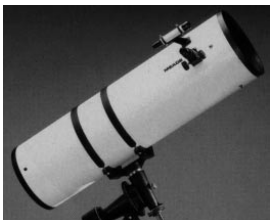
The OBSERVER

The Newsletter of the Twin City Amateur Astronomers, Inc.

December 2002 Volume 27, Number 12



In This Issue:

Starry Night 4.0: The Review

—Michael P. Rogers

ONE OF THE leading astronomy desktop publishing programs, Starry Night Pro, has just been upgraded to version 4.0. The latest creation from space.com adds a number of terrific new features, certainly enough to justify the integer jump in version number.

It should be noted that SNP 4.0 (as we will henceforth abbreviate Starry Night Pro 4.0), is an evolving product. The first release was a little buggy, especially on the Windows side, but the developers of Starry Night — the entire handful of them — have been hard at work, and most of the critical bugs had been ironed out by version 4.0.2, on which this review is based. (The authors actually publicly apologized for not doing a more extensive, public beta test). The difference between 3.0 and 4.0 are apparent as soon as the program is launched: gone are the numerous palettes that covered up much of the sky. Instead, all of these features have been neatly tucked away into a thin vertical tab on the left, and a small tool bar at top. With a much larger expanse of uninterrupted sky, it is easy to pretend that you really are lying underneath a deliciously-dark night sky.

And what a sky it is: thanks to the use of OpenGL, the graphics look indescribably

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Happy Holidays from The Observer Staff

— JAM, MPR, BJR, SER, and JPR

TCAA Calendar

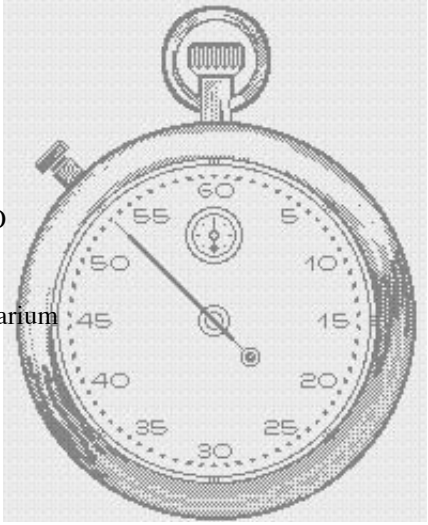
13-14 December, 2003
Geminids (see article, p. 4)

Saturday, 4 January, 2003, Dusk-???, SGO
Members-Only Observing Session

Saturday, 11 January, 2003, 9:00-11:00 PM, SGO
Public Observing Session.

Monday, 13 January, 2003, 7:00 PM, ISU Planetarium
TCAA Meeting. Topic: Robotic Telescopes

Saturday, 22 February, 2003, SGO
TCAA Annual Banquet (see p. 2 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 last weekend of each month. Items may be e-mailed to: mprogers@mac.com, 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

Club Notes
— Sandy McNamara

REMINDER-- there will be NO MONTHLY MEETING IN DECEMBER. Our next meeting will be Monday, January 13 at the ISU planetarium when a presentation is being planned on computers and astronomy.

February Annual Banquet -- The annual banquet and meeting has been tentatively scheduled for Saturday, February 22, at the Sugar Grove Nature Center. The format will be much the same as last year's successful event with a potluck style dinner and the main dish & drinks being supplied by the TCAA. Dr. Rick Martin, director of Illinois State University's Physics department, has agreed to be our guest speaker and will be talking about his research on the Earth's magnetosphere. Full details will appear in next month's Observer.

Give the Gift of Astronomy to someone you love...

or someone you like....

or some acquaintance that you don't want to burden with another fruit cake...

or just some complete and total stranger

Buy now and beat the rush: dues are going up next year (um, assuming the motion passes at the February Banquet), but you can still buy new memberships at $25.

Send to:

Duane Yockey, TCAA Treasurer
508 Normal Avenue
Normal, IL 61761

Name: _____

Address: _____

City: _____ State: _____ Zip: _____

Telephone #: _____

E-mail: _____

The Christmas Season (Shooting) Stars

— Sandy McNamara

EVERYONE has their Christmas season traditions. Along with decorating the tree and baking the Christmas cookies, mine has always included mixing a batch of hot mulled cider to keep me warm while viewing the annual Geminid meteor shower. The August Perseid shower is sometimes touted as the most popular meteor shower of the year, but this may be due in part to the extremely pleasant weather we usually see on late summer evenings. However, the Geminids, with their high rates and reliability from year to year, are the shower of choice of veteran meteor observers.

