate portrayal of the night sky. It can show you nearby stars and assorted celestial objects, and will allow you to zoom towards them. In the final analysis, however, SNP is really limited to a small chunk of real-estate that is our local neighborhood.

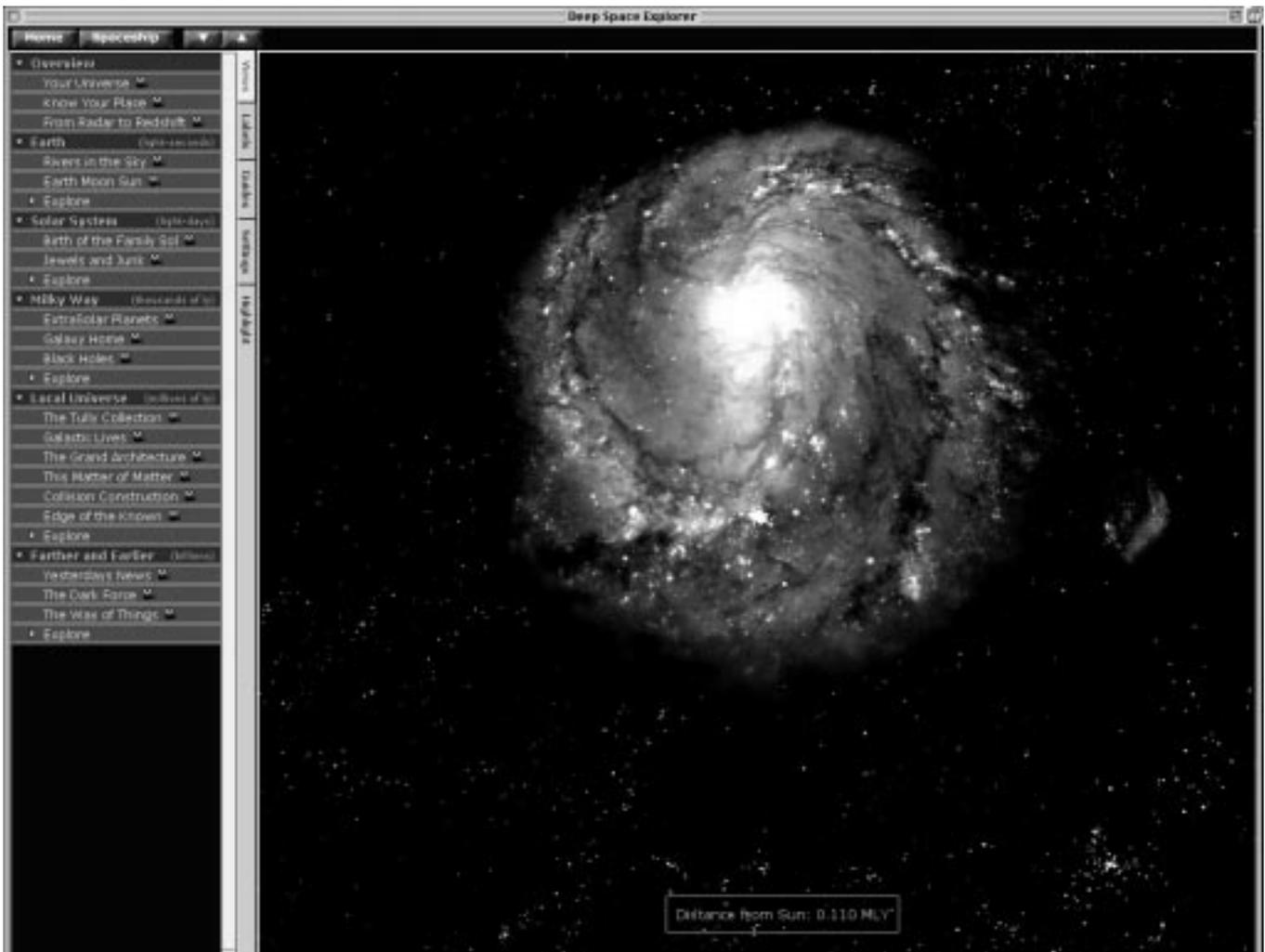
Enter DSE. This program allows us to *truly* “slip the surly bonds of Earth”, and explore, in an exciting fashion familiar to video game aficionados, over 28,000 nearby galaxies, covering a volume roughly 700 million light years in diameter.

