SkyWAAtch

A Great Globular Cluster

Olivier Prache captured this image of M13, the great globular cluster in Hercules. The total exposure was 7 hours (B: 170 min, G: 120 min, R: 130 min) taken over 3 nights in May with his Hyperion 12.5-inch astrograph and ML16803 CCD camera.

M13 lies at a distance of about 23,000 light years. The cluster itself is approximately 140 light years in diameter, and contains over 300,000 stars. These tend to be old stars with low metal content. Globular clusters generally can be found in a spherical shell around the galactic core.

In This Issue . . .

Events for June 2013

WAA Lectures

"The History of the Telescope"
Friday, June 7th at 7:30pm
Lienhard Lecture Hall, Pace University
Pleasantville, NY

Few, if any, inventions have played as crucial of a role as the telescope in defining mankind's place in the Universe. On June 7th, Al Witzgall will speak on the history of this most important invention. Mr. Witzgall holds a Bachelor's degree in Earth Sciences from Kean University. He is an active long-term member of the Amateur Astronomers, Inc. of Cranford, NJ, and is a past president of that organization. He is also active at the New Jersey Astronomical Association in High Bridge, NJ, serving there as its Vice-president. He is currently a Senior Optician for Fastpulse Optics in Saddle River, NJ. His career in optics started with building telescopes in his basement during his high school years. In 1977, one of them, a 10-inch reflector, took First Award at Stellafane. Directions and Map.

Upcoming Lectures

Miller or Lienhard Lecture Hall,
Pace University Pleasantville, NY

There will be no lectures in July and August. Lectures will resume in September.

Outreach Events

The WAA will be participating in several outreach events this month. Members and their scopes are needed to assist.

- **Wednesday**, **June 12th--Fox Lane Middle School Bedford, NY.** WAA has participated for several years in the Fox Lane Middle School Science Showcase, a science fair with over 200 students in the 6th to 8th grades presenting projects. The indoor fair runs from 7 pm to 9 pm and WAA has again been invited set up telescopes outside for viewing after the fair (it won't be dark enough before). Any members with scopes would be appreciated. Please RSVP to WAA's webmaster, David Parmet, at: david.parmet@westchesterastronomers.org.
- **Friday, June 14th--Wainwright House, Rye, NY**. WAA has been invited to show the night sky to members of the public at the historic Wainwright House. The event will start about 9:15 pm after an introductory talk at 8:15 in their large tent by WAA President Larry Faltz. We need members with telescopes to show Saturn, the Moon and other objects. We expect a good sized crowd of all ages and backgrounds.

  If you can help, please RSVP to Larry Faltz at waa-president@westchesterastronomers.org. Wainwright House is near the Long Island Sound, east of Boston Post Road near Playland Parkway. Directions to Wainwright House.
- **Thursday, June 27th--Camp Ramah, Wingdale, NY.** Club member Dave Butler arranges an annual viewing for children and adolescents at Camp Ramah. He needs members with scopes and he'd love you to participate. Please contact him at David.Butler@iriworldwide.com

Starway to Heaven

Saturday June 1st, Dusk
Meadow Picnic Area, Ward Pound Ridge Reservation, Cross River

This is our scheduled Starway to Heaven observing date for June, weather permitting. Free and open to the public. The scheduled rain/cloud date is June 8th. Participants and guests should read and abide by our General Observing Guidelines and Disclaimer. Directions.

New Members. . .

Jeffrey Jacobs - Rye
Tim Holden - White Plains
Greg Williams - New Canaan
Dimitri Costopoulos - Scarsdale

Renewing Members. . .

Charlie Gibson - Scarsdale
Arthur Linker - Scarsdale
Bill Newell - Mt. Vernon
James Peale - Bronxville
Dante Torrese - Ardsley
Jim Cobb - Tarrytown
Tom Crayns - Brooklyn
David Klaus - Yorktown Heights
Erik & Eva Andersen - Croton-on-Hudson
Craig and Aaron Ross - Glendale
John & Maryann Fusco -Yonkers
Ernest Wieting - Cortlandt Manor

Call: 1-877-456-5778 (toll free) for announcements, weather cancellations, or questions. Also, don't forget to periodically visit the WAA website.

Almanac

For June 2013 by Bob Kelly

June 8 June 16 June 23 June 30

As the Sun pauses in its apparent northern movement at the Summer Solstice at 1:04am EDT on June 21, the short nights attracts us to the daytime sky, looking for spots on the sun or planets in the daytime sky.