The Geminids are visible for one week prior to maximum, but the great majority of activity is limited to the evening of December 13/14. This is usually the strongest shower of the year and can produce nearly 100 meteors per hour at its maximum on the morning of December 14. While this is a maximum under ideal conditions, most observers will still see a peak of 50-75/hr under moonless skies and, unlike many meteor showers, the activity of the Geminids actually seems to be increasing each year. The parent object of the Geminids was unknown until recently. However, the asteroid 3200 Phaethon, discovered by IRAS (Infrared Astronomical Satellite) in 1983, is now known to be the source of the Geminid meteors and it is also the only non-cometary object associated with a major annual meteor shower. This shower produces many bright meteors, but persistent trains are rare. The meteors travel rather fast, just leaving streaks of lights with no visible head but near maximum it is not uncommon to see fireballs (a bright meteor of at magnitude of least -3) with vivid colors, especially bright yellow-orange.

Kathie Pascual (Guam, 18/11/01): "This meteor, which appeared through a hole in the clouds, left a 'smoke train' that glowed for several seconds." Photo Details: Yashica 35mm w/28mm lens using Kodak Max 400 film

The moon will be still be up this year during the early hours of Friday evening but it sets at 2:08 AM Saturday morning, leaving the best meteor observing hours dark and moonless. If the weather is not unbearable, this will be a good evening to go out awhile before moonset and spend a little time observing Jupiter and Saturn which will both be high in the sky by midnight. Watching Jupiter's moon tag is fun with either telescopes or binoculars. Early in the evening you will see Jupiter with all four moons: Callisto to the east, with Io, Europa, and Ganymede spaced rather evenly and in that order to the west. Even with only binoculars, you will be able to see their positions alter over the course of the evening. Io will gradually approach Jupiter until it disappears in Jupiter's shadow at 4:15 AM. Europa moves away from Jupiter toward Ganymede and just barely misses occultation (crossing directly in front of it) around 4:30; in binoculars, you will probably not be able to separate the two. Fortunately, Dec 13/14 is a Friday evening/Saturday morning this year, so late nights (or early mornings) are less of a problem with many people's schedules.

Hope for clear skies, dress WARM, keep the hot chocolate or cider inside a well insulated mug, and, if observing from your back yard, consider borrowing that extension cord from the Christmas lights to power an electric heating pad inside the sleeping bag you have wrapped around you :-).

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good, much, much better than those in 3.0. Instead of just a single blob of white pixels, stars are subtly shaded — brightest in the middle, and fading towards the circumference. They look like *real* stars.

The Milky Way — which looked pretty good in SNP 3.0 — looks even better. Instead of just a shaded gray area, the user is greeted by a breathtakingly realistic image of everyone's favorite galaxy — one that looks like it fits in perfectly with all the computer-generated stars. Least important from an astronomical perspective, but vital for anyone attempting to entertain kids, the Earth itself looks much more realistic. Instead of a uniform Astroturf green, the ground is shown as a textured field of green/brown grass; and when taking off from the Earth, the user sees a thin band of blue atmosphere.

The screen shots simply will not do SNP 4.0 justice (although check out this article on the web site so you can least see the results in color). The magic behind the curtain, as we have noted, is courtesy of OpenGL, a graphics rendering library, originally designed by Silicon Graphics, and built into many graphics cards. Many high-end computer games take advantage of OpenGL, because not only does it produce better images, it can render them faster.

There have been a few problems with OpenGL reported, but it is possible to toggle OpenGL on and off by checking a preference box.

The Interface

The challenge in designing an interface for any large, feature-rich program is simple to state: how do you make those features easily accessible, yet not overwhelm the user. Palettes are great, but some modern programs — such as Photoshop, or InDesign — put up so many that anything short of a 23" monitor leave the actual document virtually buried.

SNP 4.0 uses two thin slices of screen-real-estate for the interface: a fixed toolbar on the top of the document window, and a collapsible vertical tab bar on the left hand side. The toolbar (shown rotated at right) contains the time, motion, altitude, and field-of-view controls. These are essential and commonly used controls, so it makes sense for them to occupy this exalted position.

Time and date can be easily changed by merely clicking in the appropriate field and typing a new value; but the pull-down menu makes it possible to jump to Sunrise, Solar noon, Sunset, Moonrise, Moon transit, and Moonset, with one click.

