Friends Of The Observatory *Newsletter*

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A Letter From President Huber

Dear Friends,

Fall is finally almost here and we can get to the best season for astronomy. (For those of you who don't know Fall has the most number of clear nights.) This upcoming season we had a couple of big events planned. The first are our annual elections in early October.

Please think about running for an office. All four of our seats are up this year so if you want to help out, then run for an office position.

Also in October FOTO is going to be putting on a Telescope Fair. The date is October 16th so please mark your calendars.

We are already expecting a large turn out and are looking for volunteers for some of the slots that day. If you are interested please contact **Chuck Strubbe** or give the "O" a call. (See also the article later in the newsletter.)

I would like to thank everyone who participated in last month's program (Hollywood and Astronomy). I heard lots of good things from people and I would like to continue to encourage that kind of participation in the group. Thanks again. If you have any ideas for FOTO programs please don't hesitate to let someone at the "O" know. We are always looking for another good idea!

ATM Group Grows

The Amateur Telescope Makers (ATM) meet every Wednesday at 7:30 PM. The group is growing. If you are interested in making a telescope, rebuilding an old telescope, or just want to make your scope a little better, come check it out.

Why not stop by the Observatory building this next Wednesday?

Elections are Coming

October is the month for the FOTO elections. But in September we have our annual nomination process. Please think about running for an officer position in the group. What makes FOTO a great group is the amount of involvement we get from our members. Consider making FOTO just a little bit better.

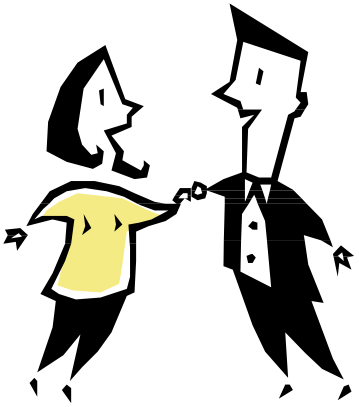
Did You Know….

One problem for any time-traveler will be the energy bill. Even a small step through time is likely to use up the energy output of a fair sized star.

Adler Trip Postponed

Sorry FOTO, but we have had to postpone the trip to Adler Planetarium in Chicago. Unfortunately the folks at Adler will not be finished with the renovations by September 16th. So we are going to have to get together again and decide when we would like to make another attempt to go up there. Of course if you have any suggestions on another place to visit please bring that up at the meeting too. All places are possibilities. (Yes, Tom even the moon is a possibility, albeit expensive....)

Welcome New Members!



Sanford & Lee Argabrite; Rene & Tim Dierker; Marilyn Kroll; Tim & Suzanne Morand; Bret Nealis; Jan C. Salzmann; Deirdre & Steve Samuelsson; Mr. Katie Wersching.

September Meeting

Michael Flick will be our special speaker once again. His topic this time will be galaxies, their structure and formation. Our meeting will be held on Thursday, September 2nd as usual on the 2nd floor of the Hyde Park Community Church at Observatory and Grace Avenues in Hyde Park.

You can get together with other members before the meeting for supper at Jeckles Restaurant next to the Hyde Park Shopping Center at 6 PM. Why don't you join us?

Planning Meeting

Our September supper-planning meeting will be held at 6 PM on Wednesday, September 15th at the Cooker Restaurant in the Hyde Park Shopping Center.

Looking Up Into September's Sky

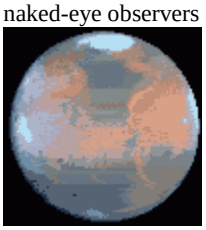
Saturn, Venus, Jupiter, and Mercury hover over the horizon. This month, look for Jupiter and Saturn to rise in the evening sky, while Venus begins its stint as the "morning star."

Bright planets and two comets keep observers busy during the waning days of summer

Comet Lee is visible with a pair of ordinary binoculars and attracts observers in August and September. By September 25, it moves into Perseus and lies close to the Double Cluster (NGC 869 and NGC 884).

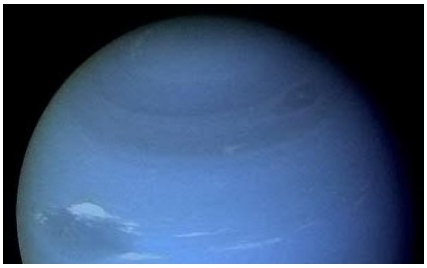
While you're out observing Comet Lee, remember to catch a glimpse of Comet Tempel 2, which wanders very close to the Lagoon Nebula (M8) in Sagittarius this month.

