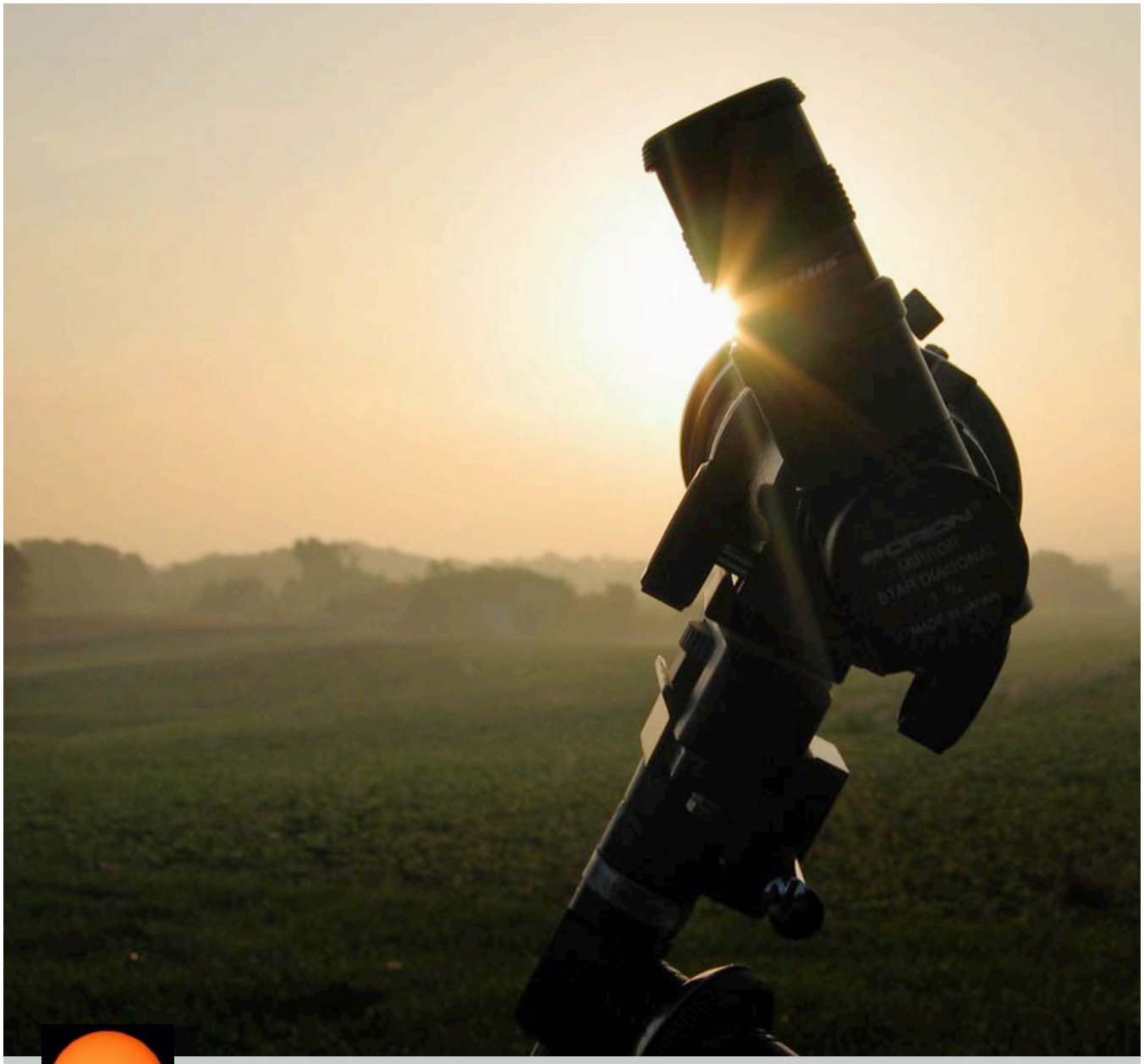
Current Astronomy

JULY
2004

RIVER BEND ASTRONOMY CLUB NEWSLETTER



Across farm fields east of the Mississippi River bluffs the Sun rises, a tiny portion of its disc obscured by the shadowed side of Venus. RBAC members rose early to catch the spectacle along with scores of other enthusiasts. PHOTOS BY ERIC YOUNG

RIVER BEND ASTRONOMY CLUB

RIVERBENDASTRO.ORG

***River Bend Astronomy Club** serves astronomy enthusiasts of the American Bottom region, the Mississippi River bluffs and beyond, fostering observation, education and a spirit of camaraderie.*