A new feature in SNP 4.0 is the calendar, also accessible from the same pull-down menu. It brings up a calendar showing the phases of the moon. Of course, clicking on the date immediately sets the sky to that date.

On the side, vertical tab bars conceal 7 panes: Find, View Options, Movies, Planner, Info, FOV Indicators, and Telescope.

SNP 4.0 has a huge database, and so fast find capabilities are essential. The Find pane (see image on next page), features auto-completion. When first open, a list of all the solar system objects appears: but as the user types in the text field at top, the list changes dynamically to display any objects, throughout the entire database, whose names begin with what has been entered So, for instance, typing 'A' displays those objects that begin with A; 'An' restricts the list to those objects beginning with An. By the time 'Andr', has been entered, only 7 items are listed, all, of course, variations on Andromeda.

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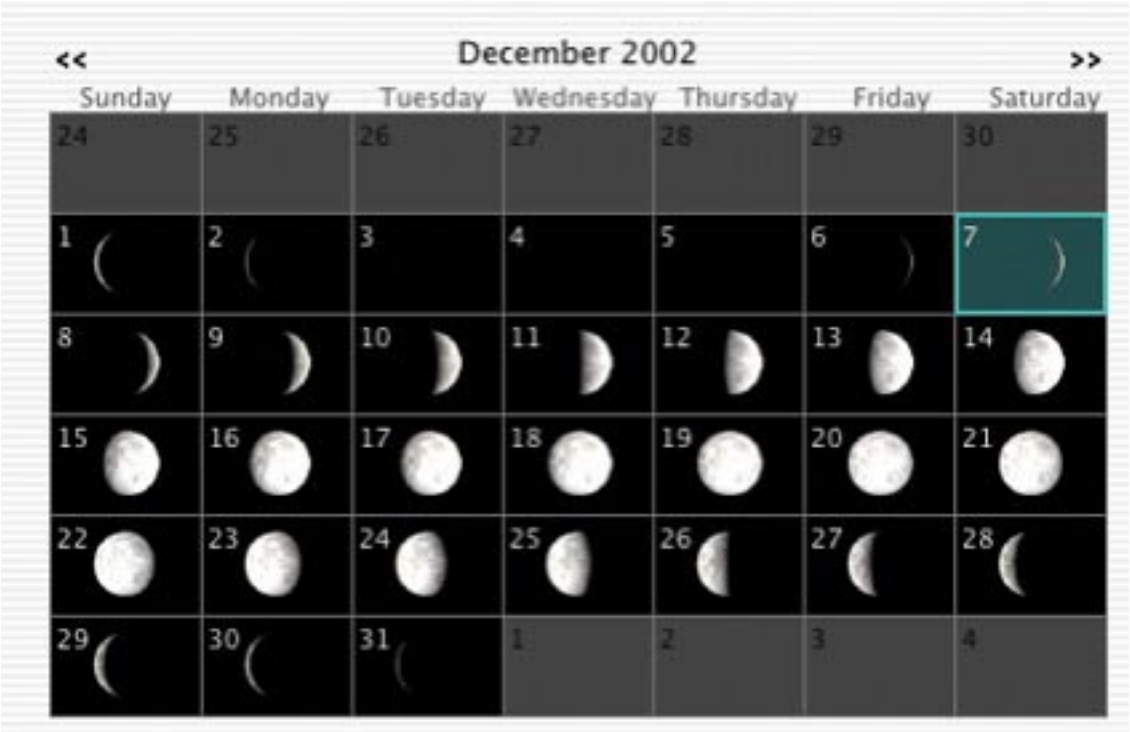

