



the Skyscraper

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September
2010

Amateur Astronomical Society of Rhode Island ★ 47 Peeptoad Road ★ North Scituate, Rhode Island 02857 ★ www.theSkyscrapers.org

Seagrave Memorial Observatory is open to the public

weather permitting

Saturdays 8pm - 10pm

Please note that the observatory may be inaccessible for after extended periods of heavy rain. See web site for updates.

September Meeting with Ken Slater

FRIDAY, SEPTEMBER 10, 7:30PM

SEAGRAVE MEMORIAL OBSERVATORY

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"Stellafane Then & Now", a talk by Ken Slater about The Springfield Telescope Makers and Stellafane, will cover both history and current events, and provide some insight into what the club is involved in besides presenting the well known Stellafane Convention every year.

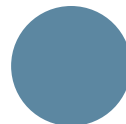
Ken Slater is a recently retired Electrical & Software Engineer who has lived in a log home in Chester, VT since retirement (Chester right next to Stellafane!). A member of the Springfield Telescope Makers since 1998, he is currently a Trustee of the club, the Stellafane Webmaster, and a Mirror Class instructor. He also enjoys hiking and backpacking, and is working to finish hiking the Appalachian Trail in New Hampshire this year.



Phases of the Moon



1



8



15



23

OTHER NOTABLE EVENTS: Mercury is at inferior conjunction on the 3rd. Mercury is at greatest western elongation (18deg) on the 19th. Jupiter & Uranus are at opposition on the 21st and are less than 1 degree apart. Autumnal Equinox is on the 22nd. Venus is at maximum illumination on the 23rd. The Moon is 1.1deg S of the Pleiades on the 28th.

Tom Thibault

President's Message

I hope everyone has been taking advantage of the incredible weather we have been enjoying this summer. We have not had a streak of warm temperatures and clear skies like this summer during the last couple of previous years. I personally have enjoyed some great views and urge all to get out and take in the sights while the good weather lasts. We in New England are a hardy bunch and will continue to view the heavens even on the coldest of nights, but nothing beats taking in the starry sky in the warmth of the summer and early fall.

We have begun the repairs and restoration of the Alvan Clark refractor under the leadership of Al Hall and anticipate it's completion for 2010's AstroAssembly in October. I extend the memberships appreciation to Al Hall and all those who have volunteered in this effort. Steve Hubbard's continued hard work in securing guest speakers has provided a great line-up and efforts to date of all the volunteers are coming together for a successful upcoming AstroAssembly. We will be looking for volunteers to assist in the preparations leading up to as well as during AstroAssembly and welcome all those who would like to help. Feel free to speak to any member of the E-Board if you would like to

assist. More details to come.

Stellafane has come and gone, and I hope that many of our members were able to attend. John Briggs and Dan Lorraine teamed up and organized a pre-Stellafane one day Moon Morphology Workshop to kick off the activities. I was unable to attend, and hope those that did will share their experiences with our members and me during the upcoming months. Gerry Dyck has written a whimsical poem on Stellafane and is featured on our Web Site. It will certainly bring a smile to those that take the time to give it a good read.

Well, it has finally arrived. The King of Planets, Jupiter, is rising early enough for all to enjoy. I have been rising in the early morning for the last couple of months to enjoy its view, which can be tough. I'm looking forward to spending many an evening in September with Jupiter in my eyepiece and hope all of you take advantage as well.

We are still accepting membership dues for 2010. If you have not yet renewed, please remit to our Treasurer, Jim Crawford. Your continued support is greatly appreciated and will insure Skyscrapers will maintain and improve our facilities during the upcoming year.



The Skyscraper is published monthly by Skyscrapers, Inc. Meetings are usually held on the first Friday of the month. Public observing is usually held every Saturday night at Seagrave Memorial Observatory, weather permitting.

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Directions

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Submissions

Submissions to The Skyscraper are always welcome. Please submit items for the newsletter no later than **September 17** to Jim Hendrickson, 1 Sunflower Circle, North Providence, RI 02911 or e-mail to jim@distantgalaxy.com.

E-mail subscriptions

To receive The Skyscraper by e-mail, send e-mail with your name and address to jim@distantgalaxy.com. Note that you will no longer receive the newsletter by postal mail.

Get Ready to Observe Jupiter

Dave Huestis

In my July column I reported that one of the main features of Jupiter, the South Equatorial Belt (SEB), was missing. For those of you not familiar with the morphology of Jupiter, this missing cloud belt is the one in which the Great Red Spot partially "resides" (it actually sits in the light-colored South Tropical Zone and "notches" into the brownish South Equatorial Belt north of it). The Spot continues unabated, but the view is quite strange compared to our "normal" view. It now appears to float within and above a deck of white ammonia clouds.

This phenomenon has occurred in the past, and the SEB eventually returned. Through an Internet service called Project Slooh, I recently (August 2) captured an image of Jupiter with the aid of a robotic telescope atop a mountain in the Canary Islands. (My tree-line has prevented me

from viewing Jupiter from my home in Pascoag at a reasonable hour.) The missing belt was quite apparent.