To emphasize the difference between DSE and SNP (since they do share many traits), DSE initially positions the user 700,000 light years “above” the Sun, looking down on our Milky Way Galaxy. The view combines a highly realistic looking 3 dimensional image of the galaxy, possibly based on something from the Hubble Space Telescope, with a small white cluster of computer-rendered stars.

The cluster of stars looks slightly unnatural compared to the galaxy, either because of the number of pixels required to draw each star, or simply due to their sheer number — these are the 30,000 stars visible from Earth. The irony is that the stars are realistically plotted, whereas the picture of the Milky Way galaxy, inevitably, must be inaccurate. As of this writing, anyway, no probe had traveled 700,000 light years beyond the galactic plane.

Only two other galaxies make themselves immediately known — the Lesser and Greater Magellanic Clouds that are our Milky Way’s constant companions. But

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every dot in the sky, and there are a lot of them, represents a galaxy — accurately plotted from a 3D database compiled by University of Hawaii astronomer R. Brent Tully.

The interface is quintessential Starry Night — that is to say, easy to use, and pleasant to behold. The sky itself takes up most of the window. A small button bar at top has 4 buttons, labeled “Home”, “Spaceship”, “Down”, and “Up”. Home is a convenience button that regardless of present location brings the user 700,000 light years above the Sun. It is easy to get lost in DSE, so this button is quite handy. It is surprising that the words “Home” and “Spaceship” are written out, instead of using an icon. No doubt the developers had their reasons. To the left of the sky (so to speak) are a series of tabs, labeled “Views”, “Labels”, “Guides”, “Settings”, and “Highlights”. These tabs can be collapsed or expanded as needed.

“Views” provides access to a modest, but

presumably expandable, QuickTime collection of movies covering all manners of topics astronomical. Actress Chase Masterson, who has appeared in several Star Trek episodes and is therefore ideally qualified for the task, acts as narrator; and Brent Tully makes numerous appearances as well.