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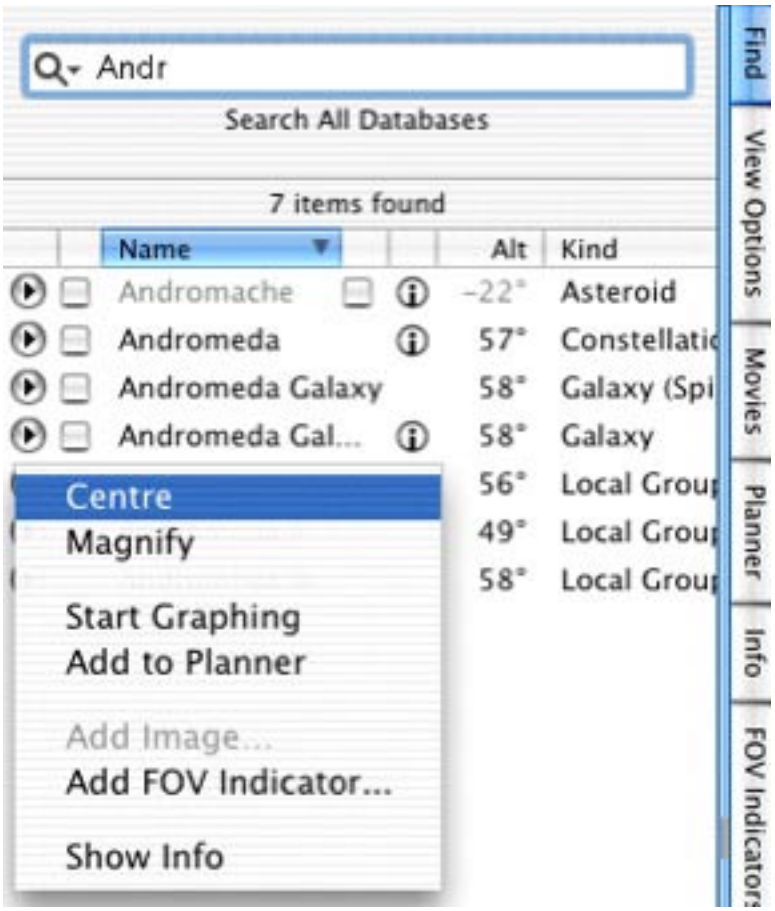
Next to each object is a pull-down menu that lets the user:

• center the object
• "travel" to it (so that the sky now appears as it would from that celestial object; even the terrain changes accordingly)
• zoom in
• add it to the list of objects being graphed
• add it to the planner
• add a FOV indicator (such as a telrad)
• show info.

In addition, clicking on the box next to the object labels it in the sky.



The Graph

Brand new for SNP 4.0 is the Graph, a window that plots time versus an object's:

• altitude
• apparent magnitude
• distance
• elongation
• angular size
• separations

Any number of objects can be plotted, all nicely color-coded and labeled. Separa-

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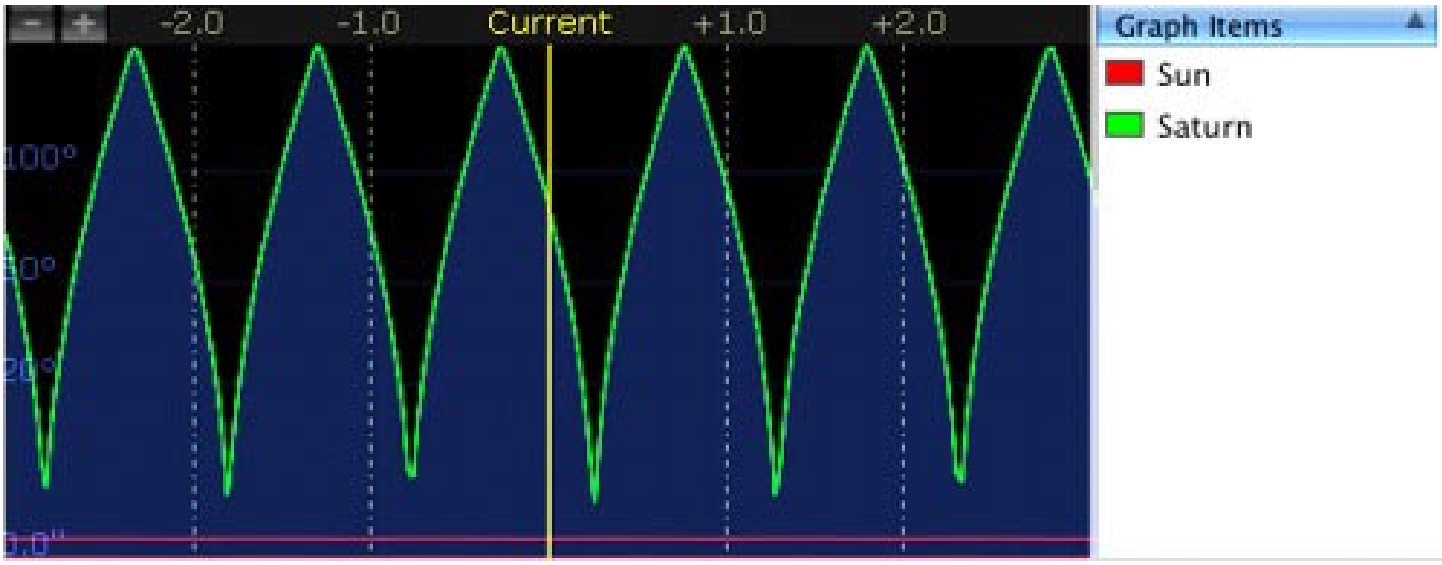