Officers and administrators

PRESIDENT	Gary Kronk kronk@amsmeteors.org
VICE-PRESIDENT	Deb Wagner starstuff@starband.net
TREASURER	Ed Cunnius ecunnius@att.net
LEAGUE CORRESPONDENT	Jamie Goggin jamie.goggin@ugsplm.com
SECRETARY	Eric Young younger@wustl.edu
ASTRONOMY DAY COORDINATOR	Mark Brown loneastronomer@charter.net
LIBRARIAN	Lois Butler tenbyfifty@starband.net

Contacts

MAIL 132 Jessica Drive, St. Jacob, IL 62281

WEB riverbendastro.org

E-MAIL riverbendastro@att.net

Affiliated with the Astronomical League, dedicated to fostering astronomical education, providing incentives for astronomical observation and research, and assisting communication among amateur astronomical societies. **www.astroleague.org**

Affiliated with the NASA Night Sky Network, a nationwide coalition of amateur astronomy clubs bringing the science, technology and inspiration of NASA's missions to the general public. **nightsky.jpl.nasa.gov**

Current Astronomy CLUB NEWSLETTER

EDITOR Eric Young
younger@wustl.edu

Submissions to the newsletter are encouraged. Contact the editor for more information.

Events

JUNE MEETING
Trip to Greenville Observatory

Saturday, July 17th, 2004 • 7:00 p.m. •

Meet at Kronk Observatory; form convoy

132 Jessica Drive, St. Jacob, IL 62281

Looked up lately?

Join River Bend Astronomy Club

Want to learn more about astronomy? The members of River Bend Astronomy Club invite you to join. You won't need expensive tools or special skills — just a passion for observing the natural world.

• Meetings offer learning, peeks through great telescopes and fun under the stars.

• You will receive the club newsletter, *Current Astronomy*, packed with news and photos.

• Get connected with our member-only web site and discussion group.

• And that's not all! Through club membership you also join the Astronomical League, with its special programs and a colorful quarterly newsletter to enrich your hobby.

We meet monthly, observe regularly, e-mail news and quips constantly, and generally have a good time. Won't you join us?

Name(s) _____

Address _____

City _____ State _____ Zip _____

Phone (Day)_____ (Evening)_____

_____

Email address (to receive club news and information):

_____

Where did you hear of our club?

_____

How long have you been interested in astronomy? _____

Do you have optical equipment? ___ Telescope ___ Binoculars

Are you afraid of the dark? ___ Yes ___ No (just kidding)

I am submitting my application for:

_____ Adult membership(s) @ $10.00/year (18 years or older)

_____ Youth membership(s) @ $8.00/year (under 18)

I enclose a check for a total of $_____
made out to "Ed Cunnius, Treasurer RBAC."

Signature _____

Date _____

River Bend Astronomy Club
c/o Gary Kronk, 132 Jessica Drive, St. Jacob, IL 62281
web: riverbendastro.org e-mail: riverbendastro@att.net

MAY04

Early risers

Daytime stargazers see Venus traverse the Sun

COMMENTS AND PHOTOS BY MEMBERS

MORNING IN MOTION

BY ERIC YOUNG

A dizzying 50 feet over our backyard, atop our highest maple, mockingbird celebrated dawn. With whistles, chirps and calls it conjured a chorus of yard birds, and for once the many-tongued mimic had something to crow about.

Already in progress the morning of June 8, 2004, was a rare astronomical event. Venus and our home planet had aligned in the heavens to give earthbound skywatchers a glimpse of celestial mechanics in motion. For the first time since 1882 Venus could be seen as a tiny black dot crossing the face of the Sun. And River Bend Astronomy Club members, normally night owls who spy distant suns in the dark, were up like roosters to herald the sunrise. Some stayed home while others gathered at Southern Illinois University Edwardsville or at Carlyle Lake. And two members traveled to the Atlantic shore with hopes of the best possible view in North America.