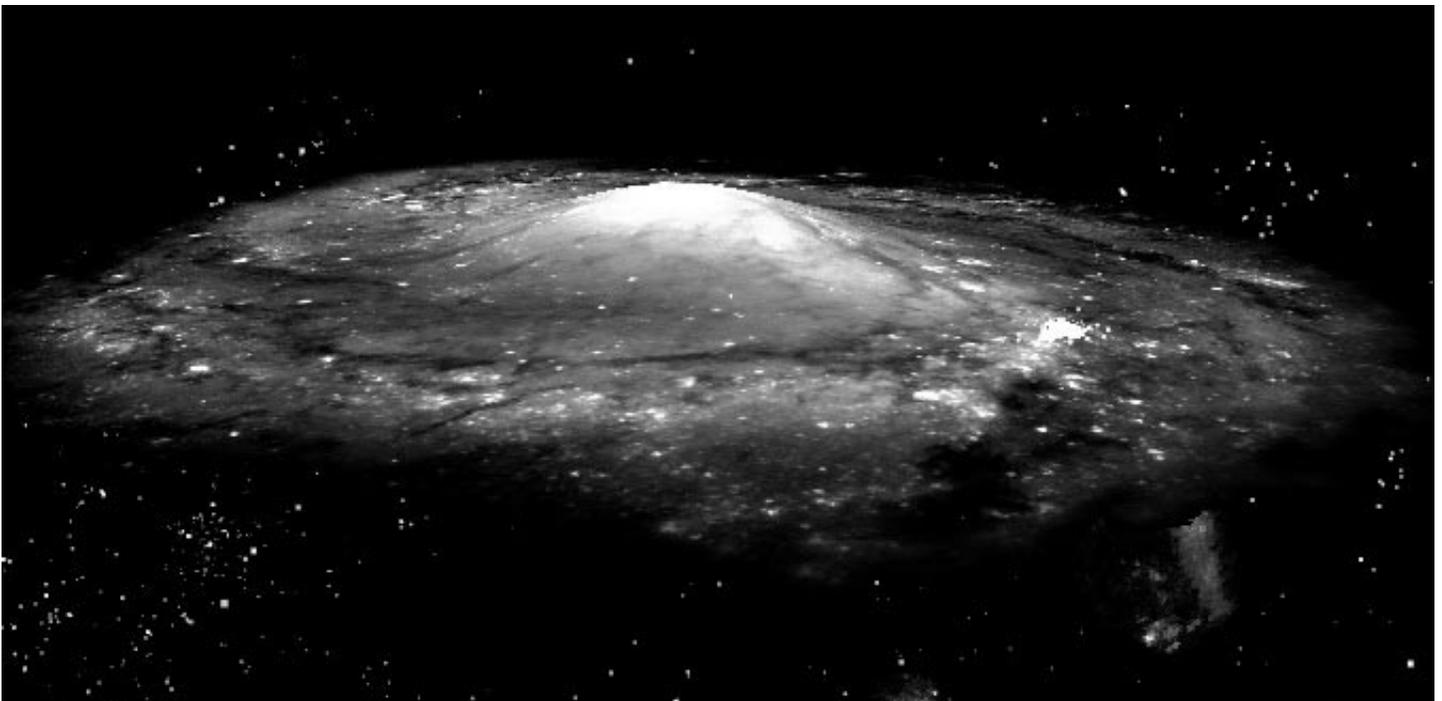
To my ear, Masterson’s narration is just a trifle too enthusiastic, and, for something called Deep Space Explorer, the content is too shallow. However, for its goals and intended audience, the videos are probably just about right. There is some problem with the quality of the videos — although QuickTime can deliver crisp full-screen movies, there are audio-video sync problems with these quarter-screen files that simply should not be.

Deep Space Explorer’s forte is exploration, and here the execution is flawless. To start with the most mundane, the Up and Down buttons allow users to change their distance from an object. Dragging

along the image causes one to change direction, so that it is possible to pivot around any object and view it from the “other” side. A contextual menu gives the user the option of selecting an object, centering it, or going there. The latter is a visually stunning tour-de-force. DSE brings up a heads-up display, a red rectangle displaying direction (relative to the Sun) on the x- and y-axes, as well as distances to the object in question, and then moves quickly through space towards the object. Once the user has “arrived” at the destination, the heads up display disappears, and the user can pivot about the object, or use the down button to draw even closer.

In Spaceship mode, users gain ultimate control of their location/orientation. They can travel at will through all of the Tully Database, using cursor keys to adjust pitch, yaw, and roll. Galaxies stream past, elongating as they do so to empha-

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The Milky Way Galaxy and friends, as seen from Deep Space Explorer. Note the “star cluster” to the right of the core; that is the computer rendering of the 30,000 odd stars visible from Earth.