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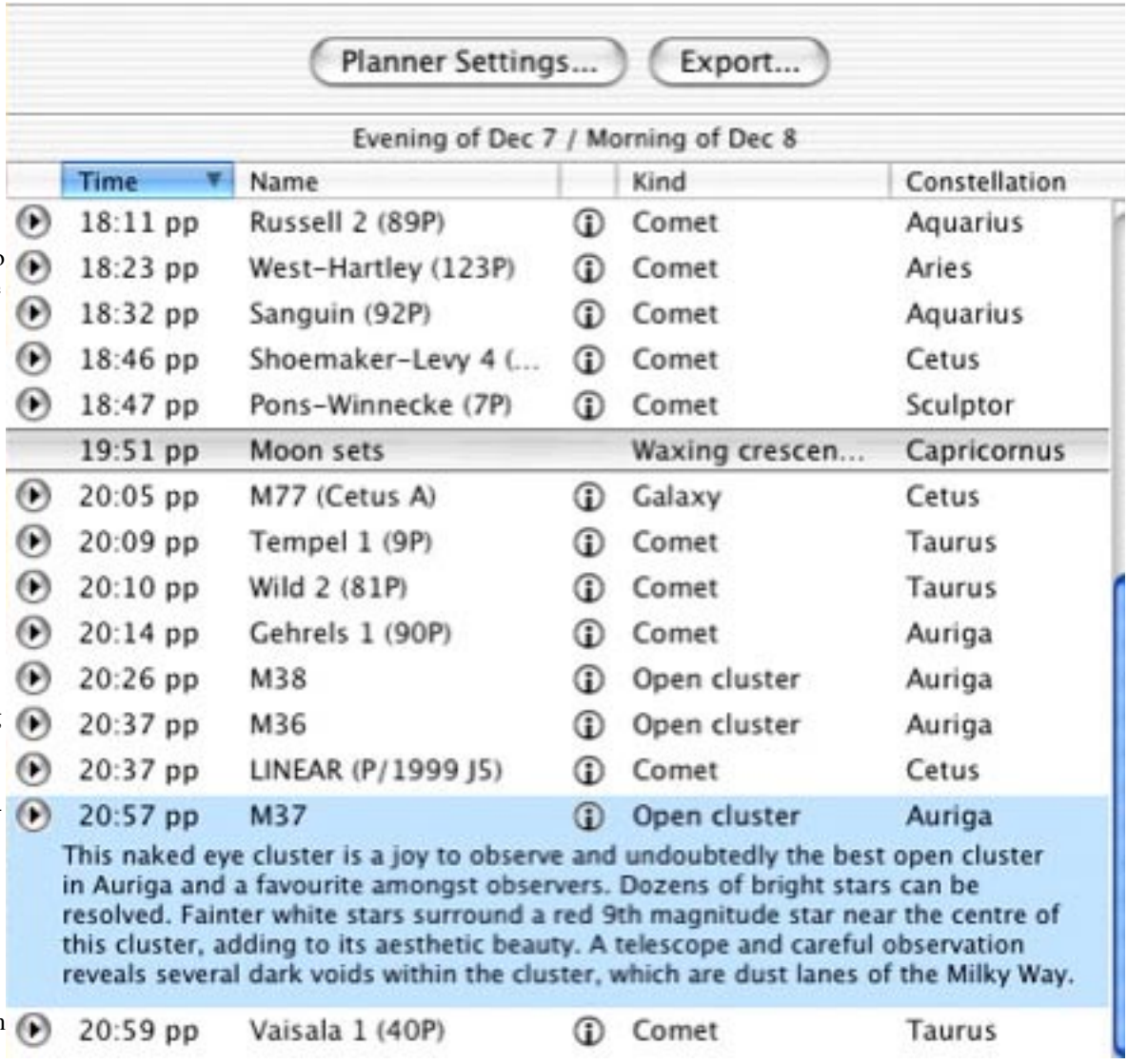
tions can only be plotted if there are two or more objects. The time axis scale can be adjusted by clicking on the + or - button on the graph.