While some of my colleagues have been observing and imaging Jupiter since January, until recently they had to do so during the early morning hours. I know many of you too need to wait for Jupiter to show itself at a more reasonable hour of the evening. Well, now's the time to drag your telescopes out of the closet/garage/basement (or visit one of the local observatories) and focus in on the largest planet in our solar system.

Before taking a first-hand look at how Jupiter currently appears, you may wish to refresh your memory on how prominent his cloud features looked before the SEB disappeared. Here is a web site you can access: http://science.nasa.gov/media/medialibrary/2010/05/19/loststripe_strip.jpg

If you do visit an observatory, the volunteers there will find Jupiter for you. However, if you have a telescope of any size, you most definitely will want to locate and view Jupiter on your own.

On September 1, Jupiter will rise above the due east horizon around 8:08 pm here in southern New England. Most of us do not have a “dead” horizon, so you must wait some time for the planet to rise higher into the sky. By 10:00 pm Jupiter will be 20 degrees above the horizon. You can’t miss it. It will be the brightest object in the sky. The higher it rises, the better it will look through a telescope, as long as the air is clear and steady.

Each night Jupiter will rise earlier and earlier, so by the 15th of September it will rise just after 7:00 pm, and by 10:00 pm it will be 30 degrees above the horizon. Plan your observing schedule using these dates and times.

Jupiter is a very beautiful planet to observe. Though it makes its closest approach to the Earth on September 20, it will still be about 367,000,000 miles from us. Despite this vast distance, Jupiter is a large world (you could fit 1,321 Earths within its volume) so even a small telescope will show the prominent cloud bands and its four primary moons.

I’m not sure what you will notice first when you observe Jupiter through a telescope. Perhaps it will be his Galilean moons or satellites, named in honor of Galileo Galilei who first observed them on January 7, 1610.

Jupiter has four major moons (out of about 61 plus). They are named: Io, Europa, Ganymede and Callisto. Because they orbit around the planet in different paths, they are not all visible at the same time. In fact, during a rare two-hour period back in September, none of the four was visible from the Earth.

When multiple moons are present, they line up in the plane of Jupiter’s equator. As these satellites parade around Jupiter, many interesting events occur for us earth-bound astronomers to observe.

When a moon passes in front of Jupiter and casts a shadow onto the Jovian cloud tops, it is called a transit. Besides seeing the satellite’s shadow, you may also see the bright disk of the satellite traversing Jupiter’s clouds at the same time, though this event is more difficult to observe. A moon may also pass behind the planet, which is called an occultation. Jupiter’s shadow can even eclipse a satellite as well; gradually the moon



will either blink out or reappear. Also, it’s fun to watch all four moons line up on one side of the planet. I love to watch Jupiter over an extended period of time during the course of one evening because the view is dynamically changing as you watch.

Next it’s time to look at Jupiter’s disk, the ball of the planet. Even a small telescope will reveal the more prominent dark bands/belts and lighter zones in Jupiter’s cloud tops. Though the Great Red Spot (GRS), an almost four hundred year old storm, is not as red as it once was many years ago, it should be very easy to see if it has rotated into view. Why? With the SEB covered by white ammonia clouds, the darker GRS stands out in stark contrast.

So get out there under a clear September sky and hone your observing skills on Jupiter.

But don’t forget, larger telescopes await your eyes every clear Saturday night at Seagrave Memorial Observatory (<http://www.theskyscrapers.org>) on Peepoad Road in North Scituate. Be sure to check the web site for scheduled open times and cancellations before venturing out for a visit. Also, when this column was being written during early August, the renovations at Ladd Observatory (<http://www.brown.edu/Departments/Physics/Ladd/>) in Providence were still underway and the observatory remains closed. Once September arrives please check their web site frequently to look for a re-open date and time. As always there is no admission fee to either of these facilities on the public open nights.

Jupiter and a host of other fascinating astronomical objects await your gaze. Don’t let those photons go to waste!

Keep your eyes to the skies.

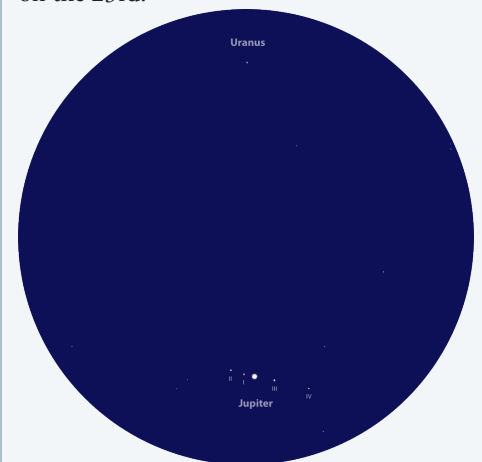
An Opportunity to Easily Locate Uranus

Jim Hendrickson

Have you ever observed Uranus? If you have, when is the last time you looked at it?

The seventh planet is usually not the first one that comes to mind when planetary observation is the topic of discussion. In all likelihood, very few observers who frequently observe the five naked-eye planets telescopically make the effort to track down Uranus at least once a year.