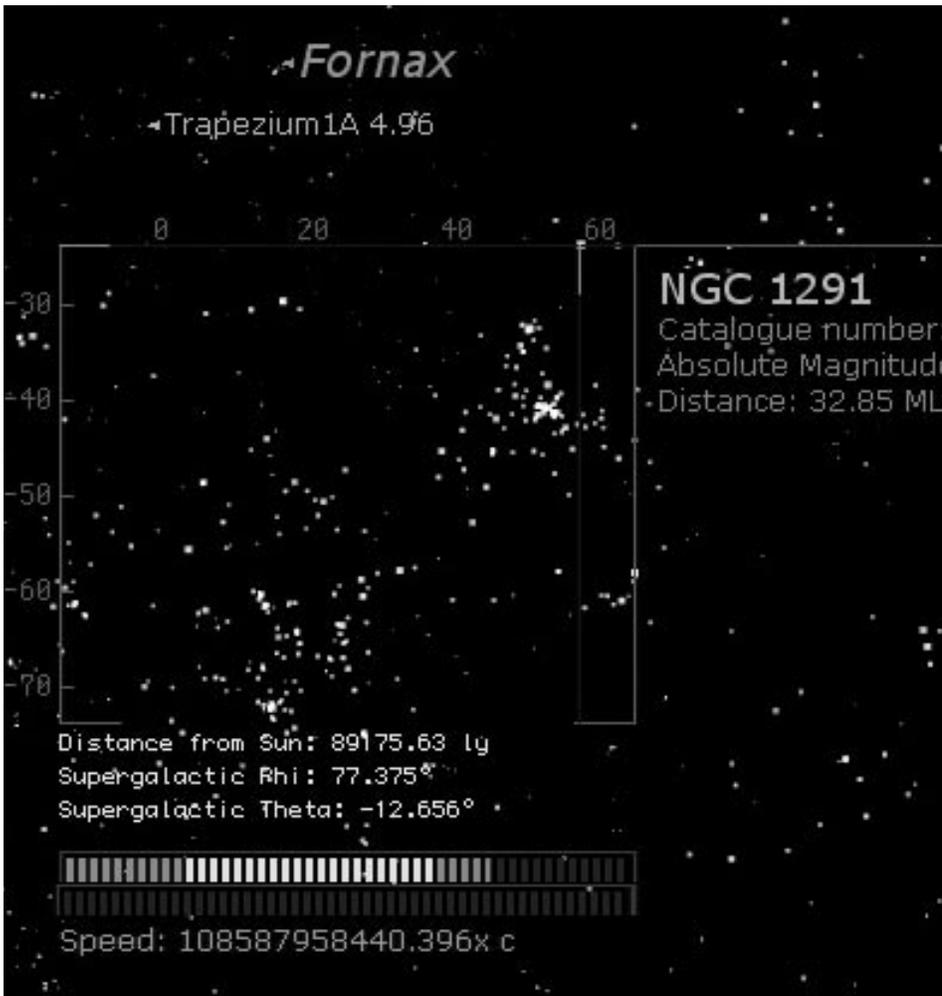
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size the tremendous speed of this virtual spacecraft. The effect is very much like driving through a snowstorm at night, except that the snowflakes are (optionally) labeled, indicating their NGC number and other information.

Speaking of information, as is the case with Starry Night Pro, DSE is tightly integrated with the internet. A contextual menu item, unassumingly titled "Online info...", provides preconfigured links to a vast collection of search engines, including those at NASA, StScI, DejaNews (which really needs to be renamed, now that Google owns it), and the Digital Sky Survey. One NASA search engine, HEASARC Astrobrowse itself searches nearly 20 other databases; and for a

moment, I had the uneasy feeling that by clicking on a single object, one could launch a pyramid-scheme of a search that would bring the internet to its virtual knees. Fortunately for the sake of humanity, this did not happen :-0

Compared to the cost of purchasing a faster-than-light spacecraft, DSE is cheap: \$60.00 buys the CD (with both Macintosh and Windows versions) and a thin User's Guide, and will give you yet another excuse for never leaving your computer, at least on cloudy nights!



TCAA Benefits

—Michael P. Rogers

THERE are innumerable benefits to TCAA membership. The most intangible, most important benefit of all may be found at any of our meetings — the reading group gathering (1st Monday of the Month, 7:30 PM, Barnes and Noble Cafe), the monthly meeting (2nd Monday of the Month, 7:00 PM, ISU Planetarium), our formal and informal Members-Only Observing Sessions (on the weekend closest to new moon, at the SGO). So what is this great benefit? Simply put, the opportunity to meet people just like you, people interested in astronomy and eager to learn more.