As a particular area of the graph is dragged onto the Current line, the time in the main document window (where the sky lives :-) is updated automatically.

There are a few problems with the Graph feature, ones that will undoubtedly be ironed out in future releases. For instance, the units of measurement for the time axis are not displayed, a rather shocking omission. While the ability to graph separations is terrific, the documentation is unclear as to which separations are being graphed when more than two objects are simultaneously displayed. The concept is superb, and the execution will surely improve.



The Planner

The Planner, another new feature in SNP 4.0, was designed with the lazy astronomer in mind.

Opening the Planner pane automagically creates an observing schedule, indicating when a particular object is ideally situated for viewing. Double clicking on an object slews to it in the main window. Clicking on the "i" button produces a small blurb about an object. (More detailed information is available on the Info pane, as well).

This contents of the Planner window can be exported in a text file, for use in other programs.

It is possible to customize the planner listing, adding and deleting objects as appropriate.

Lights, Camera, Action!

Possibly reflecting its heritage as an originally Mac-only program, SNP has always allowed users to create QuickTime movies. The ability to access these movies is improved in SNP 4.0, which provides a tab, called "Movies", with thumbnail sketches of those movies stored in a Movies folder. Double clicking on these movies causes them to play (in a separate QuickTime Player application).
At least in version 4.0.2, installing a movie is somewhat awkward: the Movies folder is not visible in Mac OS X, but is bundled as a resource folder inside the application itself. Usually this clutter-eliminating feature is desirable; but it requires an extra step — right clicking and choosing Show contents — in order to get to that folder. An obvious interface improvement would

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enable users to drag the movie directly onto the Movies pane, and have it copied automatically into the Movies folder.

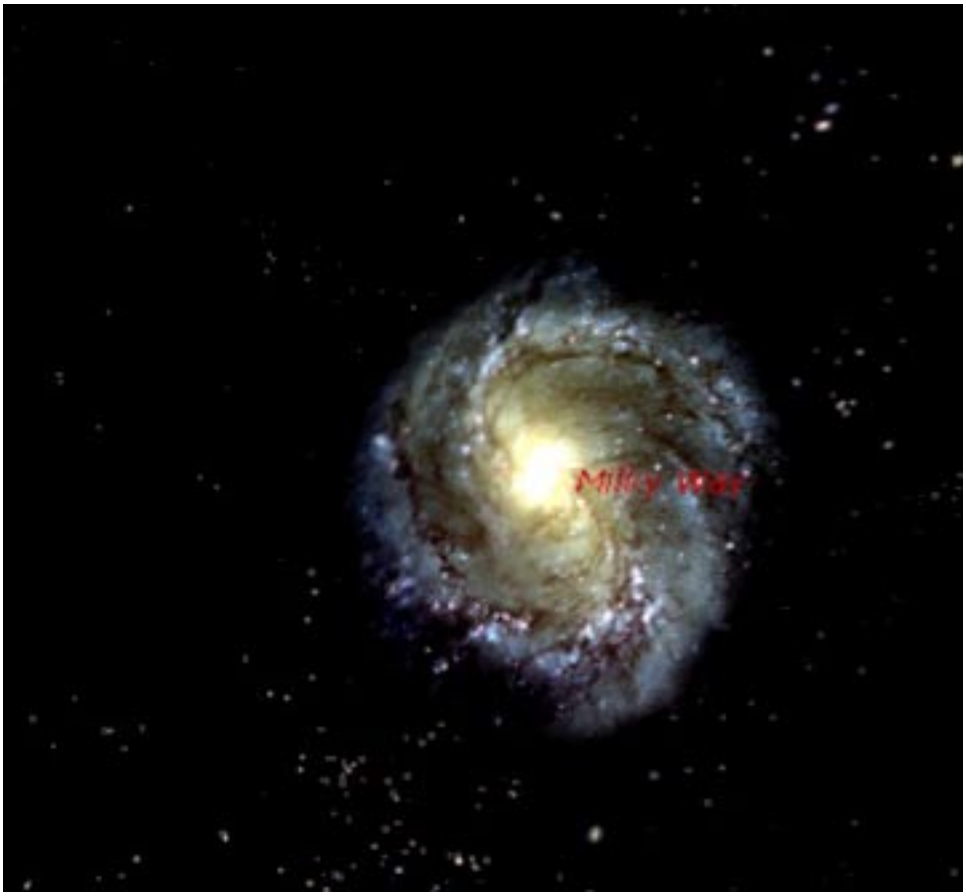
My movies tend to be fairly tame and lame, but SNP 4.0 ships with 13 professionally made movies, most ranging between 8-9 minutes, that cover assorted astronomical topics (e.g., "The Stars", "Novas and Supernovas", "Meteorites", Spacecraft", etc.) in detail.

