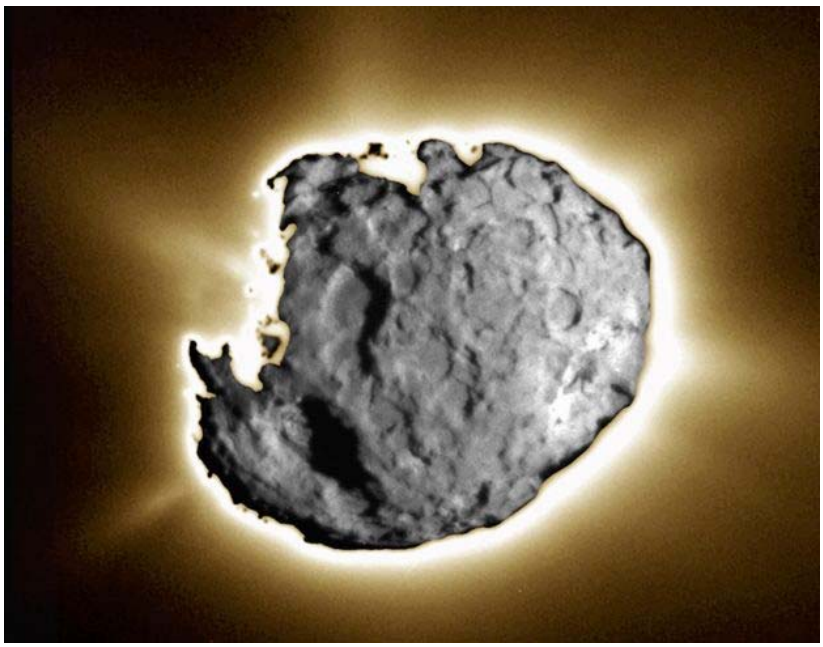
STELLA

April 2004 Newsletter of the Omaha Astronomical Society Issue 196

Composite Stardust Image of Wild2



General Meeting of the
Omaha Astronomical Society
Friday, April 2nd at 7:30 PM
Durham Science Center, Room 169
UNO Campus

Program: See Page 3

Events

April Club Star Party

Saturday, April 17th
Club Site Weeping Water

Mahoney Public Star Parties

Friday May 14, 2004
Friday June 11, 2004
Friday July 9, 2004

Planning Meeting for 2004 Nebraska Star Party

8 April, 7:30 pm
Mahoney State Park Lodge
Join us and do your part to help plan NSP 10!

Neale Woods Nature Center Programs

Phone number: (402) 453 - 5615

Friday, 16th April 8:30 - 10 PM
The Beehive & Other Clusters

Friday, 30th April 9 - 10:30 PM
Deep Sky Delights

OAS members are encouraged to help out with these events.

STELLA is a publication of The Omaha Astronomical Society. Please send related correspondence to: STELLA, c/o Omaha Astronomical Society, P O Box 540424, Omaha, NE

Bulletins

April Meeting

Planetarium Program by Al Dorn

Good April Dates to Observe at the OAS Club Site

Friday 9 April, last quarter moon
Saturday 10 April, last quarter moon

Friday 16 April, new moon
Saturday 17 April, new moon

Upcoming Events

Sat. 3 April, 7 PM, Hitchcock Nature Center

PLANET NIGHT

Mahoney Public Star Parties

Start Friday 14th May

An Astronomy Quiz

This Month Quiz - Answers next month.

1. Where is the Large Binocular Telescope being built?
2. What other figure have the stars of the Big Dipper been portrayed as?
3. Where is Manicouagan Crater?
4. What is the sixth largest constellation?
5. What do NEAT and LINEAR stand for?
6. What is NGC 7243, and where is it?
7. What is Gienah, and where is it?
8. Which is further away the Kuiper Belt or the Oort Cloud?
9. How many tail does a comet have?
10. Where is Smythii Basin?
11. What is this picture of?

March Quiz Answers

1. The Constellation Hunter, 38 North & 56 South
2. 36 Segments
3. A moon of Jupiter
4. 7.8 light years, S025300.5 +163258 (in Aries)
5. Mercury mirror
6. 13 Billion years, behind Abell 2218 in Draco
7. 32 x 32 miles, 10600 ft deep crater
8. March 19 - 21
9. Acid & Peroxide
10. M64, outer gas is rotating in the opposite direction from the rest of the galaxy, possibly the result of a collision with another galaxy.