We have the Sun nearing its peak activity in the eleven-year cycle and the bright planets cavorting in the western sky make tempting targets for observers who can put the afternoon sun behind a solid, opaque object – like a house! (*Sky and Telescope* readers can get step-by-step instructions from the June magazine at page 51. You can search my Heads UP! blog to see how I found bright planets in the sky in the past.) Sunspot activity during the weak present solar cycle has picked up lately, visible for those who have properly filtered telescopes.

For the brief nighttime hours, Saturn is a three-ring circus all by itself. The pale planet and its rings and moons are up during prime time, low in the southeast. Saturn is a little smaller in the telescope than when it was at opposition at the end of April, and it's rings are a little bit less open this month, but not enough to spoil the fun of looking at Saturn.

The long twilights mean lots of satellites to spot overhead. The International Space Station is visible every 96 minutes during the night for the first half of June. After that, through June 24th, the best times to see the ISS are in the evening after sunset.

Mercury gets as bright as magnitude minus 0.4 on June 1st as it ranges out as far as 24 degrees from the Sun in the first half of the month. It's one of the more easily visible elongations from the Sun, best seen above where the Sun sets, about 40 to 60 minutes after sunset. Much brighter Venus is lower in the sky than Mercury but you might see Venus first and find higher Mercury next. After the 7th, Mercury sinks to the left of Venus and dims substantially, but it's nice to have magnitude -3.1 Venus to point the way to Mercury, even if they are low in the northwestern sky.

In a telescope, compare the reflectivity of rocky Mercury and cloud swaddled Venus. Mercury is half full around the 10th and down to a crescent about the 18th. Venus looks just slightly out of round, and despite being almost three times larger than Mercury, it looks only a bit larger than Mercury, since Mercury continues to hold the title for 'closest planet' to Earth.

Jupiter completes its dive into the solar glare a few days after the start of June. Watch for Jupiter in the SOHO solar observatory's LASCO C3 photos around the date of its solar conjunction on the 19th.

June's full Moon is the closest of the year, occurring only about a half-hour from the Moon's monthly closest approach to the Earth, so watch out for higher than normal tides around the 23rd. Can you see the difference from normal high tide at your favorite beach? Moonrise on 22nd and 23rd will be especially photogenic – look for interesting foreground objects to compare to the rising Moon. On the 18th, the Moon sets up shop between Saturn on the left and Spica on the right. The spiky Moon joins Mercury and Venus on the 10th.

Kappa Librae, a fifth magnitude star, is run over by the dark limb of the Moon about 1:20am on the 21st. Zoom in with a telescope to keep the lit part of the Moon from washing out the little speck as it disappears behind the Moon. It's still fun to see the sudden disappearance of a star behind the Moon, demonstrating the lack of an atmosphere on the Moon.

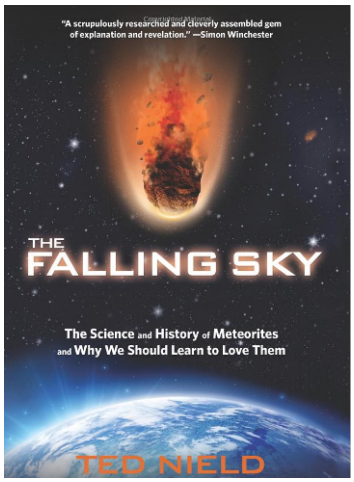
Mars is deep in the solar glare in the morning sky, but getting far enough out from behind the Sun so normal communications are resuming with the orbiting spacecraft and Opportunity and Curiosity rovers. Take a look at Buzz Aldrin's new book Mission to Mars, where he applies his MIT degree in orbital mechanics to provide a solution for how humans can establish a beachhead on Mars.

Bob's Heads UP blog is at bkellysky.wordpress.com.