Other Nice Tweaks

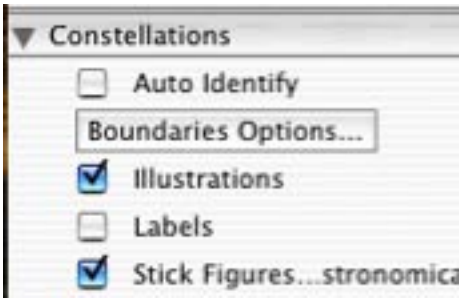
SNP 4.0 has been extensively reworked, and, believe it or not, we have only scratched the surface. The features that we turn to now, while not quite as splashy as the Grapher or Planner, nonetheless represent a substantial improvement.

SNP's forte has always been Milky-Way-based celestial objects. True, databases would show you the location of extra-galactic objects (i.e., other galaxies), but in most cases images were of low-quality, or completely missing. Now, however, SNP 4.0 displays high-resolution images of a vast number of galaxies, and upon leaving the Milky Way (don't forget to bring your passport!), everything that the user sees is a galaxy, which can be zoomed into. It is, in essence, an interactive version of the Hubble Deep Space Field: it is also a stunning tour-de-force of programming (and database management!).

One feature, resurrected in SNP 4.0, is the ability to toggle on or off *all* the constellation illustrations simultaneously. SNP has always shipped with a nice set of classical illustrations. Unfortunately, in SNP 3.0, the only way you could see the illustration was in"Auto-Identify" mode: the constellation essentially had to be in the center of the screen for the illustration to appear.



In SNP 3.0, it was always tricky figuring out where a particular view option was hidden. That has been addressed, to at least some extent, in SNP 4.0. In the View pane, each category of celestial object



has checkboxes for its features; and moving the cursor over a checkbox creates a button that, upon clicking, brings up the options for that particular feature. So, for instance, Constellations has a Boundary checkbox (checking it puts up the IAS boundaries for each constellation; unchecking it hides them); but with the cursor over the word "Boundaries", a button called Boundaries Options... appears. Clicking on that enables the user to set the Boundary color, labels, and whether the stick figures of the constellations are displayed.

Support

The Starry Night mailing list on yahoo groups is constantly monitored by the SNP developers. They are quick to respond, friendly, and when they can't help, there are thousands of people in the SNP community, all of whom seem to have nothing better to do than write e-mails :-)

Conclusions

SNP 4.0 is a big improvement over 3.0. It is gorgeous to look at, better organized, and has *innumerable* improvements. It belongs on every astronomer's virtual desktop as much as Terry Dickinson's NightWatch, or the RASC Handbook, belongs on their real desktop.

SE
E

TCAA Treasurer's Report — October, 2002

— L. Duane Yockey, Treasurer

OPERATING FUND BALANCE – September 30, 2002 -		**$ 396.91**
Income		
Julie & Aaron Vercimak (dues renewal) -	$ 25.00	
Orlyn Edge (dues renewal) -	$ 25.00	
Expenses		
McLean Co. Recorder (Registered Agent Recording Fee)	$ 18.00	
OPERATING FUND BALANCE – October 31, 2002 -		**$ 428.91**
OBSERVATORY FUND BALANCE – September 30, 2002 -		**$ 622.59**
Income		
None		
Expenses		
None		
OBSERVATORY FUND BALANCE – October 31, 2002 -		**$ 622.59**
TOTAL TCAA FUNDS – October 31, 2002 -		**$ 1,051.50**