Continued from Page 9

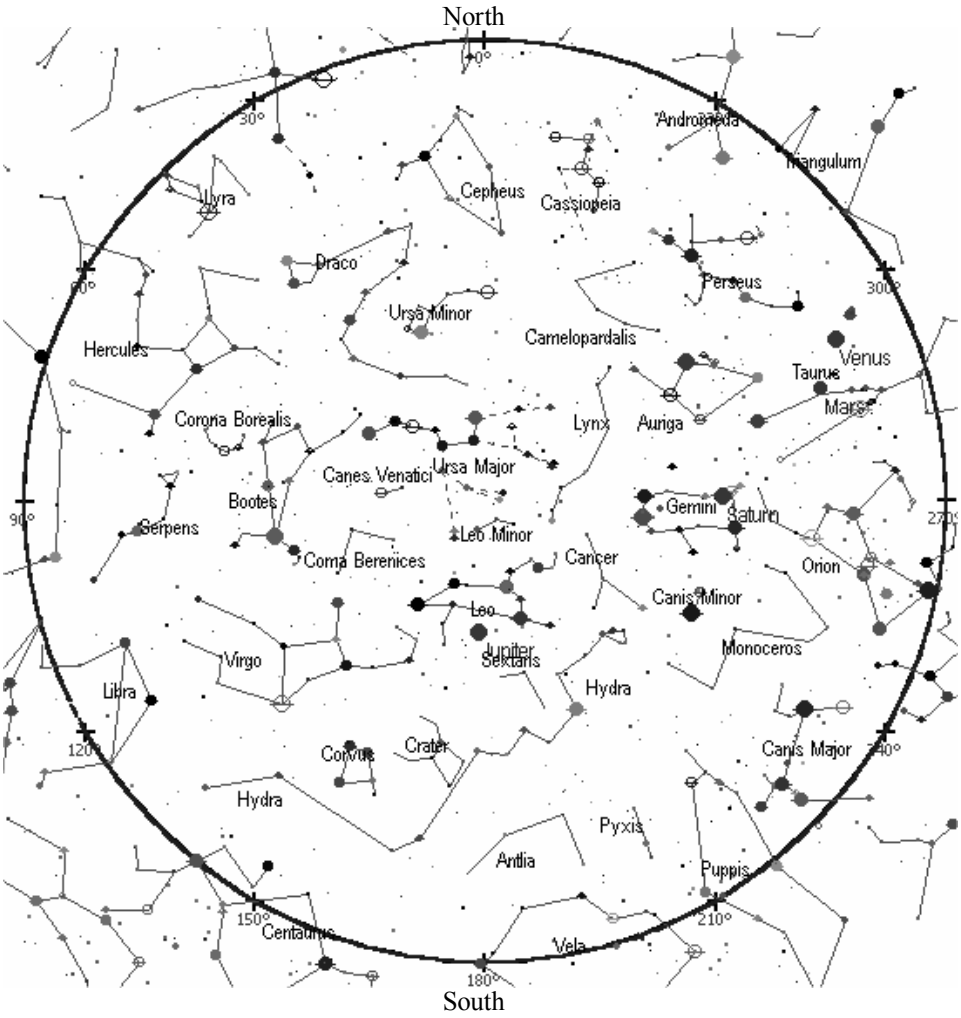
It may seem difficult for several billion stars to play hide and seek. However in some ways, NGC3184 has done just that. For many years there was also an

NGC3180 charted nearly, until it was discovered that NGC3184 and it were one and the same, due a position error for 3180. Some atlases still list the galaxy under both names. Also it has been determined that NGC3181, at approximately the same position, is an entirely non-existent galaxy. Adding to the 3184's allure is Quasar 1015+416. It is estimated to have a visual magnitude of 18 — if it could be seen. It appears to be directly behind the nucleus of NGC3184. Or is it? There is some uncertainty in the matter and NGC3184 may turn out to have a very active black hole in its core after all.

NGC3184 is on the Herschel 400 list, if you happen to be working your way through that challenge.

Now that it's spring, I no longer have an excuse not to be out observing. How about you?