As the sun goes down, Mars becomes visible low in the south. It rapidly approaches its rival, the reddish star Antares in Scorpius the Scorpion, and dims to magnitude 0.5 - still brighter than its stellar neighbor. On September 6, Mars passes ¼ of a degree north of the bluish 2.3- magnitude star Delta Scorpii. The pair is visible in the same telescopic field of view and provides an attractive color contrast for naked-eye observers as well.

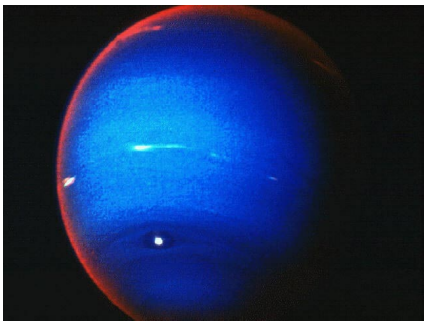


Surface details on Mars are now hard to come by. The planet's tiny 7" disk, along with the atmospheric turbulence produced by viewing the planet low in the sky, makes seeing detail difficult. Mars and the bright globular cluster M80 lie in the same field of view two-tenths of a degree apart on September 12.

When twilight has vanished, Capricornus the Sea Goat stands high in the southeastern sky. This constellation is rather dim, containing no stars brighter than magnitude 2.9.



Neptune, the eighth planet from the sun, lies 7 degrees south of Alpha Capricorni and can be picked up in small telescopes on September evenings. A waxing gibbous moon lies 2 degrees east of Neptune on September 20. The 7.9-magnitude planet appears as a dim bluish disk just over 2" across.

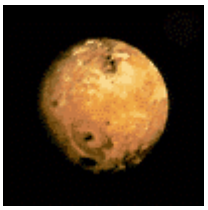


Midway across Capricornus lies the seventh planet in our solar system, Uranus. If you have never seen Uranus before, this is the time to find it. The planet lies very close to the sixth brightest star in Capricornus, magnitude 4.1 Theta Capricorni. Because Uranus shines at magnitude 5.7, Theta will appear to have a companion for a week before and after September 2.

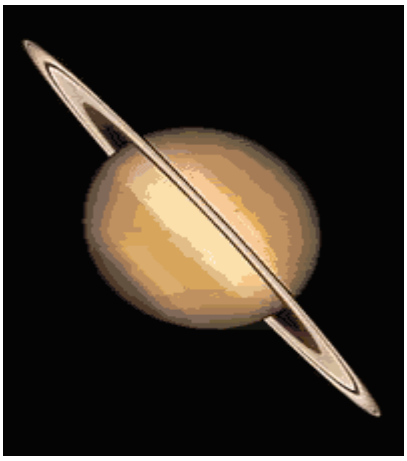
Rising in the east two to three hours before midnight are the two giant planets of the solar system, Jupiter and Saturn. The pair rests only 12 degrees apart among the stars of Aries the Ram. Jupiter leads the way by rising first.

Jupiter reaches opposition on October 23, so its apparent size is about as large as it will get all year, roughly 48" across. This event allows even small telescope users to see detail in the planet's atmosphere. The most prominent features are its dark equatorial belts.

Perhaps most obvious to casual observers are the four bright moons that dance nightly around the Jovian planet. Io never strays far from its parent, orbiting Jupiter every 1.8 days - even two views an hour apart will betray its motion. Europa takes 3.6 days to orbit, while Ganymede, the largest of the four Galilean moons, makes an orbit in one week. Second in size to Ganymede is Callisto. This moon orbits Jupiter slowly, once every 16.7 days.



Forty minutes after Jupiter rises, the Ringed Planet, Saturn, appears over the eastern horizon. By the final week of September, Saturn shines at magnitude 0 and lies 15 degrees southwest of the Pleiades (M45), or Seven Sisters, in Taurus the Bull.



While Jupiter shows off its moons and belts, Saturn dazzles with its ring system. The two gas giant planets are similarly sized, but Saturn lies at double the distance, 797.9 million miles from Earth. Its disk, therefore, appears to be half the size of Jupiter's. Fortunately, its expansive ring system makes up this size difference. Currently, Saturn's southern face is tilted 20° in our direction. Early in September, it will still be possible to view the shadow of Saturn's globe on the rings. This will become more difficult as Saturn reaches its November 6 opposition.