This month’s opposition of Jupiter provides an excellent opportunity to spot Uranus, as both planets reach opposition on the same day and are about 1 degree apart for several days before and after September 21. Uranus will be to the north of Jupiter and shining at magnitude of 5.9. Uranus’ appearance in a telescope is unmistakable, with its 6th magnitude aqua-green disk not quite resolving to a point as nearby stars do. In a low power eyepiece, both planets together, along with Jupiter’s moons should provide a stunning view. The distances to Jupiter and Uranus are 3.95 AU and 19.09 AU respectively. The waning gibbous Moon joins the alignment, 6 degrees to the north, on the 23rd.



Jupiter and Uranus as seen in a low power eyepiece (about 1°) on September 20-21. The 2 planets are separated by about 0.85 degrees and the positions of the moons of Jupiter are marked I: Io, II: Europa; III: Ganymede; IV: Callisto.

Craig Cortis A Star-Hop that *Finally* Worked!

I'm starting this piece by confessing to you that, even after nearly 20 years' involvement in amateur astronomy, there are *still* a couple of objects on the Messier list that I've not observed. No good excuses come to mind, but the number was reduced by one on the evening of Saturday, July 31. I was doing some casual observing at the home of my friend Tim Dube in East Douglas, Massachusetts; we were using his 16-inch Dobsonian reflector for viewing objects to the south. The time was roughly around midnight when I began to consider trying to locate the globular cluster M75 in eastern Sagittarius, almost on the border of Capricornus.

Several times over the past 17 years I've made unsuccessful attempts at finding M75 and have always felt that perhaps I just didn't try quite hard enough—this particular object had confounded me for no good reason, and it seemed high time to track it down. The cluster is magnitude 8.6 and about 6 arcminutes in diameter, a rather compressed and fairly conspicuous deep-sky object that *should* be easy enough to pinpoint in 6-inch scopes, let alone a 16-inch. The main problem for anyone not using a computerized scope or a mount having setting circles is finding M75 to begin with, due to its placement in a “blank” section of the sky with no bright stars anywhere nearby from which an easy star-hop can be done. The position, by the way, is RA 20h 06.1m, Dec -21° 55' and a glance at a star atlas will immediately show you why I consider this a challenging “job” for most amateurs. A magnitude 6.5 star lies 1.1° to the southwest; *this* star is one of a very wide pair oriented roughly ENE to WSW. The star at the WSW end of the pair, about ½° away, is of magnitude 6.0 and has the potential of making this wide pair show up reasonably well in a finder scope as a simple asterism by which to get within a degree away from M75. At 2.75° due east of the globular is the magnitude 5.9 star 4 Cap, but I don't think it's of much help for this star-hop. (Check a detailed atlas to see what I mean, one that shows stars to 6.5 magnitude or fainter.)

I seldom use optical finder scopes and Tim doesn't on any of his scopes—we nearly always use a red-dot, “reflex” (zero power) type for fast and easy alignment on a given point in the sky, then it's a matter of “sweeping” to a desired location by using the lowest power, widest field eyepiece available. Still, I must admit that a *good* optical finder is a huge

plus factor when star-hopping your way to any given object that isn't all that bright or prominent, particularly when using a fairly long focal length scope that simply won't permit observations at *extreme* low power even when using a 40 or 45mm eyepiece. A quality optical finder scope would've quickly enabled us to zero-in on M75, I'm sure. I started my star-hop by repeating exactly the same mistake I've made in the past, meaning that the guide stars chosen as the initial step in trying to locate the cluster are a little too far away, especially since no optical finder was involved. Also, the direction of the sightline extended through the star pattern I've traditionally used just does not work for picking up M75.

Approximately 4° to the SSE of Beta 1 Capricorni—“Dabih”, magnitude 3.1 and paired with magnitude 6.1 Beta 2 to its immediate west—lies a triangular asterism of reasonably bright, easily seen stars ranging in magnitude from 5.0 to 6.1, *each* of which is a double star. The 3 stars are, from west-to-east, 10 (Pi), 11 (Rho), and 12 (Omicron) Capricorni. Rho is a wide binocular double and the brightest in the triangle, located at its northern tip. (The magnitude 6.7 wide companion is about 250" to the SSE.) Pi is a close pair of magnitudes 5.3 and 9.0 at the west tip. Omicron, at the southern tip, is a fine pair of magnitudes 6.1 and 6.6 at an attractive separation of 22". I should mention here that Rho Cap is actually a *multiple* star. There's a magnitude 9.5 companion separated from the primary by only 1.0" and a much dimmer third star of magnitude 13 at roughly 55" away. The wide binocular companion, plus the magnitude 5.0 primary, are the only 2 stars usually seen. My hat's off to anyone who manages to split that very uneven tight pair!