The April Sky



This map reflects the Northern Hemisphere sky at the following times:

Early April, 2004	10 pm
Late April, 2004	9 pm
Early May, 2004	8 pm

April Sky Calendar

5th	Full Moon
11th	Last Quarter Moon
19th	New Moon
21st	Lyrid Meteor Shower Peaks
27th	First Quarter Moon

Recent Observing Awards

No new awards this month

Visit the club web site at: **www.OmahaAstro.com**

Save the club money… and get your newsletter in full color by signing up for the email edition of the Stella. Signing up is easy… just go to:

Http://www.omahaastro.com/DigitalStella

Welcome New Members…

Alan Henerson Omaha
Mike Hermsen Omaha
Nick Valentour Bellevue
Gary & Beth Kyes Omaha

Leaping Gazelles and Hiding Galaxies
Harlan Seyfer

Ahh, April when Spring has begun, at least astronomically if not meteorologically. Back on Saturday, March 20, at 49 minutes past midnight, the Sun crossed the equator into the northern hemisphere signaling the end of Winter. Orion, that constellational marker of Winter, is setting in the west, while Vega in the Lyre, the bright marker of summer nights, is just beginning to put in an appearance in the east. Queen Cassiopeia is at her lowest and will begin climbing to summer prominence. On the opposite side of the Pole Star, Ursa Major, the Great Bear, is now overhead.

If you open up the center-fold star map of either *Sky and Telescope* or *Astronomy*, you'll see three sets of stars forming the feet of Ursa Major. They form an asterism crossing the zenith in April, which is easy to spot with either of these star maps in hand.

Guy Ottewell's *Astronomical Calendar 2004* labels these six stars the "Three Leaps of the Gazelle". The three pairs are approximately 15° apart, while the components of each pair are separated by about 1.5°. Add to this the fact that their average magnitude is 3.5, and this strung-out asterism is fairly conspicuous — once you have spotted it.

So what are the "Three Leaps of the Gazelle"? I couldn't find an explanation in the *Astronomical Calendar*. The first place I usually turn to solve such mysteries is *Burnham's Celestial Handbook*.

According to the Burnham, the pair forming the hindmost or westernmost leg of the bear was called by Arab astronomers *Kafzah al Ula* – the first leap of the gazelle. These are known as Nu (ν) and Xi (ξ) Ursae Majoris today. About 15° to the northeast of the first leap are the tracks of the next jump. These are Lambda (λ) and Mu (μ) Ursae Majoris. The Arabs called this pair *Kafzah al Thaniyah*, the second leap. Continuing in the same northeast direction brings us to *Kafzah al Thalithah*, the Third Leap of the Gazelle. These are Iota (ι) and Kappa (κ) Ursae Majoris.

While Burnham gives us the order of the leaps, and thus the direction in which the gazelle was moving, he doesn't tell us why that Asian relative of our antelope was in such a hurry. For that story, we can find no better reference than Richard Hinckley Allen's *Star Names: Their Lore and Meaning*. That book, first published over 100 years ago and currently republished by Dover, remains a classic in the lore surrounding the stars. Allen describes the gazelle as fleeing from the Great Lion (Leo Major) in the constellation to the south of the Ursa Major. The gazelle is seeking safety in a pond outlined by Omicron (ο), Tau (τ), Upsilon (υ), Phi (φ), and Theta (θ) Ursae Majoris: respectively the Bear's snout, brow, throat, chest, and elbows.

By the way, the Lion Cub (Leo Minor), over whom the gazelle appears to be leaping in its panic, is a relatively modern constellation introduced by the Polish astronomer Johannes Hevelius in 1687.

Xi Ursae Majoris in the first leap is a beautiful pair of golden stars. As noted a few months ago, this star is also of historical interest. In 1827 it was the first binary star to have its orbit calculated, thus proving the laws of Newtonian physics applied outside of the solar system. The separation today is about 2" and widening. The two stars have nearly equal magnitudes of 4.4. and 4.9. Xi's partner, Nu Ursae Majoris, also has a companion only 7" away. This pair is a bit more challenging, since the companion is about 5 magnitudes dimmer at 9.5.

Mu Ursae Majoris, the southernmost star in the second leap, has a stellar spectrum of type M0-III. Stars of this type are very red giants. Color perception of isolated stars can vary greatly from person to person. I'd be interested in knowing what color you perceive this guy to be. Surprisingly, its partner, Lambda Ursae Majoris, is a distant member of the Hyades Cluster over in Taurus, as determined by its proper motion. Of spectral type A, it may appear slightly blue, offering an interesting contrast with Mu.