Westchester Amateur Astronomers

Articles and Photos

Meteorics: The Falling Sky by Ted Nield
Reviewed by Larry Faltz



Most homes have one of two general types of mantelpieces: those that display family photographs or those that feature "objets d'art," often more appropriately termed "tshatshkes," Yiddish for "trinkets." These are the decorative but minimally valuable sculptures and pottery that you just couldn't leave Europe without or received as a wedding gift from your Aunt Shirley and are afraid to put in a closet lest she stop by. If they were valuable, you probably wouldn't put them on the mantel, where everything must be considered precarious and a potential victim of the duster. My mantelpiece is of the objets d'art type, but the trinkets are all scientific: a piece of shale with some inch-long, 400 million year old trilobites, a slab of sandstone with two fossil *Knightia* fish from the Eocene period (45-million year old youngsters, compared to the Devonian trilobites), a hunk of crystalline iron pyrite, a section of a coiled Devonian ammonite, a 10-inch slab of rock covered with blue crystals of azurite (copper carbonate) and greenish cerusite (lead carbonate), some tube worms and a tektite (a piece of natural glass formed from Earth rocks as the result of a meteorite impact). But my prized possession is a 1.4-pound piece of a Gibeon iron meteorite, cut and etched on 3 sides to reveal its crystalline structure.

My Gibeon iron meteorite

Every meteorite has a four-part story: what's inside of it, where it came from, where it was found, and how the owner came to obtain it. We know that almost all meteorites on Earth come from one or more planets (perhaps small planet-wannabees called planetesmals) that orbited beyond Mars but were torn to shreds very early in the history of the solar system by the gravity of Jupiter. (There are a few rare terrestrial meteorites of lunar or Martian origin.) Most of the pieces are still in orbit, but quite a few pepper our atmosphere on a daily basis and from time to time the larger ones can survive their fiery fate and land on Earth. Almost 100 tons of meteoric material enters the Earth's atmosphere every day. Most of the meteoroids are the size of rice grains or smaller (we can still see these for brief moments as they burn up in the atmosphere), and only a few each day are as big as a baseball. Most of these still burn up in the atmosphere, but about once a week something the size of a small car hits and fragments may survive. Earth's surface being what it is, 5/6^{ths} of the falls will be in the ocean.

The Gibeon strewn field, the world's largest (230x115 miles in extent), is in Namibia, on the west coast of southern Africa. A source of metal for native tool-making for centuries, the meteorites were found by British explorers in 1836 and confirmed as extraterrestrial by none other than John Herschel, who analyzed their chemistry. The original meteor was thought to have been at least 3 meters in diameter, perhaps more. To date 26 tons of meteorites have been extracted from the Gibeon strewn field, and that's going to be the final tally because the Namibian government has made meteor prospecting there illegal.

Gibeon meteorites are classic iron-nickel bodies, arising from the core of the destroyed planet. The 10,000-ton, house-sized meteor that literally rocked the Russian industrial city of Chelyabinsk on February 15th was a more common stony meteorite, which is thought to arise from the parent planet's mantle. I saw bits of this meteorite on May 4th at, of all places, a concert. Copland House is an organization dedicated to contemporary American classical music, headquartered at Aaron Copland's former home in Cortlandt Manor. I'm President of its Board of Trustees. Our professional performing group, Music from Copland House, had been asked to play two concerts on space themes at the Clay Center for Science and Technology, an educational outreach organization in Massachusetts (they've got a 25" Ritchey-Chrétien for public viewing!). The works chosen were by contemporary composers, including a moving aria from Jonathan Dove's 2006 opera *Man in*

the Moon, about Buzz Aldrin. The concert was a fund-raising event to celebrate the naming of Copland Crater on Mercury, a terrain feature apparently first observed from ground-based observations by the Clay Center Observatory's director, Ron Dantowitz, using video cameras on the 60" telescope at Mt. Wilson in the late 1990's, although only confirmed by images from the Messenger probe. Dantowitz came down the following weekend to Westchester when the concert was repeated as part of Copland House's regular concert series at the Merestead estate in Mt. Kisco, and brought three small fragments of the Chelyabinsk object, each several inches in diameter. He also brought a sizable iron Campo del Cielo meteorite from Argentina, weighing at least 10 pounds.