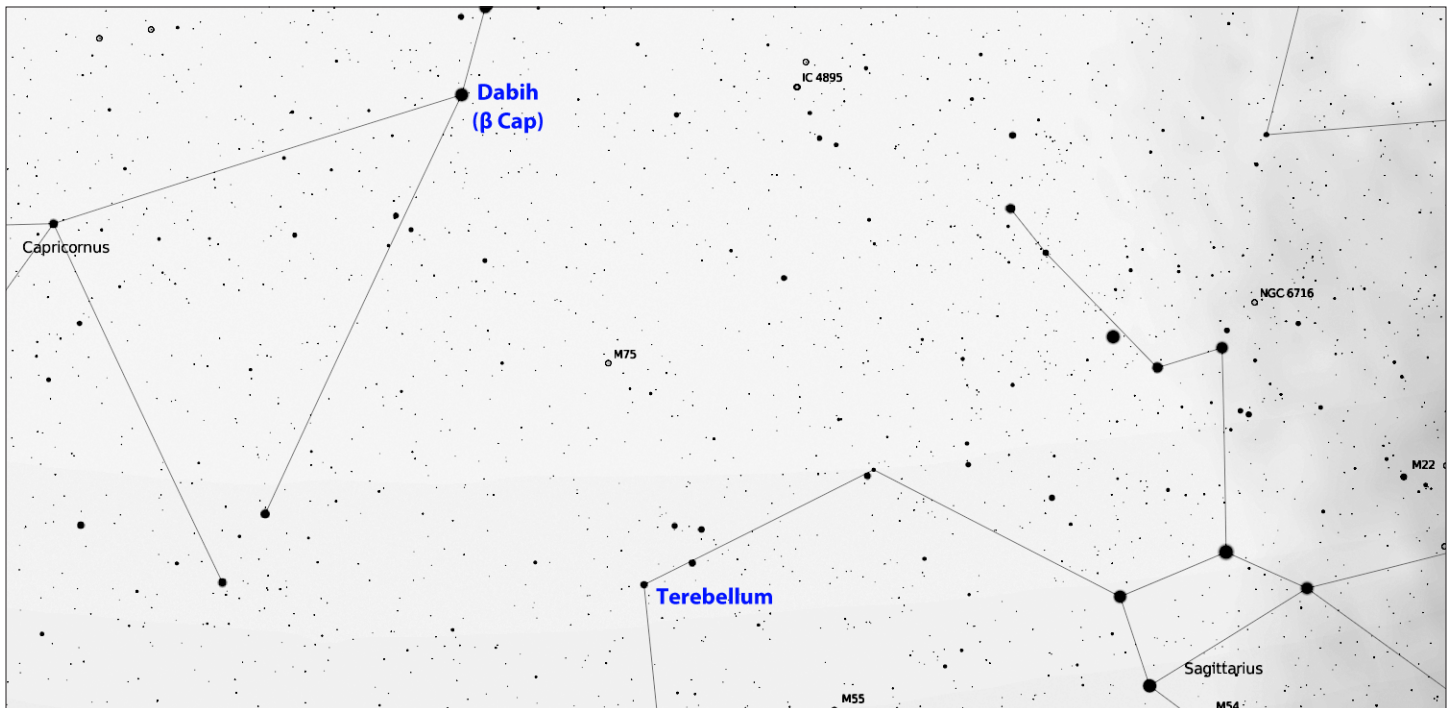
Positioned about 2.0° to the WSW of Pi (which is at the *west* tip of the triangle I've described) is yet another double star, 7 (Sigma) Capricorni, a pair of magnitudes 5.5 and 9 separated by 56". I've long thought that *this* star might be considered as the point of an arrow, with the triangular pattern to its ENE serving as the feathers. The trouble with using this arrangement of stars without benefit of a finder scope is the 2.0° separation between Sigma and Pi and the fact that my “arrow” doesn't really point southwest to M75 at all, but to a spot due north of the cluster by 2.0° or so, nearly on the ecliptic. Add to this problem the distance between Sigma Cap

and M75 (4.25°) and you can begin to see my dilemma. “Sweeping” off the triangular asterism was simply not working for me, just as it hadn't in any of my past attempts. I determined to try finding a completely *new* approach for a star-hop, but what would it be?

Whenever I reach an impasse like this, I figure it's time to take another good, hard look at a star atlas. As I scanned Tim's Sky Atlas 2000.0 back in the house under decent lamplight (red flashlights on an atlas are often too tough for me), something jumped out at me in a way I'd not noticed before, and I can't explain why—it just “clicked”, so to speak. It wasn't so much that I was unfamiliar with a certain prominent asterism of 4 fairly bright stars to the SSW of M75, the center of this group being roughly 5.25° from the globular; I'd seen this grouping many times over the years and noted the rather striking appearance in an otherwise blank region of Sagittarius. For whatever reasons, it simply never occurred to me that *this* star pattern was, in fact, nearly ideal for use in star-hopping to M75, even without a finder scope! (Look at an atlas and you'll easily see why.)