Rising in the northeast at the same time as Pegasus are Cassiopeia and Perseus. This region of the sky is a fine area for touring with binoculars. Seek out the Double Cluster midway between the two constellations. The Double Cluster is just one of several clusters in this rich region.

After midnight, the stars of winter appear over the eastern horizon. Orion the Hunter is up by 2 a.m. local time. Gemini the Twins follows it to the north. The predawn hours also bring the "morning star," Venus, above the horizon.

FOTO Does SETI Time

As of August 17th FOTO members had contributed over 22,500 hours of computer time to the SETI@Home program. That's over 2.5 years of computer time!

For more information on SETI@Home or to become a member of the FOTO group surf to http://setiathome.ssl.berkeley.edu/. Follow the links to the group section and type in FOTO.

The Astronomy Word of the Month

"Beta Pictoris". Come to the September meeting and find out what it means.

Last months word of the month was "**Mare Moscoviense**". It means the Sea of Moscow. It is the only large Mare on the back side of the moon and was so-named because the Russians were the first ones to map that side of the moon.

Cassini Skirts Earth With Plutonium

Cassini has buzzed by Earth on August 17th snatching gravity and leaving millions, if not billions of people relieved that the spacecraft's 33 kilograms of plutonium is no longer on an Earth crossing orbit and was now heading for Jupiter enroute to Saturn.

The FOTOKids Report

By Joey Powers

FOTOKids met on August 7. We made sundials out of cardboard and it was hard but fun. We learned how to tell time on one, too. We also looked at sun spots through a telescope with a special filter on it.

Without a filter the sun's heat going through the lens could cut through metal! We saw flares from the sun, and we learned that if a flare is too small it will go back to the sun, because of the sun's gravitational pull. At the end of the day we used our sundials, and Chuck Strubbe said that you had to add 1 hour and 38 minutes to the time the sundial recorded, to get the actual time.

Look for Water Not Methane

By Fred Bowman

To clarify a "Did You Know…", "If aliens were looking for life on Earth, one clue would be the unusually large amount of methane in our atmosphere, most of it given off by cows and termites!"

Although cows and termites do contribute to the methane in our atmosphere, methane is abundant in the atmospheres of Jupiter, Saturn, Uranus, and Neptune. Neither cows or termites, to our knowledge, live on these planets. Although one could equate humorously: Cow flatulence with Uranus.

Methane and lithium have been detected in the atmospheres of brown dwarfs, deuterium stars, and extra-solar planetary candidates. This, however, does not indicate the presence of life on these objects. A better indicator for life would be liquid water.

10" Newtonian Telescope for Sale

Contact FOTO member Steve Capal, evenings at 261-0516.

Did You Know….

Our Moon is larger than any other Moon in the solar system in relation to its parent planet, except that of Pluto. Seen from space, the Earth and the Moon look more like a double planet even though their compositions are very different.

FOTOKids Next Meeting

…is Friday, September 3, 1999 at 8 PM. John Ventre and Greg Huber will give a presentation on the Fall/Early Winter Constellations.

We'll also have a fun project followed by star gazing. Don't forget to start learning your constellations. See ya there! For more information contact, Chuck Strubbe @ 886-7600 or jstrubbe@one.net.

Did You Know….

The cause of Hubble's early flaw was a mirror flattening of 0.0001 of an inch; 1/50th the width of a human hair!

Cincinnati Observatory Scope Out '99

Circle your calendars for all day Saturday October 16th at the Observatory. Classes will start at 9 AM, prizes will be awarded at 4 and 5 PM. There will be a spaghetti supper at 5:30 PM and the featured speaker will begin at 6 PM. Telescope viewing after 7:30 PM.

Excitement is building for Scope Out '99 on October 16, 1999. We will need volunteers to do everything including parking, giving tours, setting-up telescopes and more. Volunteers need only spend a couple of hours and they will be admitted to the fair for free. Sign-up sheets will be available at the Observatory and at the September FOTO meeting.

Also, we will have pre-registration forms and posters to be distributed anywhere and everywhere. Help spread the word. It's going to be a fun time.

Keep checking the FOTO web site (w3.one.net/~foto) for more details. For more information contact, Chuck Strubbe @ 886-7600 or jstrubbe@one.net.