Meteorite letter opener by Dan Telleen, Vail, CO

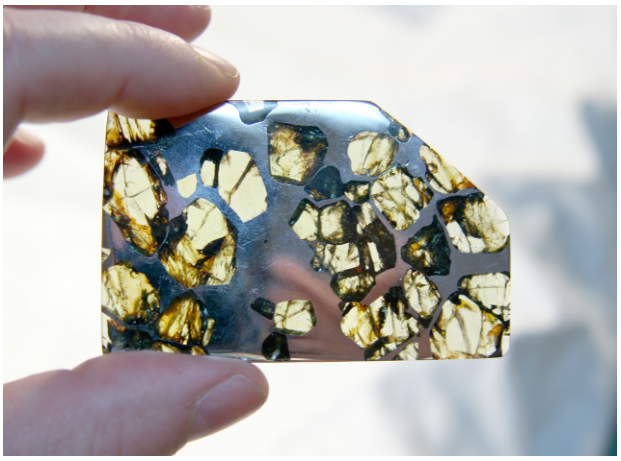
Iron meteorites are distinguished by their Widmanstätten pattern of iron/nickel crystals. These crystals only form in the vacuum of space, as the molten iron-lead alloy slowly cools over the millennia. The metals are found in two distinct crystal phases, kamacite (5-15% nickel) and taenite (25-65% nickel), which form distinct bands. The crystal patterns can vary dramatically, and that's one of the reasons that small bits of these meteorites, when cut and mildly etched with nitric acid, are attractive to jewelers. I bought mine from Dan Telleen, a talented jeweler in Vail, Colorado, about 10 years ago. Dan often creates jewelry from natural objects: he made a spectacular tuxedo-stud and cufflink set for me out of trilobites. He had gotten the meteorite from a dealer and made a number of objects from it, including cufflinks, earrings, brooches and a particularly creative letter opener.

Interspersed with the iron-nickel crystals in many iron meteorites are small dark inclusions of graphite (carbon) or troilite (iron sulfide), or in some cases silicates. These inclusions are surrounded by a tiny rim of schreibersite, iron nickel cobalt phosphide $(Fe,Ni,Co)_3P$, another extraterrestrial compound.

Triolite inclusion in my meteorite, among the kamacite and taenite crystals.

Meteorites provide a rich landscape of fascinating information that rewards study. In addition to learning the proper nomenclature to distinguish meteoroid, meteor, and meteorite (the object in space, in the atmosphere, on the ground) and the general classification (chondrites, achondrites, irons and stony-irons), you can investigate their subgroups and even sub-subgroups. The already complex classification scheme has been expanded by analysis of minor atomic species and rare earths. A true aficionado revels in the details of the morphology and chemical composition of his collection. And of course, they are beautiful, both as complete objects (with their fired, sculptured surfaces) and when sectioned. Most prized of all are the pallasites, rare stony-iron meteorites that look particularly spectacular when sectioned. They contain crystals of

the translucent mineral olivine, $(Mg,Fe)_2SiO_4$, also known as the semi-precious gem stone peridot, in an iron-nickel matrix. They are not from the asteroid 2 Pallas, as sometimes thought, but are named after German naturalist Peter Pallas (1741–1811).



A pallasite in section

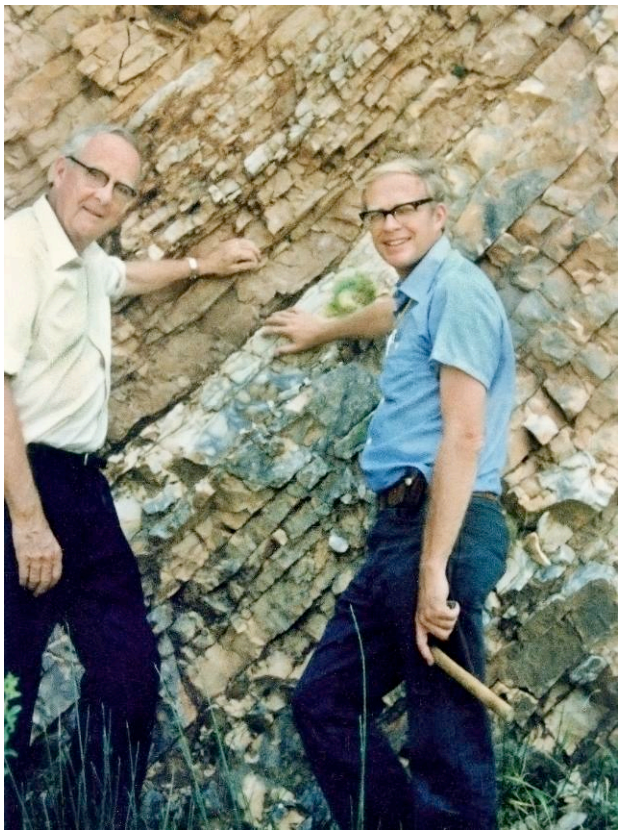
A trip to the Astronomy section of the Strand Bookstore in Manhattan last fall resulted in the serendipitous acquisition of a recent (2011) book on the science and history of meteorics, *The Falling Sky* by British geologist Ted Nield. Nield studied to be a scientist but morphed into a science writer, and he's a very good one. His approach is non-technical, but he covers the necessary historical and astronomical issues in reasonable depth to give a very clear picture of where meteors come from, how their orbits work and what factors lead to a particular space rock deciding to come crashing into Earth. The history of meteorites as objects of curiosity and science is well-presented. Among the description of many historical events is a detailed report on the October 9, 1992 Peekskill impact. The bright meteor was witnessed by many people (and caught on video by 16 of them, most while filming high school football games in the mid-Atlantic states) before slamming into Michelle Knapp's 1980 Chevy Malibu. The 26-pound body was warm to the touch when Ms. Knapp went out to investigate the loud bang outside her house. The space rock and the car were purchased by a meteorite collector for $78,000. Nield also thoroughly reports the history of Barringer Crater in Arizona, describing how long it took for scientists to agree that it was caused by an impact rather than by volcanic action.