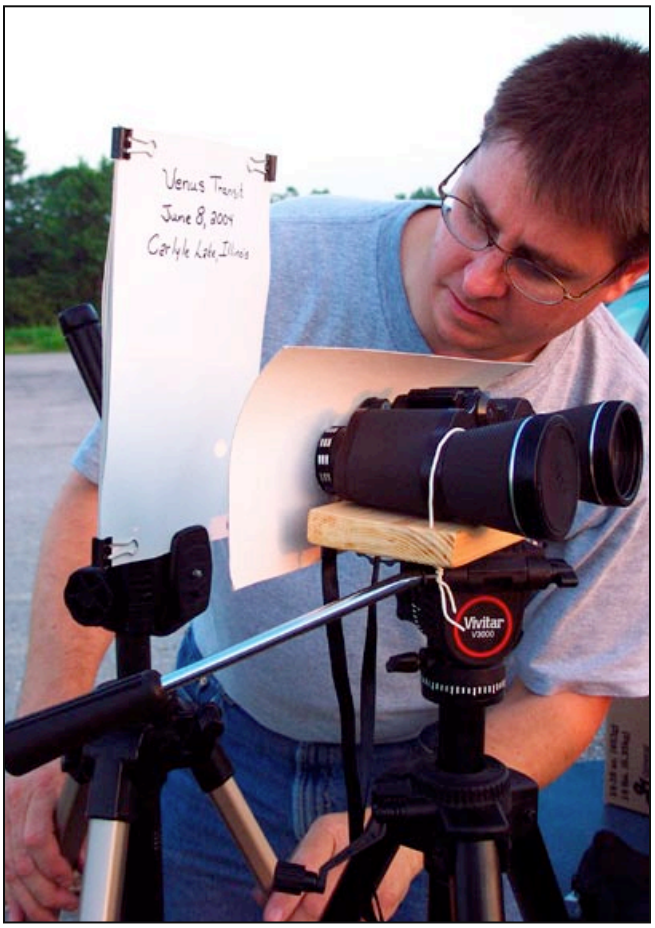
Illinoisans could watch only the final stages of the event: the sun would rise with the transit already in progress. From our backyard I strained to see anything at all through low clouds and misty haze.

Impatience. Mockingbird chortled, moments ticked by. Who was I to hurry Apollo's morning ascent?

Northeast, land and sky warmed aglow. At last a bright orange slice emerged, the citrus-fruit star growing, until the whole orb appeared. I trained my telescope on the Sun's lower right edge where I knew to find Venus in motion.

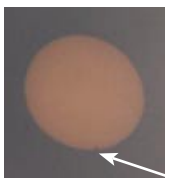
RBAC members miles apart soaked up morning sunlight for the next three-quarters of an hour and took the photos on these pages.

By 6:30 a.m. Venus had moved on. The show was over, the Sun's image was boiling in humid sky soup, my page of notes was limp with morning dew. Mockingbird flew to breakfast.



DEB WAGNER

Mark Brown sets up his binocular projection system. Or make that monocular system, as he kept one objective capped while projecting sunlight through the other onto a piece of paper (below).



"It was worth losing some sleep over. On some websites I saw prior to today, the event was publicized as 'not so spectacular...just a black dot crossing the face of the Sun.' When Deb, Lois, Jace and I saw that 'black dot,' we were amazed at the sight and thrilled that we took the time to gather to watch this event." — **Mark Brown**

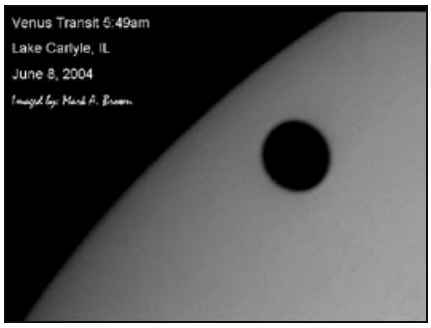
Lois Butler, Mark Brown and Jace Perham, along with photographer Deb Wagner, await the sunrise.

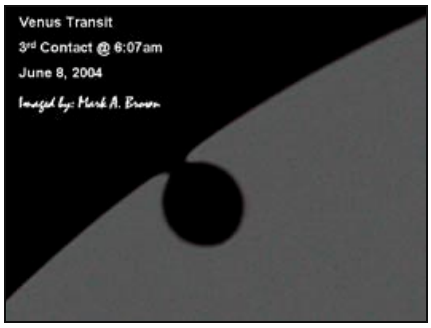
Sun's up! Deb Wagner imaged the transit moments later. "The cloud cover was thick enough that I was able to take the picture without using my solar filter," says Deb. The solar disc appears squashed due to atmospheric distortion.

Southern Illinois University Edwardsville's Department of Physics hosted a viewing event. Center: Tom Foster, assistant professor and RBAC member, peers into a Questar telescope. Others pictured include several faculty members from different departments along with their families. Note the dew-drenched rooftop. RBAC member Jamie Goggin took the photograph.

"We were on the roof of Alumni Hall on SIUE's campus. This gave us a great view of the Sun as it peeked over the haze. Our first view was naked eye and that was cool by itself. Next we used the finder scopes of the Questars, which are equipped with sun filters, however the Sun was still too weak to use the main scopes. Finally the Sun was bright enough but, due to shadows and the general difficulty in aiming a Questar, it took us a long time to get the Sun in the scope. By the time we had it, Venus had already touched the Sun edge (no black drop* effect for us)." — **Tom Foster**

[*19th-century observers reported seeing a teardrop shape.]





Images by Mark Brown taken with his Celestron 8-inch telescope show Venus approaching the edge of the solar disc.