Note: Scope Out '99 has been listed by Sky and Tel on their web site. Here's the link:
http://www.skypub.com/resources/calendar.shtml.
Astronomy Magazine also said they will list us on their web site.

Pete's PhotoWorld to Promote "Scope Out"

Pete's plans to insert an announcement about Scope Out in their weekly ads for hand out in all their stores.

Pete's has a link to our "Scope Out '99" page from their web site and will add additional links in September.

Major Door Prize

Pete's PhotoWorld, with the generous support of Celestron International will be donating a Celestron 6" Star-hopper Dobsonian to FOTO as a door prize for Scope Out '99! We've also received door prize commitments from Software Bisque and several other vendors.

Check out the telescope's specs on Pete's web site:
www.photoworld.com/newtelescopes2/newtelescopes2.htm

Call for Entries

Have you taken a neat picture of the moon or globular cluster lately? Or maybe you've recently built a telescope? Well get your entries together.

Scope Out '99 will have both astrophotgraphy and telescope making contests.

Keep checking the FOTO website (w3.one.net/~foto) for more details. For more information contact, **Chuck Strubbe** @ 886-7600 or jstrubbe@one.net.

A New Census of Killer Asteroids

Nature remodels the coastline, as a large asteroid collides with Earth. Averaged over recent geologic time, our planet has been struck by a 1-kilometer-wide asteroid roughly every 100,000 years.

As recently as 1995, planetary astronomers believed that there are upward of 2,000 asteroids at least 1 kilometer across capable of striking Earth. But since only a fraction of such large near-Earth objects (NEOs) have been found — 169 to date — this census was considered only a rough estimate based on search statistics and on the cratering record of the Moon.

Now, thanks to hundreds of NEO discoveries in recent years, there is some good news to report. At a meeting of asteroid specialists last month, it was reported that there are likely only 500 to 1,000 Earth-crossers with absolute magnitudes of 18 or brighter, which correspond to objects roughly 1 km across or larger.

However, we still have a way to go. The discovery rate of 1-km NEOs needs to be doubled if we are to track down 90% of them by the year 2010.

Dark Sky Viewing and Presentations

Sept. 4th at Stonelick Lake
Sept. 11th at East Fork (also the rain date for Stonelick Lake)
Oct. 2nd at Stonelick Lake or
Oct. 9th at Stonelick Lake (rain date)

For more information call **Scott Naylor** at 575-5556 or **Sheila Riley** at 724-3801.

Totality Across Europe

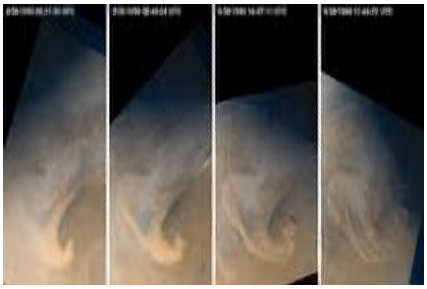
From the Atlantic Ocean to the Bay of Bengal, millions of people enjoyed the total solar eclipse. Aircraft and ships ventured out from the East Coast to catch the first moments of the Moon's shadow reaching Earth, as countless people awaited on the ground throughout Europe, Asia, and India. Millions more watched the event online. Clouds spoiled some views, but the Sky & Telescope editors who ventured into the eclipse path were successful. Read their reports at Sky & Telescope's Eclipse Expedition Journal.

Congratulations to New Observatory Assistants

The newest Observatory Assistant volunteers completed their training and will join the ranks of the other Observatory Assistants who assist at the public viewing sessions. Congratulations to:

Dave Bosse, Jack Luchsinger, Tom McDonough, Scott Naylor, Dean Regas, Steve Scholl, and **John Williamson.**

A Late-Summer Storm on Mars



These four composite images, taken 2 hours apart by the wide-angle optics of Mars Global Surveyor's Mars Orbiter Camera, show a rapidly developing regional storm (bottom) near the planet's north polar cap (center).

Thanks to the "All About Kids" Volunteers

A group of dedicated FOTO volunteers manned a booth at the "All About Kids" convention at the Cincinnati Convention Center on August 13, 14, and 15. There was a constant stream of kids and parents that visited the booth; they had their picture taken with the "Shuttle Astronaut", looked through a portable telescope, collected FOTO and COC literature, and heard stories of the exciting things happening at the Observatory.