To be sure, there are also some substantial tangible benefits to membership:

1) Discounts on Sky and Telescope and Astronomy subscriptions (\$29.95 and \$29.00, respectively: send checks, payable to William Carney, at this address:

PO Box 52
Bloomington, ILL 61701-0052

or contact William for more information 309-829-7748, WillCarney@aol.com).

2) Access to a dark sky observatory (contact one of the keyholders, listed on p. 10, or talk to Sandy McNamara about becoming a keyholder yourself).

3) Our growing collection of loaner telescopes. If you can't afford your own telescope, or want to try out a model before splurging, this is an excellent benefit that is hardly every mentioned.

4) A really great newsletter!

OK, I made the last one up; but remember the 4 preceding it — especially the chance to pal around with other amateur astronomers. Take advantage of those (the benefits, not the astronomers!) as often as you are able.

See Cetus!

— Sandy McNamara

CETUS, sometimes perceived to be the sea monster that threatened the fair princess Andromeda, is well placed for viewing in late November and December. To find the beast, first locate the large, distinctive “square of Pegasus”. Following the line formed by the eastern side of the square, drop south 25 degrees to land on 4th magnitude iota Ceti. This star is the westernmost point of a triangle completed by 4th magnitude eta Ceti 12 degrees to the west and 3rd magnitude beta Ceti below and between the two. Now follow the line formed by the two southernmost stars of the Pegasus square eastward for approximately 35 degrees (or 20 degrees SSW from the 3 stars marking the horns of Aries, the ram) to locate a large circlet marking the other end of Cetus. I always see this asterism as shaped like a table tennis or racquetball racket? Between the triangle and the “racket” lies a meandering line of stars forming the main body of our sea monster; two of these in particular are worth finding: omicron (otherwise known as Mira) and delta (the jumping off star to find M77). Take your favorite magnitude 6 star atlas outside with you to locate the guide stars referred to in the following.

Omicron Ceti, better known as “Mira” (“the wonderful”), is the prototype of the “long period variable” family of stars. Long period variables are ancient red giant stars that actually pulsate over time due to internal changes. First detected as a variable in 1596 by German astronomer David Fabricius, Mira is an ideal star for

OBJECT	TYPE	RA	DEC	MAG	SIZE/SEP
NGC 157	Gal	00h 35m	-08d 24m	10.4	2.8' x 2.1'
NGC 246	PN	00h 47m	-11d 53m	10.4	240" X 210"
omicron Cet, (Mira)	V	02h 19m	-02d 59m	2.9-10.1v	
NGC 1068 (M77)	Gal	02h 43m	-00d 01m	8.8	2.5' x 1.7'
gamma (86) Cet	DS	02h 43m	03d 14m	3.5/7.3	2.8"
alpha (92) Cet, w/93 Cet	DS	03h 02m	04d 05m	2.6/5.6	15.6'

Note to those working on various observing projects: Gamma Ceti is included in the double star award, M77 is included with the Messier and Binocular Messier lists, NGC 157 and NGC 246 are on the Herschel 400 list.



first-time variable star observers. It typically cycles from 3rd to 10th magnitude over a 332 day period, appearing and disappearing to the naked eye as it does so (thus its ancient name as “the wonderful”). The latest peak was in September of this year, so it is fading now but how long can you see it with your naked eye and/or binoculars? Look for omicron Ceti in the body of the sea monster, westward of the “racquetball paddle” asterism; the “V” of Pisces forms a large arrow pointing to its location.

Gamma Ceti, the star joining the “racquetball” “paddle” to its “handle”, is a double star which can be a challenge for small telescopes. The bright yellow 3rd magnitude primary has a 6th magnitude companion only 3” away so you will probably require at least 200x to split the pair.