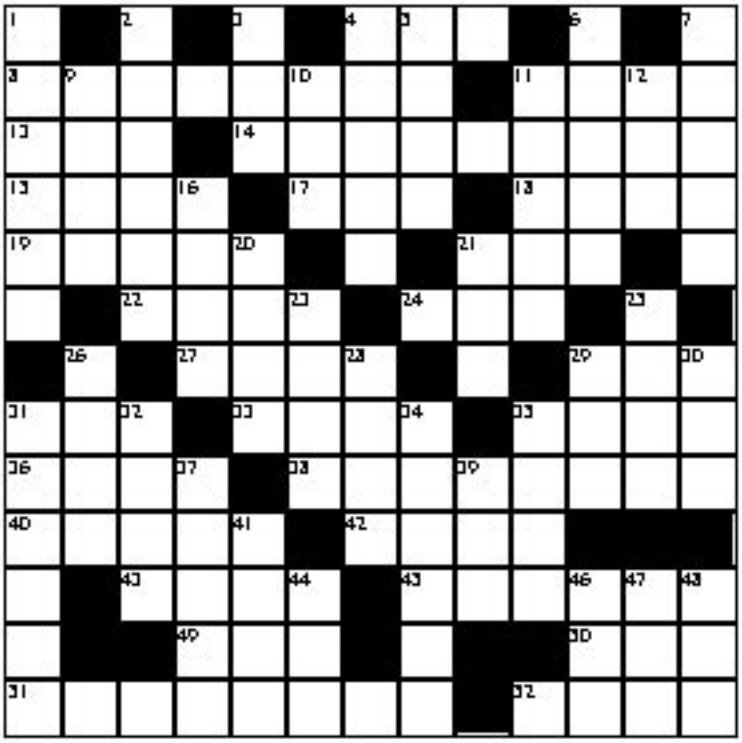
Listing of Official SGO Keyholders*

Jim Swindler (April 2001)
Duane Yockey (April 2001)
Sandy McNamara (June 2001)
Dan Miller (August 2001)
Michael Rogers (August 2001)
Dan Meyer (February 2002)
William Carney (March 2002)
Vic Connor (August 2002)

* Paid $10 deposit/$5 renewal

The Observer Crossword

—Observer Staff

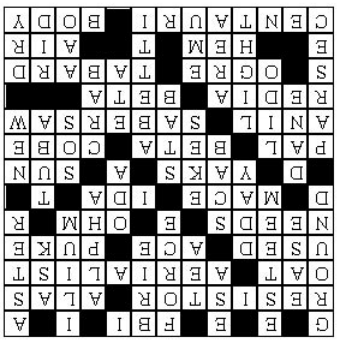


ACROSS

4 Law enforcement agency
8 Electrical component having a particular value of resistance
11 Exclamation to express sorrow
13 Cereal grass
14 Trapeze artist
15 Secondhand
17 Very skilled person
18 Vomit
19 Of necessity
21 The unit of electrical resistance
22 Clublike weapon
24 Guardian of the Dark (Sky)
27 Tibetan oxen
29 Hub of the solar system
31 Comrade
33 These radiation particles are electrons
35 Penzias' proof
36 Indigo
38 Portable electric jigsaw
40 Cylindrical larva
42 2nd Greek letter
43 Barbarous person
45 Loose outer garment
49 Sew
50 Atmosphere
51 The nearest star - Alpha ...
52 A corpse

DOWN

1 The electrical connection that leads to the earth
2 Respect
3 Ariane's developer (abbr)
4 That which causes a change in the motion of a body
5 Soft cheese
6 Hipbone
7 Garden flower
9 Relaxation
10 Light meal
11 These radiation particles are helium nuclei
12 Inquire of
16 June 6, 1944
20 Strike breaker
21 Room within a harem
23 Supplements
25 Brass wind instrument
26 Inhabitant of Denmark
28 Thrust with a knife
29 Distress signal
30 Of recent origin
31 Astronomical distance of 3.26 light years
32 Public swimming pool
34 Italian solar physicist, director of the Arcetri Observatory
35 A complaining nebula
37 Visible electromagnetic radiation
39 7th Greek letter
41 Extent of space
44 Large flightless bird
46 Anglo-Australian Observatory, for short
47 To free
48 Not wet



Parting Shot

IT SEEMS appropriate, as people have holiday treats on their minds, to offer for your enjoyment the "Peanut Cluster" — a reflection nebula known officially as N30B.

The image was taken by the Hubble Space Telescope, and the researchers were Lowell Observatory astronomer M.S. Oey and University of Illinois astronomer Y.-H. Chu.

Ho, ho, ho!

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Michael Rogers & Jean Memken, Editors
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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:

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Normal, IL, 61761

As always, thank you for your support!!