Nield's orientation to the science of meteorics is geological, as befits his background. He's particularly interested in how meteor impacts may have affected life on Earth. Nowadays, we take it for granted that the dinosaurs became extinct because of the Chicxulub impact in the Yucatan at the end of the Cretaceous period, creating a "nuclear winter" scenario. Nield reminds us of how radical and contrary to prevailing geologic and paleontologic doctrine this viewpoint was when first proposed by the father-and-son team of Luis and Walter Alvarez in the 1980's.

Barringer (a.k.a. "Meteor") Crater, Arizona

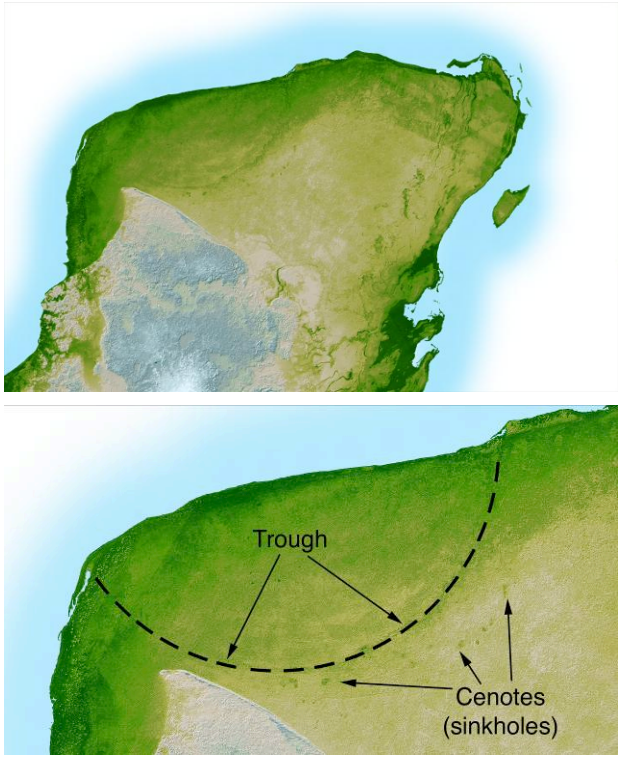
In the late 18th century, after it was realized that the Earth was very old, it was postulated that slow but inexorable forces shaped the planet's geology, and by extension the evolution of its living organisms, over eons. This fundamental mechanism was called *uniformitarianism*, a term coined by Scotsman James Hutton (1726-1797) and emphasized as the underlying means of all geologic change by Charles Lyell (1797-1875) in his textbook *Principles of Geology* (1830), one of the most influential science books of all time. Only natural Earthly processes, operating at infinitesimal rates but over immense time periods, were thought to bring about geologic transformation. The idea that individual cataclysmic events such as a meteor impact could radically change the Earth held no place in uniformitarian thinking. The demise of the dinosaurs might have happened over a short period in geologic time, but it would have been the final result of a slow process. It's no surprise that Walt Disney, in his pre-Alvarez cartoon movie *Fantasia* (1940) depicted volcanic eruptions startling the dinosaurs,

who later were shown trudging hopelessly and fatally across an arid landscape parched and devitalized by the fall of molten rock and ash (accompanied by the score of Igor Stravinsky's *Le Sacre du Printemps*. At least they died listening to a great piece of music!)