The asterism in question was noted by Ptolemy and named by him the “Terebellum”; it resembles a little kite or cross with its cross-bar (arm) skewed a bit, meaning not at a 90° right angle to the long axis. Still, the pattern formed by the 4 stars is unmistakable and quickly recognized by any observer familiar with this particular area of the sky. The long axis is not oriented due north-south *or* east-west; the “bottom” of the cross/kite is southeast of its “top” member at the northwest end, and the figure therefore is angled with respect to the southern horizon when at its culmination (transit point). The 4 stars involved are, from west-to-east, 58 (Omega) Sgr, mag 4.7; 59 Sgr, mag 4.5; 60 Sgr, mag 4.9; and 62 Sgr, which has a slightly reddish hue due to its spectral class of M4. The mean magnitude of this slightly variable star is about 4.54; 62 Sgr is also listed as V3872 Sgr. After I noted that the cross-bar/arm formed by 59 and 60 Sgr seemed to point almost directly NNE to M75, I hit upon the idea of starting my *new* star-hop to the globular by using these 2 stars as a “jumping-off” point and direction indicator, even though the cluster lies over 5.0° distant from the mid-point of 59 and 60.

We hurried back to the scope so as to take advantage of M75's fortuitous placement in a gap between a tall pine tree to the east and a



large house to the west, looking south across a side street. Our timing was perfect, because the Terebellum's cross-bar/arm happened to be oriented perpendicular to the horizon. This enabled me to slew the Dobsonian straight up in the altitude axis after centering 59 and 60 Sgr in a wide field eyepiece, with no difficulties involving simultaneous azimuth motion—no side motion at all was necessary to track north to the wide pair of magnitude

6.0 and 6.5 stars I described near the end of paragraph 2. Once I located the fainter of *these* stars, it was a quick and simple matter to navigate 1.1° northeast and there it was—after so many years, I had finally found my “missing” Messier. *This* is one of the things I enjoy most about amateur astronomy—the “trip” is often as good as (or even better than) the “destination”, particularly when you’ve managed to find a great object without the aid of

a computerized scope or a mount with setting circles. This was an evening to remember.

In closing, here's an interesting coincidence about the Terebellum asterism: 2 stars within the group are anchor points for one of the official constellation-shape outlines, as based on modern, simplified, geometric representations of the centaur-archer figure. (Not *all* charts show this line, but many do.)

Stella-this & Stella-that

Gerry Dyck

(to be read aloud for maximum effect)

When I was just a little lad I longed to go to Stellafad,
That magic spot in far Vermont - the mystic place called Stellafont,
Upon a high and breezy hill - that haven know as Stellafill.

They told me there was much to learn from amateurs at Stellafearn.
The latest gadgets, newest trends could all be seen at Stellafends.
Good friends to see, good food to eat could all be had at Stellafeat.

And so, in nineteen seventy-nine, I made a trek to Stellafine.
I pitched my tent in Houston Hollow and scanned the skies from Stellafollow.
I met the Eyepiece Guy named Al and spent a mint at Stellafal.

I listened to the Shadowgram that charmed the folks at Stellafam,
And visited the clubhouse pink atop the hill at Stellafink,
The Porter scope with tangent arm, the pride and joy of Stellafarm.

In eighty-two my solar scope was recognized at Stellafope.
In eighty-three my monster Dob was runner-up at Stellafob.
I'm happy that my Dad was there to share my pride at Stellafere.

I learned that one bloke from Quebec took many a prize at Stellafec.
I bought and sold a lot of junk by early dawn at Stellafank,
And even gave a learned talk one afternoon at Stellafalk.

One year the field was filled with dust: no joy was had at Stellafust.
Next year a never-ending shower dampened all at Stellafower.
In other years the nights were clear, restoring faith in Stellafear.

But as the years went rolling by I lost my zest for Stellafy.
The crowds grew big, the parking weird; the spirit changed at Stellafierd.
Instead of ten it cost me plenty to pass the gate at Stellafenty.

Yet now and then I have the urge for one more trip to Stellafurge,
To see if I'll revive that spell that once was cast at Stellafell.
To scan the sky for M's and V's that grace the night at Stellafees.

In closing, please forgive my song of this and that at Stellafong.
It's not th'event, it's just my age that casts a pall on Stellafage.
I hope your vigor will not wane for happy nights at Stellafane.