"Between the dimming effects of a low-hanging cloud bank and a Baader filter, old Sol had to climb to over 5 degrees before I could get a decent image. It was plain, simple, predictable, understandable, magnificent...things seldom come together like this in astronomy."
— **Dennis Rippelmeyer**

Reporting from Rehoboth Beach, Delaware: Ed Cunnius. "We had considerable haze and a lot of cirrus around the horizon – but hey, it was actually clear." Ed, who shot this from the roof of a hotel overlooking the Atlantic ocean (see story pg. 6), called the morning "one of my all-time best astronomy experiences."

"I had an absolute ball. For once, an astronomy event I put a lot of advance planning into had clear weather. I enjoyed every second of it. Beautiful stuff." — **Ed Cunnius**

"I think the most exciting thing about the Venus transit was hearing all the responses as, one by one, the seasoned telescope viewers around me realized they were actually seeing the transit. The responses were so like the spontaneous reaction of someone getting their first view of Saturn through a telescope — "Wow!", "Oh, Man!", "Oh, I've got it!", "Isn't it great!" It was truly exciting and fun to see. Sharing it with other folks, just as excited, added to the pleasure." — **Lois Butler**

Venus by the sea

Transits bring out the explorer in you

BY ED CUNNIUS

At 4:00 am I stuck my head out the 4th floor window and squinted. Even through the glare of security lighting on the building across the street I could see stars. It was clear. I couldn't believe it. Booking a room at a beachfront hotel had been a big gamble — I was putting all my eggs in one proverbial basket — and I had fully expected that the weather would not cooperate. After all, history is loaded with stories of people who traveled halfway around the world to catch a Venus transit, only to be clouded out. I didn't expect to be an exception. But this morning — incredibly — was clear.

My fascination with the transit of Venus started over two years ago when I read Eli Maor's book, *Venus in Transit*. I wanted to photograph the event, but I didn't have a reliable camera. I also didn't have the hardware necessary to mount both scopes on my equatorial mount, as I wanted to watch the transit while taking pictures. So I planned for months — scouting locations, researching and acquiring equipment, and making stuff when I couldn't find it off the shelf. I even bought a drill press to customize some guide-scope rings (Orion didn't carry a press, so I had to go to Lowe's). The right-angle viewfinder for my camera was hopelessly back-ordered, so I made a focusing mask out of black poster board. I took practice shots of the Sun to test the setup. During a test, one of the barlows would not reach focus, so I sent in an emergency order for an extension tube. As final prep I assembled the whole rig in the dining room, and then broke it down and packed it from there just to be sure I had everything. I'm notoriously absent-minded, and one missing cable or fitting would ruin the whole effort.

Postcard perfect: sunrise over the Atlantic.

Through it all I was haunted by French explorer Le Gentil's experience with the transits of 1761 and 1769. He traveled to India in 1760 as part of an international effort to determine the distance to the Sun by precisely recording Venus' crossing. He was stranded in the southern Indian Ocean during the 1761 event — the motion of the ship rendering his observations useless. He finally made it to India were he decided to stay put and try again in 1769. As the date approached, he sailed to Manila, where he could view the entire transit. He was then ordered by the French government back to India, irregardless of the fact that he would only be able to see Venus's egress from there. He did as he was told, and despite crystal clear weather the night before, a "vexatious cloud" covered the Sun during the critical 3rd and 4th contacts. To add to his frustration, he later learned that it was perfectly clear in Manila on that day. It was two weeks before he "could hold the pen which was to tell his friends in Paris the story of his disappointment."

Uh, huh — I would imagine.

It was with stories like this in mind that John Schnase and I spent a long weekend a month earlier, looking for observing sites along the Atlantic. Maryland is hilly and heavily wooded, with few open spaces where you can see the horizon. Heading to the coast would give us the best possible view and put us further

east, providing a few minutes more to watch the transit. It also gave us a slightly better chance for clear weather. I hoped to find a beachside parking area that would work, but all of these were tucked to the west behind the primary dunes. The hotel location was unexpected, but perfect — the town of Rehoboth Beach, Delaware, faces the ocean square-on just 100 miles east of Washington, D.C. The building stands five stories above a boardwalk that runs along the beach. The extra elevation gave us the best vantage point possible as well as protecting the optics from sand and spray.

The view from the roof that morning was spectacular. We had a box seat, with an ocean view and clear skies — it was all feeling a little too good to be true.

We lugged everything up the stairs and were set up and taking test shots of the Moon by 5:00 a.m. I pulled the camera off the scope to take some wide-angle shots as the Sun was clearing the clouds — then wound up using it on both scopes for different views. The Sun was still low enough that no filter was necessary. I was close to getting lost in the camera and equipment — concentrating on exposure and framing. So I made myself stop and actually watch the transit. It was those moments at the eyepiece that I had really come for. I was taking in a view so rare that not a single person remains alive who saw the last transit in 1882. Only a tiny percent of the planet's living population were experiencing it even now. A dot on a yellow disk swimming in red haze, the sky turning blue behind it, the light perceptively intensifying every second as it shone through less and less atmosphere. My last couple of looks where almost painful. It was starting to get risky. It was time for filters; time for an extra layer of technology; time to examine as much as to experience.