Luis (L) and Walter Alvarez at the K-T Boundary in Italy

Luis Alvarez (1911-1988) was one of the most productive physicists of the 20th century. He worked on the Manhattan Project and later developed the cloud chamber, discovering many subatomic particles, for which he was given the Nobel Prize in 1968. Son Walter (b. 1940) is a Princeton-trained geologist, now Professor of Earth Science at Berkeley. The two teamed up (with Frank Asaro and Helen Michel) to study a peculiar iridium rich layer of rock near Gubbio, Italy which dated precisely to the end of the Cretaceous period 65 million years ago, the so-called Cretaceous-Tertiary Boundary (or K-T boundary as it's known in the geology world). This stratum can be dated to the end of the dinosaurs: their fossil remains are found below it but none are found above. Because iridium is more common in asteroids than on Earth, they postulated that a large impact distributed mixed meteoric and earth dust into the Earth's atmosphere, eventually settling to form the distinct rock layer. The impact was of such a magnitude that it would have been responsible for global atmospheric changes, blocking sunlight and reducing surface temperatures, causing the dinosaurs' food supplies to diminish and their extinction to be very rapid. Initially rejected by the geologic establishment, often with ridicule (even the NY Times was somehow induced to enter the fray, publishing a critical but in retrospect completely mistaken editorial on April 2, 1985 entitled "Miscasting the Dinosaur's Horoscope"). The Alvarez' theory was supported by identification of the iridium-rich K-T layer all around the world, and the eventual discovery, by imaging satellite, of the Chixculub crater. These findings won the day for the Alvarez team, and now their theory is taken as geologic gospel.

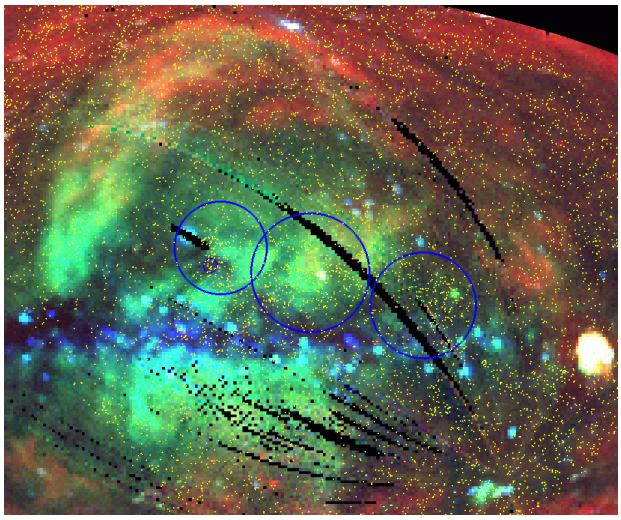


The Chicxulub impact on the Yucatan Peninsula (NASA radar relief image, taken from the shuttle Endeavor in 2000)

But, turnaround being fair play, Princeton paleontologist Greta Keller and a small band of acolytes have recently been trying to poke holes in the Alvarez theory. Yes, they say, the impact happened, but it was only one of a number of events, the others all natural Earth-generated phenomena, that conspired to alter the planet to the disadvantage of the dinosaurs over a longer period. Her thesis is that the Chicxulub

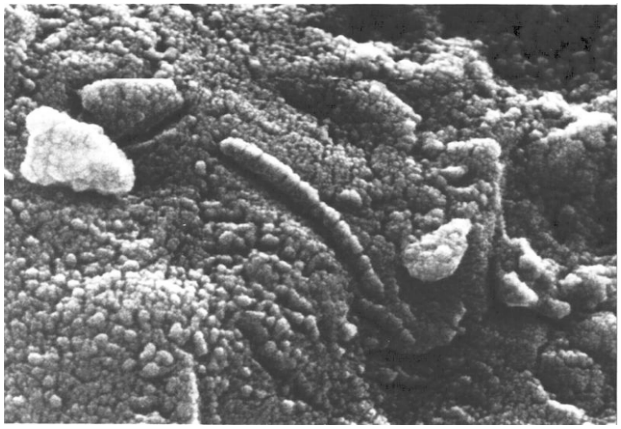
impact occurred 300,000 years too soon, and so could not have been the single, dinosaur-killing event. Nield shows a lot of sympathy for this more balanced view, which is now at the receiving end of critical and sometimes hostile dismissals similar to what the Alvarez' encountered in the mid-1980's.