Many thanks to the booth volunteers: **Betty Ball, Stan Benson, David Bosse, Andy Bruggeman, Jim and Tiffany Groen, Greg Huber, Frank Huss, Linda MaGee, Paul Nohr, Sheila Riley, and John Ventre**.

And a very special thanks to **Jim and Tiffany Groen and Dave Bosse** who hauled all of the display material to the convention center and back to the Obervatory.

Chandra Getting the Boost

The Chandra X-ray Observatory rest within the payload bay of Space Shuttle Columbia, which launched the telescope on July 22nd..

Despite its slightly lower altitude, Chandra's current orbit is well within its operational specifications, which call for the observatory to be between 135,000 km and 145,000 km at its apogee — the point in its orbit farthest from Earth. From that vantage, the $1.5 billion telescope will provide valuable and previously unobtainable information about stellar flares, supernovae, and black holes.

Has your membership expired?
Check your address label.

Is the Cincinnati Observatory the Oldest?

Stephen Capal, a FOTO member, Emailed Bill Cartwright this question:

"About three weeks ago I was working the New York Times crossword puzzle and one of the questions was "What is Americas oldest observatory"? I smiled because I knew it was Cincinnati. But try as I might I couldn't make it fit. I tried Mt. Lookout, Cincinnati, everything I could think of, and none of them would work.

Well, the next day I got the answers and the answer was "Wilson College".

I thought we were the oldest in the country. Where is Wilson College Observatory and what is its story?"

Greg Huber said "I don't think I have ever claimed the Cincinnati Observatory was the oldest in America. What I usually claim is that the telescope "is the oldest continuously operational telescope in the world". And now I guess I should add. "of this size". The Cincinnati Observatory is supposedly the oldest professional observatory in America. A slight distinction."

Chuck Strubbe did some quick surfing and found out there was only one Wilson College in the U.S. and it was a womans school in Pennsylvania which does not have an observatory.

However he discovered a Williams College with a Hopkins Observatory which may be the real answer. (http://www.williams.edu/Astronomy/Hopkins)

DS1 Gets a Feel for Braille

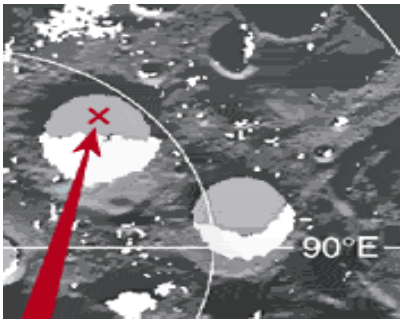
Despite a flyby-threatening electronic shutdown, NASA's Deep Space 1 (DS1) craft still managed to return two crude images and a dozen spectra during its high-speed brush with asteroid 9969 Braille.

Unfortunately, however, the asteroid proved too faint to be tracked by DS1's sensors during the crucial final hour of the approach, and the onboard camera was misdirected as the spacecraft passed its target at more than 15 km per second.

Scientists may have been disappointed by not getting better images, but they are thrilled with spacecraft's high-quality spectra of the asteroid. The infrared signatures, acquired 17 minutes after the flyby, show that Braille is a close spectroscopic match for the basalt-covered asteroid 4 Vesta.

Braille is an Earth-approaching asteroid orbiting much closer to the Sun, and its similarity to Vesta hints that large chunks of Vesta — or an even larger precursor — have been flung in Earth's general direction by the gravitational influence of Jupiter. "A picture may be worth a thousand words, but in this case a spectrum is worth a thousand pictures.

Lunar Prospector's Flashy Finale



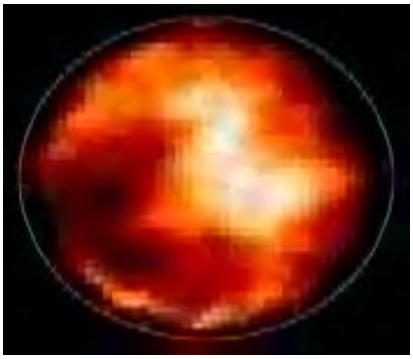
The crash occurred on July 31st as planned, as Lunar Prospector struck the floor of an unnamed crater (87.7° S, 42.1° E) at a shallow angle. No plume of debris was evident, implying that the spacecraft did indeed hit inside the 4-km-deep crater. White areas indicate perpetual shadow; the gray portions of craters show where the floors cannot be viewed from Earth and thus are presumed to escape sunlight.

One of NASA's low-budget Discovery missions, Lunar Prospector cost just $63 million to build and launch.