If you can’t split apart the two stars of gamma Ceti, alpha Ceti is a nice wide binocular double of magnitudes 2.5 and 5.5 separated by almost 1/4 degree. You can find it just east of gamma, taking its place as the brightest member of the circle of stars in the eastern end

NGC 157 is a mod sized spiral galaxy located 1/2 degree N and 4 degrees E of iota CET. (Beta, eta, and iota CET from the large naked eye triangle on the western end of Cetus). 6” to 8” ‘scopes at around 70x will show a faint oval smudge midway between 2 bright field stars to the S and the NNW

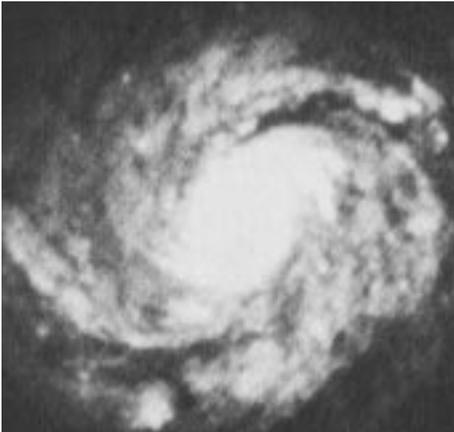
NGC 246 is a nice planetary nebula that can be observed with even 3-in telescopes under dark skies. To locate it, look 3/4 d east and just over 1d south of Phi-1 CET (“phi” is the Greek symbol on your maps that looks like the letter “o” with a vertical line through it). Phi-1&2 are just visible to the naked eye between eta and iota CET in the triangle marking the western end of Cetus; the spot occupied by NGC 246 forms a triangle with phi-1(19) and phi-2(17) CET to the N. Although NGC 246 has a listed magnitude of around 8.5, its large size gives it a low surface brightness which makes it difficult to see unless you are under dark skies. Small tele-

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scopes will show only a faint circular fuzzy patch. A 6" to 8" scope will start to reveal a blotchy texture that almost resembles an unresolved OC and higher magnification should show 3 stars visible by averted vision which are involved in the outer areas of the nebulosity. A UHC or OIII filter enhances this nebula greatly and 10" or larger scopes will show details in the ring structure that almost makes it look like a doughnut with a bite taken from it.

M77 (NGC 1068) is the brightest of several galaxies found near delta Ceti. M77 is located 1 degree E and about 1/2 degree south of delta Ceti. Although classed as a spiral galaxy, it is also known to be a Seyfert galaxy. Seyfert galaxies, named



for their discoverer, American astronomer Carl Seyfert, are characterized by their unusually intense and variable emissions at ultraviolet wavelengths. M77 was also one of the first galaxies for which a large redshift was detected; this 1913 discovery by Vesto Slipher led to the expanding universe theory of the universe. A 3 or 4-in telescope will show a small, faint disk midway between delta and an isosceles triangle of 8th magnitude stars. A 6-8" telescope at around 70x should show a small, bright, oval nebulosity with brighter star-like core; there is a matching magnitude star close to SSE. 8" to 10" will begin to reveal detail in the outer haze and reveal other galaxies nearby.