The author and his optics, five stories above the beach at the Boardwalk Hotel.

John Schnase looks through a 3" refractor as the camera records the transit through a 4" telescope.

The filtered views where less beautiful but clearer and more interesting. Once the exposure was checked and set, I could watch through the smaller scope, occasionally hitting the space bar on the laptop to snap a picture. It all went by too fast. I was glad then that I had gone to the trouble to photograph what I could. Astrophotography may take time away from the eyepiece, but it can enhance and extend the experience in other ways.

We had made it. All the planning and preparation had paid off. We were ready to celebrate with pancakes and coffee — and start dreaming up the next adventure.

Poor Le Gentil's trip home wasn't nearly as pleasant as our drive back through the Delaware countryside. He somehow survived, enduring not one but two shipwrecks, making landfall at last in Spain. He completed the final leg of his trip on foot across the Pyrenees only to find on his arrival in Paris that his family had declared him legally dead and was busy dividing up his estate. In contrast, we only found a couple of newspapers in the driveway.

Le Gentil went on to regain his property, marry, and write a two-volume account of his exploration of the Indian Ocean — a happy ending for him after all. As for us, we're still a little amazed at our luck with the weather and starting to think about June 6, 2012. The best views will be from the western Pacific Rim. Anybody game for a road-trip to Fiji?

Deep networking

NASA chooses RBAC to perform public outreach

FROM NASA PUBLIC RELATIONS

The River Bend Astronomy Club, http://riverbendastro.org, located in St. Jacob, Illinois, has been selected by NASA to be a member of the Night Sky Network, a nationwide coalition of amateur astronomy societies committed to sharing their time, their telescopes, and their enthusiasm for astronomy with their local communities. River Bend Astronomy Club recently received their first Outreach Toolkit from NASA. Entitled "PlanetQuest", the kit is designed to help amateur astronomers answer questions about how scientists hope to find Earth-like planets circling other stars. Club members will use the Outreach Toolkit at public astronomy nights, during classroom visits, at youth group events, and at other public events catering to students of all ages.

Membership in the Night Sky Network includes training for club members, special opportunities for working with NASA scientists and educators, access to a dedicated website for communicating with other Night Sky Network participants, and public recognition by NASA for their outreach activities.

"NASA is very excited to be working closely with the amateur astronomy community," said Michael Greene, head of public engagement for NASA's Navigator Program based at the Jet Propulsion Laboratory in Pasadena, California. "Amateur astronomers want more people to look at the sky and understand astronomy, and so do we. We have a strong commitment to inspiring the next generation of explorers. Lending support to the energy that the amateur astronomy community brings to students and the public will allow NASA to reach many more people."

For more information go to http://nightsky.jpl.nasa.gov. To find out about the schedule of programs sponsored by your local astronomy club, call (618) 558-0942 or email riverbendastro@att.net.

The Night Sky Network is sponsored and supported by JPL's PlanetQuest public engagement program. PlanetQuest is a part of JPL's Navigator Program, which encompasses several of NASA's extra-solar planet-finding missions, including the Keck Interferometer, the Space Interferometry Mission (SIM), the Terrestrial Planet Finder (TPF), the Large Binocular Telescope Interferometer (LBTI), and the Michelson Science Center (MSC).

From the Night Sky Network web site in June of 2004: Mark Brown of River Bend Astronomy Club in Illinois (photo, above left) takes astronomy to the local Children's Museum, representing the Earth's atmosphere with bubble wrap. He reports: "Since much of our astronomy day focus was about telescopes, we found it quite fitting to tell our visitors why we put telescopes into space. The most interesting fact we were able to convey during our talk was that the Hubble Space Telescope was celebrating its 14th birthday in space and is still sending incredible photos back to Earth. The children really enjoyed looking through the mock telescopes and looking at the 'pretty' Hubble images. This is a simple, down to earth and fun concept that young children and even adults can relate to and enjoy."

River Bend Review

BY ERIC YOUNG

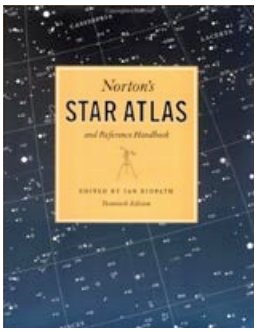
A classic reference, updated for a new century

Before the space age, before the torrent of printed atlases, before the web's wealth of data, before the customized finder charts from desktop planetaria, one book reigned the essential astronomy reference — *Norton's Star Atlas and Reference Handbook*. Updated and redesigned, *Norton's* 20th edition remains a one-stop oracle for sky miners.