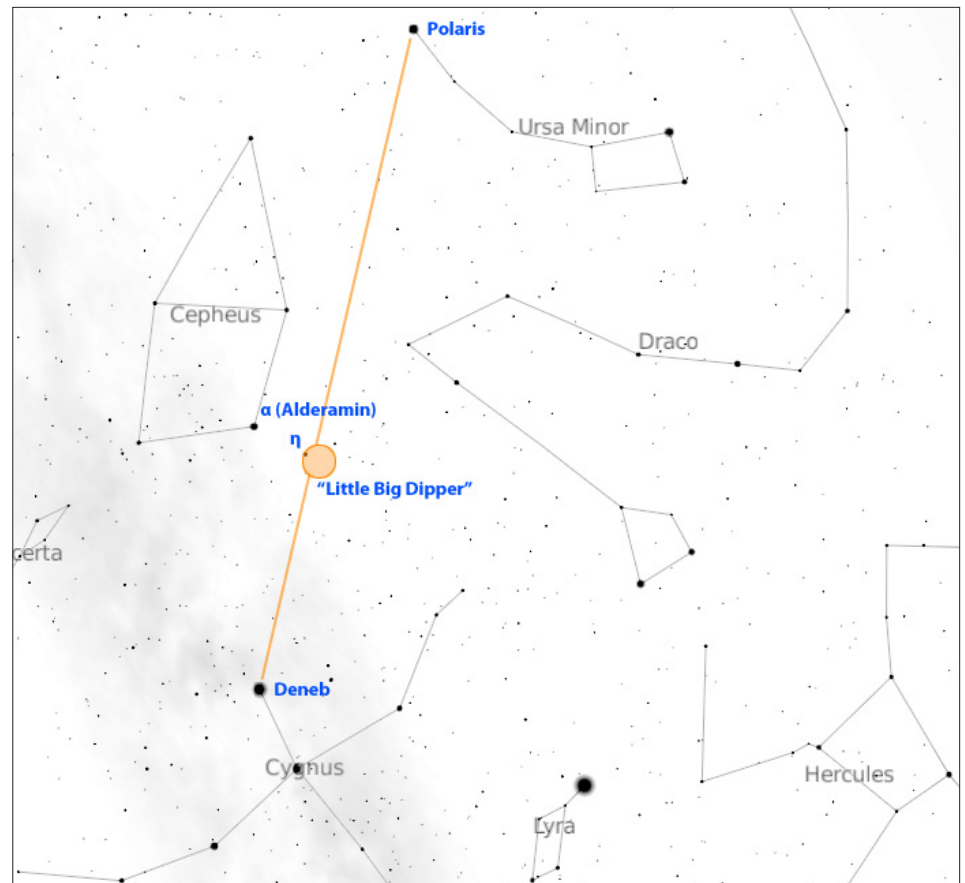
Jim Hendrickson's Small Scope Star Hop

Decades ago, amateur astronomical equipment was dominated by the humble 60mm long-focus achromat. Some time later, the trend migrated towards large aperture Dobsonians capable of pulling down the faintest of fuzzies. In recent years, the prevalence of high-quality, highly portable, and affordable 70-90mm ED refractors with relatively short focal lengths has brought back small scope astronomy. Advances in digital imaging make these telescopes very attractive to amateur astrophotographers, but they are also very useful as take-anywhere, quick setup (what has become known as “grab-and-go”) visual observing. In this segment I hope to bring attention to some off-the-beaten-path targets that are well-suited for these types of scopes. If you own one of the many models of 80mm ED refractors available, or have been thinking of reasons to get one, you may be interested in some simple observing projects that can be done even under moonlit or light polluted skies.

One object of interest lies within the constellation Cepheus and is well placed during late summer and early autumn evenings. Cepheus offers some very attractive targets for small telescopes, largely because of the constellation's position in the northern Milky Way. Its numerous star clusters and nebulae, and even a bright galaxy, have been given much attention in books and magazine articles read by deep sky observers in the past. The object I want to call attention to has no catalog number that I know of, and hence has no readily available go-to shortcut for computerized scopes (you can program your go-to scope on the coordinates RA: 28h 37' 49", Dec: +61° 6'), so the best way to get to it is an easy star hop.

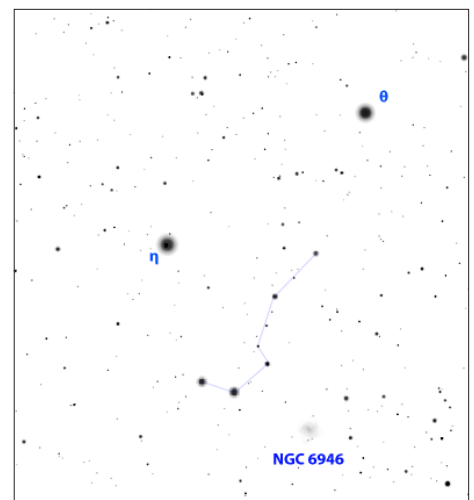
The quickest way to locate this object is to draw a line from Deneb to Polaris. Now look at about the 40% mark along this line to find Eta Cephei, a 3.4 magnitude star that lies about 4° to the west-southwest of magnitude 2.45 Alderamin (Alpha Cephei), which marks the southwest corner of the 5-star “house” asterism that distinguishes the main constellation outline of Cepheus. From Eta, nudge the scope just over a degree towards the southwest (away from Alderamin) to find a conspicuous asterism spanning approximately two degrees. This is approximately the same area of sky occupied by the Coathanger cluster (Collinder

The “Little Big Dipper”



399) in Vulpecula. It is comprised of 10 stars between magnitude 6.0 and 9.5 (and several fainter) that very closely approximates the shape of the northern sky's most famous asterism—the Big Dipper. The 2 “pointer” stars at the end of the bowl of the miniature dipper are the only stars brighter than magnitude 7, but the handle's lack of similarly bright stars is made up for by the presence of extra stars that help to reinforce its outline. The dipper is oriented such that the handle is pointed towards the northwest and the bowl dips towards the southeast. Its orientation is actually reversed from its Ursa Major counterpart, but when viewed through a refractor using a star diagonal, the orientation appears correct.