The K-T extinction was, as evolutionary disasters go, rather on the mild side. It was the most recent of 5 major extinction events in the history of Earth's biome. The others were the Ordovician–Silurian extinction event (450 million years ago [Ma]), the Late Devonian extinction (370 Ma), the Permian–Triassic extinction event (251 Ma), and the Triassic–Jurassic extinction event (200Ma). The Permian-Triassic event was the big one: much of life on earth, some 96% of all marine species and 70% of land species, went extinct in what has been called "The Great Dying". There's no firm evidence for impacts as sources of these events. A less severe extinction event at the boundary of the more recent Pliocene and Pleistocene epochs (about 2 Ma) has been proposed to be the result of a supernova in the Scorpius-Centaurus OB Association, then 130 light-years from Earth (now about 400 Ly away), the energy from which could have punched a hole in the Earth's ozone layer. The Association is an area of active star formation, triggered by shock waves from prior supernova bursts, with many hot O and B stars. Antares is a member.



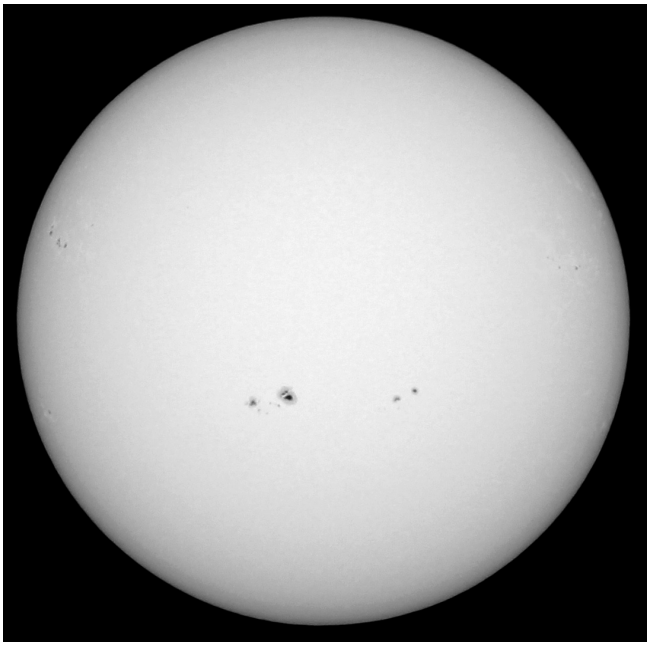
ROSAT X-ray image of the Scorpius-Centaurus OB association. Circles outline three subgroups.

Nield's survey of meteorics, while highly focused on geologic and paleontologic events on Earth, doesn't neglect the historical account of the scientific understanding of meteors nor important elements of planetary dynamics. He provides a lucid explanation of how it is that astronomers can pinpoint where and when the meteoroid began its journey to Earth, a trip than might involve millions of years of orbital passes before impact finally takes place. He also discusses the possibility that meteorites may have brought organic compounds or even biologic material from outer space to Earth, and he discusses the Martian meteorite AH84001, with its suggestion of fossilized Martian bacteria.



Scanning electron micrograph of possible fossil Martian bacteria in AH84001.

Meteor hunting and acquisition have been more in the public eye since the 2009 premiere of the Science Channel's program *Meteorite Men*, whose two affable and occasionally bickering characters combined wit, perseverance, a desire to teach and enthusiasm for the unusual. Small meteorites are not expensive. Small uncut stony and iron meteorites can go for $0.50 a gram, and there are many attractive specimens at each NEAF show for under $15. At NEAF in 2012, the Arunah Hill Natural Science Center from western Massachusetts was giving away small (½") meteorites as a come-on to interest people in their activities. Prices depend on the space rocks' size, source and composition, with prices per gram of some rare stones going for much more than gold or caviar. At next years' NEAF, think about picking up even a small one. Every amateur astronomer should be able to own a piece of the cosmos.



◀ Sunspot

Active Region 1734 is the large sunspot just below left center in this white-light image taken on May 4th through an 80 mm f/6 Stellarvue refractor and Baader mylar filter. A Canon T3i camera was used--single frame 1/1000 sec at ISO 100, color image converted to black and white and processed (gently) in Photoshop. (Larry Faltz).

◀ A Grand Moon Rise

Courtesy of Bob Kelly is this photo of the moonrise and mountain wave clouds at sunset over the El Tovar Hotel on the south rim of the Grand Canyon.