UPDATED CLASSIC Astronomy enthusiasts appreciate how their passion is grounded in science. Past the "oohs" and "ahs" of billowing nebulae and swarms of stars, however, astronomy quickly swamps the brain with unfathomable concepts and unknown vocabulary. This is where *Norton's* comes in handy. This book highlights nearly everything "out there" and how to see it. The solar system (including detailed maps of the Moon and Mars), stars, galaxies, basic concepts, observing techniques and more are presented and concisely explained. But some necessarily brief sections only whet the appetite.

GOOD LOOKIN' Though totally redesigned from the previous edition, the understated yet elegant two-color format is not as compelling as today's colorful reference books. *Norton's* look harkens back to a time before seductive computer graphics. Even so, the book's staid, timeless presentation appeals. But a few unfortunate nits hamper the book's utility at the eyepiece: 1.) Faint, tiny type is hard to read at night; 2.) Areas of some charts and tables are hard to see in dim light; and 3.) Thicker paper makes this edition a bit too bulky and heavy for easy hefting scopeside.

AGELESS ATLAS The heart of *Norton's,* its famous star charts, have guided generations through the celestial panorama. The charts, drawn to magnitude 6.5 and suited to basic observation, plot large areas of sky with minimal distortion, but lack constellation stick figures — handy signposts to the maze of distant suns. Tables after each chart catalog the nightly parade of sky sights.



Norton's Star Atlas and Reference Handbook
20th Edition
Edited by Ian Ridpath
208 pages, 9 x 11 1/4 inches
Pi Press: Hardcover: $30
ISBN: 0-13-145164-2

STIFF UPPER LIP Readers with only casual interest may spurn the serious, formal text. Really, it's downright dry. Those who savor chatty popularizations of science will be disappointed — *Norton's* starched prose is all business. The verbage has a European bent: "spectacles" for eyeglasses, "3000 million years ago" for an epoch, and Brit spellings such as "centre" and "artefact." Even the "Useful Addresses" section leans toward entities that side of the Atlantic.

TEXT VS. CONTEXT *Norton's*, while aiming for the amateur, often overshoots the mark. The wealth of information overwhelms at times. Taken as a whole, *Norton's* contains an odd stew of neophyte hand-holding — what is a finder? — with dense, pro-level science. Only advanced observers will find the sprinkling of heavy-duty equations useful.

RECOMMENDATION *Norton's* isn't ideal for beginners. Those starting out will appreciate friendlier texts; recreational astronomers will enjoy snazzier celestial tour guides. Once the astro bug bites, however, a *Norton's* will become a well-thumbed desk reference and an intelligent companion under the stars.

The Space Place

BY PATRICK BARRY AND TONY PHILLIPS

Space weather

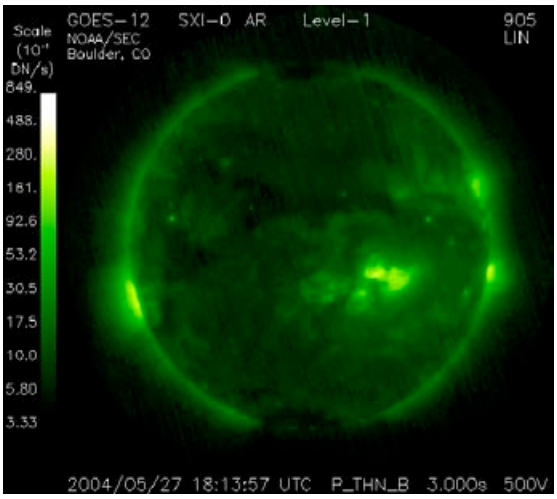
Radiation storms, 250 mile-per-second winds, charged particles raining down from magnetic tempests overhead...it sounds like the extreme weather of some alien world. But this bizarre weather happens right here at Earth.

Scientists call it "space weather." It occurs mostly within the gradual boundary between our atmosphere and interplanetary space, where the blast of particles and radiation streaming from the Sun plows into the protective bubble of Earth's magnetic field. But space weather can also descend to Earth's surface. Because the Earth's magnetic field envelops all of us, vibrations in this springy field caused by space weather reverberate in the room around you and within your body as much as at the edge of space far overhead.

In fact, one way to see these "geomagnetic storms" is to suspend a magnetized needle from a thin thread inside of a bottle. When solar storms buffet Earth's magnetic field, you'll see the needle move and swing. If you live at higher latitudes, you can see a more spectacular effect: the aurora borealis and the aurora australis. These colorful light shows happen when charged particles trapped in the outer bands of Earth's magnetic field get "shaken loose" and rain down on Earth's atmosphere.