As an added bonus, this Little Big Dipper does contain a pair of pointer stars in its bowl, but this pair is the opposite pair and points in the opposite direction than those belonging to the Big Dipper. These pointers lead to the face-on spiral galaxy NGC 6946 about a degree away. The 8.9 magnitude galaxy is 11' across, making it an easy target on a dark night.



Top: The “Little Big Dipper” is an easy star hop just off of η Cep, about 40% along the line between Deneb and Polaris. **Bottom:** The asterism resembles the Big Dipper in Ursa Major and is about 2° across. An easy star hop from the “pointers” at the back of its bowl is the prominent face-on spiral galaxy NGC 6946.

Sky Notes

Francine Jackson

Now that September's here, we can all breathe a sigh of relief that the great August legend of Mars is over. Everywhere I go, and I assume you all have heard it also, the subject of the giant Mars right now takes precedence over the horoscope as the first topic of discussion. Also, have you noticed that every August Mars seems to be expanding? Originally, it was a large object visible in the evening sky; this year, it was alleged to be almost as huge as the Full Moon. Also scary is the "fact," written in bold capitals, that absolutely no one alive will ever see it again. Unfortunately, the notes didn't let

us know that no one alive saw it this year, either. Can't wait for next August.

As if we don't need another book, there's been a new, self-published primer for neophyte observers, those who just want to get their first views of the sky. Titled *The Naked-Eye Sky (No Telescope Needed)*, James Sowell introduces us not only to the night sky – some of the major constellations, the Moon and eclipses, planets, easy deep-sky objects – but also daytime phenomena, such as rainbows and sun dogs. He also gives a quick lesson on seasons, tides, relative distances, and motions. Unfortunately, there are a few

little gaffs, such as there are two (sic) types of lunar eclipses; Sirius is bright apparently only because it is nearby; the Pleiades is listed as an asterism, and is only given as a star cluster late in the book; also, it seemed strange that the author mentioned M13 when talking about Hercules, but didn't introduce M31 or show its position on the sky chart. It only has a casual mention at the end, when discussing galaxies. However, if you do know someone who wants a quick introduction to observing, this is a pretty good and fast read, and hopefully will make another person want to know more about the sky.

The Turbulent Tale of a Tiny Galaxy

By Trudy Bell and Dr. Tony Phillips



In the ultraviolet image on the left, from the Galaxy Evolution Explorer, galaxy IC 3418 leaves a turbulent star forming region in its wake. In the visible light image on the right (from the Sloan Digital Sky Survey), the wake with its new stars is not apparent.

Next time you hike in the woods, pause at a babbling stream. Watch carefully how the water flows around rocks. After piling up in curved waves on the upstream side, like the bow wave in front of a motorboat, the water speeds around the rock, spilling into a riotous, turbulent wake downstream. Lightweight leaves or grass blades can get trapped in the wake, swirling round and round in little eddy currents that collect debris.

Astronomers have found something similar happening in the turbulent wake of a tiny galaxy that is plunging into a cluster of 1,500 galaxies in the constellation Virgo. In this case, however, instead of collecting grass and leaves, eddy currents in the little galaxy's tail seem to be gathering gaseous material to make new stars.

"It's a fascinating case of turbulence

[rather than gravity] trapping the gas, allowing it to become dense enough to form stars," says Janice A. Hester of the California Institute of Technology in Pasadena.

The tell-tale galaxy, designated IC 3418, is only a hundredth the size of the Milky Way and hardly stands out in visible light images of the busy Virgo Cluster. Astronomers realized it was interesting, however, when they looked at it using NASA's Galaxy Evolution Explorer satellite. "Ultraviolet images from the Galaxy Evolution Explorer revealed a long tail filled with clusters of massive, young stars," explains Hester.

Galaxies with spectacular tails have been seen before. Usually they are behemoths—large spiral galaxies colliding with one another in the crowded environment of a busy cluster. Tidal forces during the collision pull gas and stars of all ages out of these massive

galaxies to form long tails. But in IC 3418, the tail has just young stars. No old stars.

"The lack of older stars was one tip-off that IC 3418's tail isn't tidal," says Hester. "Something else must be responsible for these stars"

Hester and eight coauthors published their findings in the June 10, 2010, issue of *The Astrophysical Journal Letters*. The team described the following scenario: IC 3418 is speeding toward the center of the Virgo cluster at 1,000 kilometers per second. The space between cluster galaxies is not empty; it is filled with a gaseous atmosphere of diffuse, hot hydrogen. Thus, like a bicyclist coasting downhill feels wind even on a calm day, IC 3418 experiences "a stiff wind" that sweeps interstellar gas right out of the little galaxy, said Hester—gas that trails far behind its galaxy in a choppy, twisting wake akin to the wake downstream of the rock in the babbling brook. Eddy currents swirling in the turbulent wake trap the gas, allowing it to become dense enough to form stars.

"Astronomers have long debated the importance of gravity vs. turbulence in star formation," Hester noted. "In IC 3418's tail, it's ALL turbulence."

To many astronomers, that's a surprising tale indeed.