◀ Conjunction

Larry Faltz took this image of the conjunction of Jupiter, Venus and Mercury on May 26th with a Canon T3i camera from Phelps Memorial Hospital in Sleepy Hollow. The photo was f/5.6 at 1/10 sec, ISO 200, lens at 106mm.

Jupiter to left, Venus below, Mercury above.

Notes from the May 4th Starway to Heaven

Some 50 to 60 members and guests participated in the the May 4th Starway to Heaven at Pound Ridge. The crisp, clear night did not disappoint as seeing went from good to better as the night progressed. At least 15 scopes graced the Meadow Area parking lot. For example, Al brought his LX 200 Meade Schmidt-Cassegrain (SCT). Planning to image, Mitch brought an 85mm Stellarvue refractor on a ZEQ Ioptron mount. Dave Parmet had his C8 SCT. Besides these, other scopes helped afford viewing opportunities for the van of Fordham students who arrived as well as other guests.

Jupiter, setting in the west, was an early planetary target for most participants. It later shed this title in favor of Saturn. Dave Butler and his wife Helen brought his LX 90 8" SCT and his binocular photo machine (BIPH)--a light amplification device designed for use with telescopes and based on military night-vision technology. Dave hunted out Comet Panstarrs. Reports Dave: we saw Comet Panstarrs in a 32mm eyepiece. It was midway between two stars. It took a while for some less experienced viewers to see because the comet was faint. For the regular members it was a fairly bright deep sky object. The 32mm eyepiece showed a slight orientation but the comet was uniform in brightness so either end could have been the head. In the BIPH the comet was a bright round glow but still showed no sign of a tail.

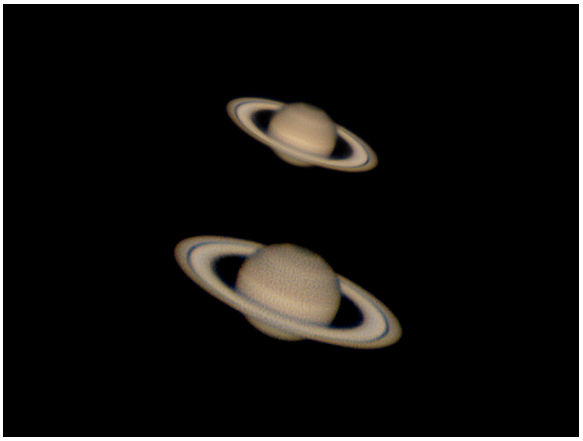
In addition to the comet, Dave showed the guests the Whirlpool galaxy (M51, a spiral galaxy) and the Cigar Galaxy (M82). Notes Dave: While looking at the Cigar Galaxy thousands on background stars could be seen, all in the 14 magnitude range--this is common with many deep sky objects. Dave also perused globular clusters M92 and M13; both in his scope and in the BIPH.

Harry used his Nexstar 5" SCT to garner a view of the Ring nebula (M57) as Lyra poked its head over the eastern horizon. Gary brought his 12.5" dob. Among the objects he observed were M81 (spiral galaxy) and M82 (the Cigar galaxy) as well as the Comet Panstarrs and the Sombrero Galaxy (M104). The advantages of aperture told in Gary's scope as he also teased out a view of M101 (a faint, extended face-on spiral galaxy).

Doug Baum used his 12.5" Obsession dob to view Jupiter at 200x. He pointed out 3 of the moons to Fordham students. Steady seeing later in the evening allowed an excellent high power view of Saturn. Doug also utilized his BIPH on the M13, M81 and the Ring nebula. The Fordham students seem particularly impressed by the view of M13--a snowball of ancient stars as seen in the BIPH.

Claudia and Kevin Parrington brought her talking telescope, an 8" Meade Lightswitch. She focused on the open cluster NGC 457 (the E.T. cluster) in Cassiopeia, Saturn, Jupiter, the Leo triplet of galaxies, the Whirlpool galaxy, the beautiful double star Alberio in Cygnus (a blue/gold pair) and M13.

Carl Lydon brought his Celestron 11" SCT and did some imaging . Below are two images he collected of Saturn while at Pound Ridge and a better image he took at the Rolnick Observatory star party, Westport, Ct.



Taken by Carl Lydon at the WAA Star Party at Pound Ridge.

Taken by Carl Lydon at the Rolnick Observatory Star Party (2 minutes and 8,000 frames, with the best 15% frames used).