And because a vibrating magnetic field will induce an electric current in a conductor, geomagnetic storms can have a less enjoyable effect: widespread power blackouts. Such a blackout happened in 1989 in Quebec, Canada, during a particularly strong geomagnetic storm. These storms can also induce currents in the metallic bodies of orbiting satellites, knocking the satellite out temporarily, and sometimes permanently.

Partly because of these adverse effects, scientists keep close tabs on the space weather forecast. The best way to do this is to watch the Sun. The NASA/ESA SOHO satellite and NOAA's fleet of GOES satellites keep a constant watch on the Sun's activity. If a "coronal hole" — where high-speed solar wind streams out from the Sun's surface — comes into view, it could mean that a strong gust of solar wind is on its way, along with the geomagnetic storms it will trigger. And an explosive ejection of hot plasma toward the Earth — called a "coronal mass ejection" — could mean danger for astronauts in orbit. The advancing front of ejected matter, moving much faster than the solar wind, will accelerate particles in its path to near the speed of light, spawning a radiation storm that can threaten astronauts' health.



The outer solar atmosphere, or corona, as viewed by the GOES 12 Solar X-ray Imager (SXI). This image shows the plasma at 4.0 MK (million degrees Kelvin). Bright areas are associated with sunspots seen in white light images and may produce explosive events known as flares. Dark regions are coronal holes where the fastest solar wind originates.

Watch for more articles about space weather and about NOAA's efforts to forecast these celestial storms. Meanwhile, read today's space weather forecast at http://www.sec.noaa.gov/. Kids can learn about the geostationary orbits of the GOES satellites at http://spaceplace.nasa.gov/en/kids/goes/goes_poes_orbits.shtml

This article was provided to Current Astronomy *by the Jet Propulsion Laboratory, California Institute of Technology, under a contract with the National Aeronautics and Space Administration.*

Arc Minutes

BY ERIC YOUNG

A transit and a transition to summer skies

JUNE 19, 2004 **Attendance:** Bill Breeden, Rita Breeden, Jeff Menz, Terry Menz, Simon Menz, Caroline Menz, Gary Kronk, Jamie Goggin, Bruce Kryfka, Deb Wagner, Mark Brown, Nathan Goff, Mike Veith, Lois Butler, Eric Young, Mark Young, Tim Bucher, George Roethemeyer, Byron Barker, Taylor Barker, Todd White. **We met for the first time** in the Kronk's basement — plenty of room. Just when it seemed we might be spending the entire night down there the clouds parted and everyone hustled outside. Commented **Jamie Goggin**: "The meeting was great. Cloudy during the meeting portion, clear for the observing. The highlight of the evening, for me, was seeing the Cat's Eye Nebula. Thanks to Dr. Barker's daughter, **Taylor Barker**, for asking me to find it."

MOUTHING OFF **The Barkers** are new to RBAC. The local dentist and his daughter Taylor proudly displayed their new Orion Intelliscope. Its little keypad, about the size of a pocket calculator, helps locate sky objects stored in its database by showing where to aim the telescope. The scope really is intelligent and easy to use — nice smooth motion in that mount. The Barkers were energetic star-hoppers all evening. And Taylor sure knows her sky mythology.

WHITE @ NIGHT We also welcomed **Todd White**, another Edwardsvillian (not to be confused with an Edwards-villain) who showed up at Jamie Goggin's house one night asking if he knew anything about the astronomy club that had been featured in the newspaper. Jamie steered Todd our way. Todd's got an Orion reflector, too. Jamie helped him tune it up and we were treated to some great sky views.

WAGNER STEPS UP **Deb Wagner** took up her new vice-presidential duties. Now a heart-beat away from the presidency, Deb will be living at an undisclosed location until further notice. Deb's brains and enthusiasm make her a great addition to the board.

TRANSITORY We had a ball during the Venus transit in early June. (See stories and photos in this issue.) We're already talking about the next opportunity in 2012 to see Venus cross the Sun. **Ed Cunnius** has his umbrella packed.

RETURN OF KRONK That sounds like a summer blockbuster. But this story featured comet guru **Gary Kronk and his wife, Karen**, on a trip to France. They attended the International Workshop on Cometary Astronomy. There Gary met people from around the world that he's corresponded with for decades in the course of his historical research. Amateurs are making significant contributions to cometary astronomy... Gary's particularly impressed by a group of Polish amateurs who've successfully determined the rotation period of a comet nucleus. (This gets Gary all tingly.)

KRONK SPEAKS AND VEITH PEEKS

He's so excited about what amateurs are doing with comets, in fact, that **Gary Kronk** plans to talk about it at the next meeting of the St. Louis Astronomical Society. The meeting will be held at Washington University in St. Louis, McDonnell Hall Auditorium, Room 162, at 7:30 p.m. on July 16th. (Drive Highway 40 to Skinker north, then west on Forsythe.) RBAC member **Mike Veith** works near the auditorium and

Mike's invited us to tour his lab afterwards to see what he does with an electron microscope. Throw in some free cookies and it's our kind of evening. Write Gary at kronk@amsmeteors.org or Mike at veith@wustl.edu.