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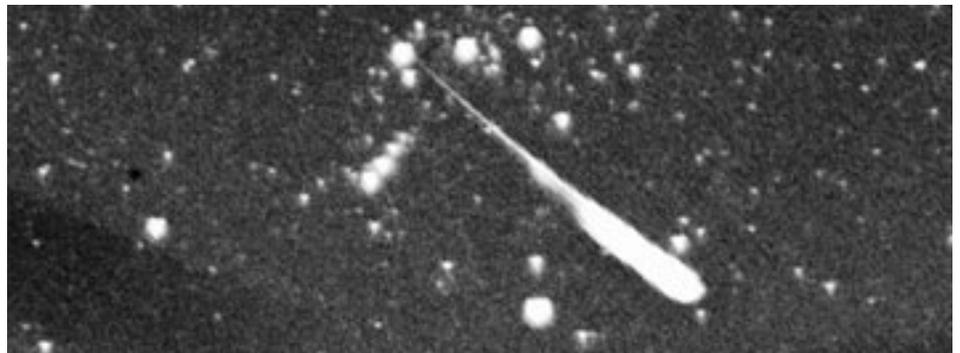
Run State Park, hoping that going a little south would get me out of the soup. Back onto the interstate, heading east, I went up through the fog briefly in time to see a meteor flash ahead, which certainly removed any of my doubts about going on my crazy jaunt. I found the exit for Turkey Run (barely through the fog) and headed south, but the fog got no better. The road rose up through the dense clouds and I clearly saw two meteors streaking ahead of me, and then back into the fog I went. Oh, no, I am missing it all!! So I decided to turn off the road and find a clear spot, somewhere. I turned left on a County Road and went about two miles through the soup to a tee in the road, so I turned south again.....more fog. So I turned right on a narrow fog shrouded road, which suddenly climbed up out of the fog, and I turned into a pasture(?) entrance, from which I could see a clear, dark, star-filled sky bordered by a foggy horizon and meteors streaking all across the sky!!

I quickly set up my lawn chair and sat back to view what I considered an awesome spectacle. I saw literally hundreds of meteors (I would say at least a thousand between 3:30 a.m. and 5:00 a.m.). Most were small streaks, but there were many larger ones and a good two dozen, which flared brightly during their track across the sky and left a luminescent trail for a good 5 minutes after they had disappeared. The track of most of the meteors was away from Leo. I saw 5 to 10 at one

time radiating out from Leo. At other times, you could see 3 or more at once streaking parallel to one another. I concentrated on the Leo part of the sky, but the meteors were all over, even into the foggy perimeter of my little viewing island. During some of the bright displays, dogs (coyotes ?) began howling and yipping somewhere not so far in the distance. It was a unique sensory experience!

Although still going strong at 5:00 a.m., the meteor intensity had slackened. So I broke out of the enchantment of the scene, and packed up to get back to my Sunday obligations, including a couple of hours of sleep. The fog was pretty much gone by the Illinois border, but the clouds had encroached that far to the east by the time I returned, so I am glad I didn't stop in Illinois.

Sunday morning at church many of my friends asked how the meteors were last night, with knowing grins (because they hadn't seen anything). When I told them I had seen a wondrous display of the beauty of God's universe and how I did it, I could see their minds working and re-evaluating their opinion of my sanity. But, it was worth it! And before you tell me how crazy I am, remember..... we astronomers, whether amateur or professional, serious or casual, are related by our love of viewing the splendors of the universe overhead! :)



Juraj Toth, Astronomical Observatory, Modra, Slovakia

Treasurer's Report — October 2001

— Duane A. Yockey, Treasurer

Operating Fund Balance – September 30, 2001 **\$1,819.11**

Income

Brad & Lora Welch (dues) -	\$ 25.00
Vic Connor (dues renewal) -	\$ 25.00
Orlyn Edge (dues renewal) -	\$ 25.00

Expenses

None!! -	\$ 0.00
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Operating Fund Balance – October 31, 2001 **\$1,894.11**

Observatory Fund Balance – September 30, 2001 **\$99.91**

Income

None -	\$ 0.00
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Expenses

None!!	\$ 0.00
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Observatory Fund Balance – October 31, 2001 **\$99.91**

Total TCAA Funds – October 31, 2001 **\$1,994.02**

Listing of Official Keyholders (Paid \$10 deposit)

Jim Swindler (April 2001)
 Duane Yockey (April 2001)
 Sandy McNamara (June 2001)
 Dan Miller (August 2001)
 Michael Rogers (August 2001)