You may see the stars of the first leap referred to by their Latinized Arabic names of Alula Borealis and Alula Australis, which translate as First North and First South. Similarly, you will see the second pair sometimes mentioned as Tania Borealis and Tania Australis, Second North and Second South. And of course the members of the third pair are sometimes called Talita Borealis and Talita Australis — you can guess the translation.

In the neighborhood of the middle leap is an interesting magnitude 9.8 galaxy. About four minutes of right ascension east of Alula Australis is NGC3184. *SkyAtlas 2000.0 Companion* describes it as "pretty bright, very large, and round; two main knotty arms; small, very bright nucleus. Distance 39 million light years." The excellent, but not well known, *Observing Handbook and Catalogue of Deep-Sky Objects* by Christian Luginbuhl and Skiff states, "This galaxy is visible in 6 cm [2.5 inches telescopes] as a faint, unconcentrated and smoothly textured glow about 4' diameter. . . . In 15 cm [6 inches] it is only a little larger. . . . 25 cm [10 inches] reveals a diffuse object with starry patches around a small, barely distinguishable core. . . . At 200X it occasionally seems horseshoe-shaped: the brightest part in the SW side is connected by a faint arc to a small, fainter appendage on the NE; a darker space lies between them on the NW side of the center. No distinct core or nucleus is visible in 30 cm [12 inches], the galaxy showing almost no general brightening to the center. . . . With averted vision the surface is unevenly bright; some brighter portions make the central regions seem elongated N-S."

Continued on Page 5

Astro Bits

The Naked Eye Planets

During April is still a time to see all five of the naked eye planets. After sunset Venus is easy to see high in the western sky shining brightly. April will be the last month for good viewing of Venus as in May it will drop rapidly in the western sky. On the first few days of April Venus will pass near Pleiades, and during the month the illuminated area will slim to about one-third. By the end of the month it will magnitude –4.5.

Mars has faded away to little more than a orange colored dot.

Next in line comes Saturn, high in the sky above Orion. Saturn is high in the west for several hours after sunset. On April 1-2 Saturn will reach it northern most point in our sky during it's 29.5 year orbit of the sun. The rings are still tilted close to their maximum. The rings and moons of Saturn still make it a joy to observe.

After sunset Jupiter is easily visible in the eastern sky., shining at magnitude –2.3 from Leo. As always Jupiter's moons and Great red Spot make for outstanding viewing.

Lastly Mercury will be around for the first week of the month before it disappears in the evening twilight.

The Outer Planets

Uranus at magnitude 6.0 spends the year looping near Sigma Aquarii. It will appear as a greenish disk.

Neptune shines at magnitude 7.8 as it hangs around near Theta Capricorni. It appears blue-green disk, difficult to tell from a star.

Pluto for those with large enough telescopes will find it shining at magnitude 13.9 near Eta Ophiuchi.

Comets and Asteroids

Comet C/2002 T7 (LINEAR) rounds the sun early in the month so we lose sight of it. It will reappear in the morning sky around mid-month. It will be visible low in the eastern sky. Start at Alpha Pegasus and sweep toward the horizon. It will below no higher than 7 degrees during April.

Comet C/2001 Q4 should make an appearance in the northern sky in May, hopefully it will put on a good show time will tell.

Look for asteroid 1 Ceres in Gemini during April passing between Castor and Pollux around the 21st and 22nd.

Other Notes

How close does one need to get?

On Thursday night, March 18th, a tiny, newly discovered asteroid made the closest flyby of Earth ever predicted. The object, dubbed 2004 FH, is probably only about 30 meters (100 feet) in diameter, the size of a small office building. The Minor Planet Center in Cambridge, Massachusetts, indicated that it would pass by safely about 42,500 kilometers (26,500 miles) from Earth's surface. That's one-ninth the distance of the Moon -- and just a few thousand kilometers beyond the orbits of most communications satellites.…

I ask are we waiting until one hits us before we decide to really try to find them more than a day before their arrival. Just my own opinion.

Well clear nights and warm temperatures.

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BENEFITS OF MEMBERSHIP

- Members receive the STELLA, our monthly newsletter.
- Each member is automatically a member of the Astronomical League, the only nation-wide organization for amateur astronomers.
- Use of the observing site at Weeping Water, NE
- The opportunity to borrow one of several club-owned telescopes.
- Organized trips to local observatories, planetariums and museums.
- Significant savings on subscriptions to **Sky & Telescope** and **Astronomy** magazines.
- Savings on astronomy books and printed materials.

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