STAR PARTY **Gary Kronk** never tires of talking about astronomy — he'll address the Illinois Dark Skies Star Party this September. We've heard that the location offers dark skies, as the name implies, and isn't as far a trek as some other central states gatherings. "It's a good site and they're a good group of people," says **Mike Veith**. Visit www.sas-sky.org/star%20party%202004/star%20party%202004.htm for more information.

NATIONAL LEAGUE We're represented to the Astronomical League, a collective of amateur astronomy groups, by **Jamie Goggin**. Jamie told us that League dues are going up to $5 each from $3.50 a person. No word yet on whether that will impact RBAC membership fees. In addition, we voiced our support for the re-election of the League's executive secretary, **Jackie Buecher**. Visit www.astroleague.org/

PHOTO FILING Let's file the photos on our web sites by category or event rather than by person. That'll make it easier for visitors to find what they're after and won't appear so competitive.

SPACE PLACE We plan to request some outreach materials from NASA's The Space Place. (This branch of the aerospace organization regularly supplies us with newsletter stories.) The educational supplies will be available in the club library.

NIGHT SKY NETWORK Having logged nine official events, we're now listed as the number three club among 175 organizations in the NASA Night Sky Network. (See story, page 8.)

PROFESSOR "That's not the shadow of the Earth on the Moon..." is among the things that **Jamie Goggin** plans to teach in his 100-level astronomy course at Greenville College. Jamie was honored to accept the position and joins other RBAC'ers who teach at local colleges and universities.

RBAC library list online

1. Visit the Yahoo! Groups web site.
2. View the selections in the Files folder, "Library."
3. Decide what you'd like to borrow.
4. E-mail your choices to librarian Lois Butler...

She'll bring the material to the following meeting.

5. Read, view and enjoy.
6. Return.

Contact: lbutler@starband.net

BABY TALK Now they sign-off their e-mails as: "Bill and Rita, Proud 'parents' of the new LX90 SCT." One question: How do **the Breedens** diaper that thing?

MENZ LIGHTS UP Adored by his loving family, **Jeff Menz** got a green laser pointer for Father's Day. The pointers are becoming a favorite tool at our meetings for outlining constellations and pinpointing satellites zipping across the sky.

RBAC OUTERWEAR Soon the best-dressed astronomers will be wearing a new RBAC t-shirt: We've taken orders for the shirt which features the stars of Orion. Viewed upside-down the shirt matches the view in your telescope! (A cold-weather constellation like Orion on a warm-weather garment like a t-shirt? What's next — Scorpius on long johns?)

OFF TO GREENVILLE We'll travel to Greenville Observatory on July 17th if the weather cooperates. **Jamie Goggin** has keys and he's invited us to a summer star party there. Meet at the Kronk's at 7:00 p.m. to form a convoy. If the sky clouds up we'll stay at the Kronk's and hold a regular meeting. A late-night or early-morning trip to the Powhattan restaurant (and I use the term loosely) has been rumored...

LAST CALL How late can folks stay in the Kronk's backyard on a meeting night? Depends who you ask...Gary, the neighbors, the St. Jacob Police... According to night owl **Jamie Goggin**, "I consider it a badge of honor to be the last dog to die at the meeting." Anyone who needs more sleep typically *fleas* the scene earlier in the evening.

July 2004

June 2004

S	M	T	W	T	F	S
30	31	1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	1	2	3

August 2004

S	M	T	W	T	F	S
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31	1	2	3	4

Holidays | Moon Phases | RBAC | Space Mission | Observing | Trivia

Sun	Mon	Tue	Wed	Thu	Fri	Sat
27	28 C/2003 J1 (NEAT) closest to Earth	29	30	1 Cassini Saturn orbit insertion	2 Full Moon 6:09 a.m. CDT	3
4 Indepen-dence Day	5 Earth at aphelion	6 C/2003 K4 (LINEAR) closest to Earth	7	8	9 Last Quarter 2:34 a.m. CDT	10 Schwassmann-Wachmann 1 perihelion
11 Mercury passes 0.1 degrees from Mars	12	13	14	15	16	17 RBAC Meeting 7:00 p.m. New Moon 6:24 a.m. CDT
18	19	20	21 Comet Encke closest to Earth	22 Friedrich Bessel's 220th birthday (1784)	23	24 First Quarter 10:37 p.m. CDT
25	26 Mercury at greatest elongation	27 Delta Aquarids peak	28	29	30	31 Full Moon 1:05 p.m. CDT

CALENDAR BY ED CUNNIUS