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The Observer Crossword

—Observer Staff

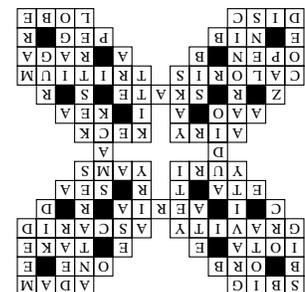
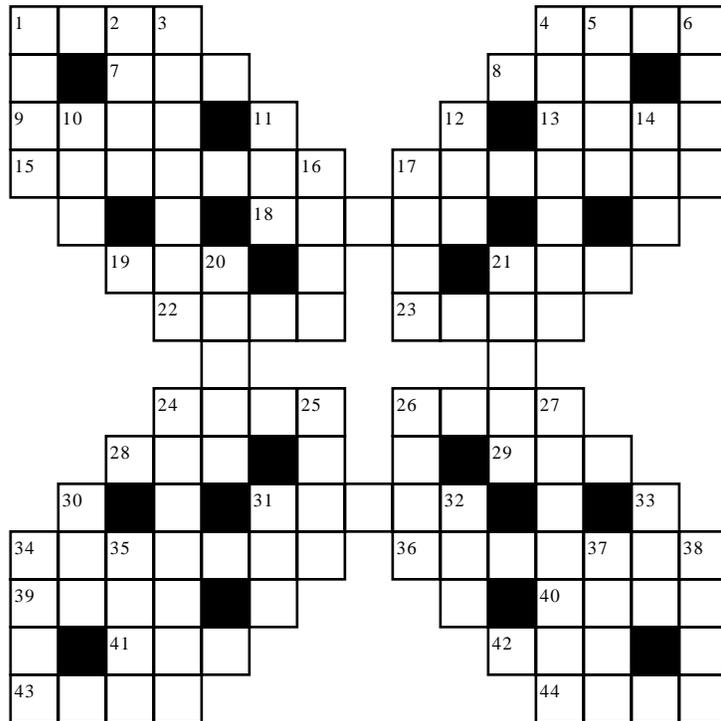
ACROSS

- 1 Famous initials in CCD
- 4 First man
- 7 Globe
- 8 1
- 9 9th Greek letter
- 13 Grasp
- 15 The force which keeps heavenly bodies in their orbits
- 17 Parasitic roundworm
- 18 Operatic feature/bright region on Mars
- 19 7th Greek letter
- 21 Ocean
- 22 First man to orbit the earth - ... Gagarin
- 23 Edible roots
- 24 Disk on which 84% of star's light is concentrated
- 26 Hawaiian observatory
- 28 Anglo-Australian Observatory, for short
- 29 New Zealand parrot
- 31 Glide along smoothly
- 34 Major Mercurian feature
- 36 Isotope of hydrogen
- 39 A type of star cluster
- 40 Hindu music
- 41 Penpoint
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- 43 Flat circular plate
- 44 Roundish projection

DOWN

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- 2 9th Greek letter
- 3 A serious subject
- 4 Brightest star in Scorpius
- 5 Expensive
- 6 Reward
- 10 Mythical sea monster
- 11 7th Greek letter
- 12 Ariane's developer (abbr)
- 14 Young goat
- 16 Abominable snowman
- 17 Disk on which 84% of star's light is concentrated
- 20 Pertaining to sound reproduction
- 21 Slap
- 24 Pertaining to Aaron

- 25 Tibetan oxen
- 26 The cat's meow of observatories?
- 27 Small falcon
- 30 Move quickly
- 31 Akin
- 32 Period of history
- 33 Floor covering
- 34 Student at mixed school
- 35 Glass device used for focussing light
- 37 The villain in Othello
- 38 Where the Titanic would sail, on the moon



The Welcome Mat

Slightly less famous than the Leonid Meteor Shower is the New Member Shower. It struck last Saturday, when 3 new members joined! A nice November welcome, if you please, for...



Jay & Rose White
Mackinaw, IL

Dan Meyer
Shirley, IL



The OBSERVER

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Dues Due?

The Dues Blues

If you see a check in the box above, it means **your dues are due**. To retain membership -- and with a new observatory, why quit now??? -- please send \$25 to our esteemed treasurer:

Duane Yockey
508 Normal Avenue
Normal, IL, 61761

As always, thank you for your support!!