Yet during 18 months of operation, its five instruments provided planetary scientists with revealing new data about the Moon's composition, internal structure, and magnetic field.

In particular, measurements of strong neutron emissions from hydrogen are the basis for the team's conclusion that up to 300 million tons of water ice lie hidden in the polar shadows.

Titan's Dark Seas



The splotchy regions seen in this near-infrared image of Saturn's moon Titan reveals disparate topography. The dark areas may be organic material.

The latest, most-detailed picture yet of Saturn's largest satellite, Titan, reveals that parts of the surface may be covered in a sea of hydrocarbons.

The dark material could be a sea of liquid methane, ethane, or other hydrocarbons. It's one of the darkest things in the solar system. It could also be solid organic material." The bright regions may be icy continents. Titan's surface temperature is about minus 180° Celsius.

With the tremendous power of the Keck Telescope, we are able to map surface features 150 miles in size on a moon that is more than 800 million miles from Earth!

Search for ET Reaches Milestone

SETI@home -- the innovative screen-saver that analyzes data from the scientific search for extraterrestrial intelligence (SETI) -- has passed the one million mark for the number of people who are now processing SETI data on their home computers.

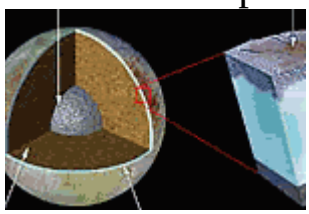
As of August 17, 1999, SETI@home users had logged an incredible 51,374.56 years -- over 51 millennia -- worth of computer time.

If a signal is found using the SETI@home program, the owner of the computer that analyzes that vital data will merit a place in the history books as one of the humans who opened the door to an incredible new view of the cosmos.

FOTO members have already racked up more than 22,500 hours of time!

To sign-up or help with the search, participants should go to this website: http//setiathome.ssl.berkely.edu

. Antarctic Lake May Mimic Europa



Microbes entirely unknown to science may exist in liquid water in Lake Vostok, thousands of feet beneath the Antarctic ice sheet, according to a report from a workshop funded by the National Science Foundation.

Lake Vostok is roughly the size of Lake Ontario. Vostok Station -- a Russian scientific outpost, which once recorded the lowest temperature on earth (-126.9° F) -- is located in the vicinity of the lake. Russian teams have drilled down into the ice covering the lake, producing the world's deepest ice core. But drilling was deliberately stopped roughly 394 feet (120 m) above where the ice and liquid water meet to prevent possible contamination.

The report notes that that there are several reasons other than the possibility of discovering unknown forms of life for exploring the lake. Water below the ice, which has been cut off from the outside world for hundreds of thousands of years, may have a unique chemical composition. There may be an active tectonic rift below the lake, which may be warming its waters or sediments at the lake bottom may contain a record of ancient climate conditions.

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Address Correction Requested

Mars Polar Lander to Arrive on Smooth, Layered Terrain

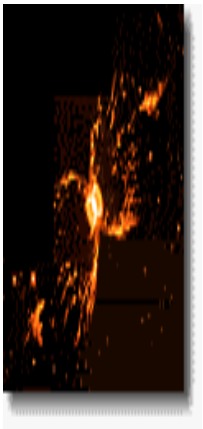
A strip of gentle, rolling plains near the Martian South Pole will serve as a welcome mat when NASA's Mars Polar Lander touches down on the Red Planet on Dec. 3.

Launched on Jan. 3, 1999, Mars Polar Lander will study the soil and look for ice beneath the surface of the Martian South Pole. The Mars Polar Lander site's low ridges and grooves suggest the surface has been exposed to erosion by ablation of ices.

Our articles are condensed from Astronomy and Sky and Telescope magazines. You can read more about these stories or subscribe at …….. www.astronomy.com and www.skyandtelescope.com.

Hubble Images Nebula: Hourglass Inside Hourglass

Images taken with Earth-based telescopes have shown the larger, hourglass-shaped nebula. But this picture, taken with NASA's Hubble Space Telescope, reveals a small, bright nebula embedded in the center of the larger one. Astronomers have dubbed the entire nebula the "Southern Crab Nebula" (He2-104), because, from ground-based telescopes, it looks like the body and legs of a crab. The nebula is several light-years long.



Please look at your address label. If your membership has expired, kindly rush your renewal check to the return address on this newsletter. $25 single, $40 family, $100 Exalted Ruler.