See other surprising UV images from the Galaxy Evolution Explorer at <http://www.galex.caltech.edu>. Kids (and grownups) can play the challenging new Photon Pileup game at <http://spaceplace.nasa.gov/en/kids/galex/Photon/>.

Glenn Chaple's
Sky Object of the Month

The Milky Way

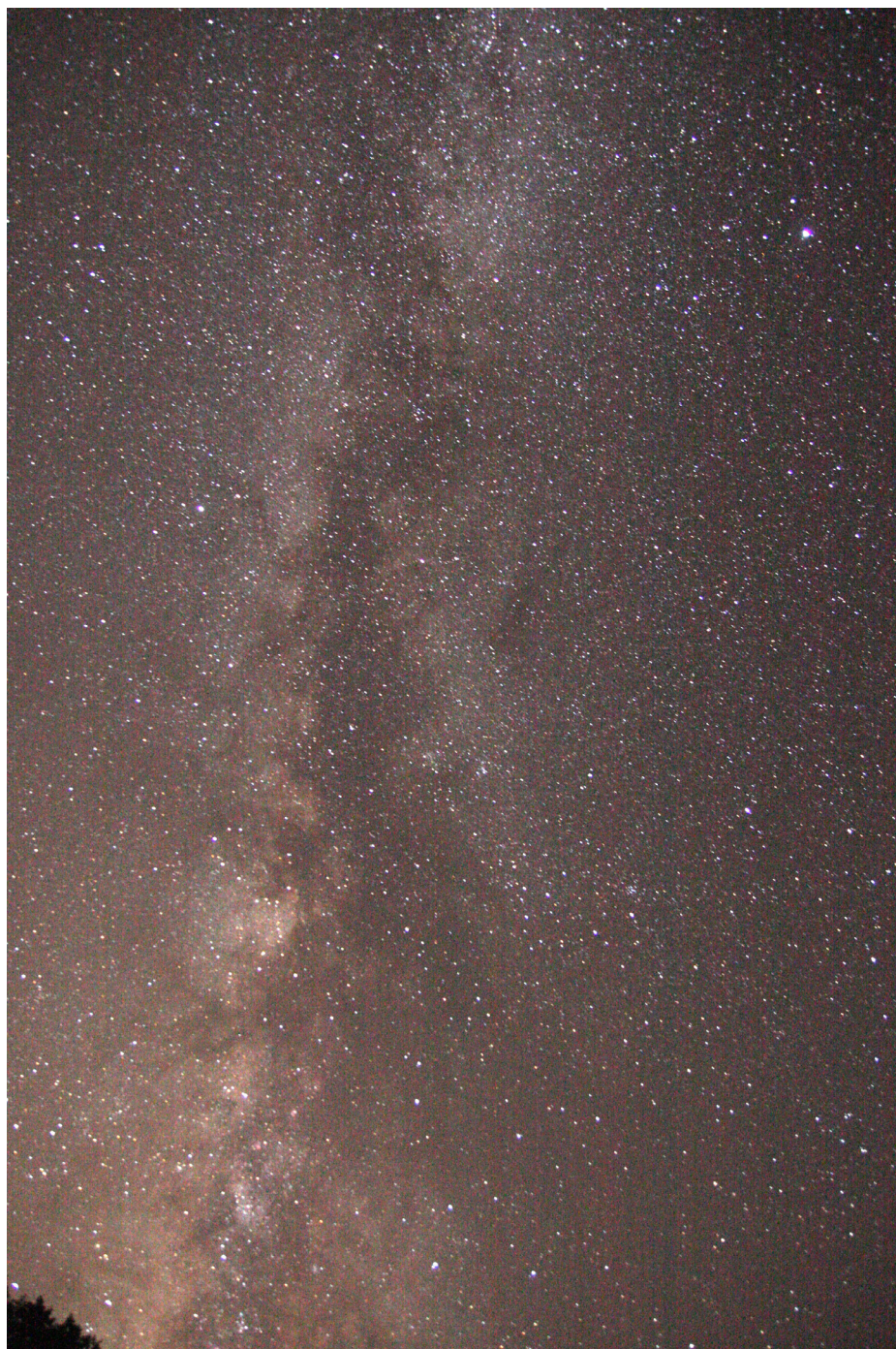
This month, we explore the galaxy most of us are familiar with – the Milky Way. Many astronomers regard the Milky Way, viewed with the unaided eye on a dark, moonless night, as the most awe-inspiring heavenly sight of all. During late summer, it arches overhead, from Cassiopeia to our north, through Cygnus above, then down to Sagittarius on the southern horizon.

Studying the Milky Way with a standard telescope is akin to exploring the Mississippi River by placing a drop of its water under a microscope. You'll do better by sailing the Milky Way with the most practical vessel possible – binoculars.

On an evening and location (preferably one that affords an open sky) where dark skies prevail, set up a reclining lawn chair or lay down a blanket. Relax and direct your binoculars towards Cassiopeia, the departure point for your "cruise." Take your time and enjoy the scenery. Maintain a course through Cygnus and onward to Sagittarius. Along the way, you'll encounter a dazzling cosmic vista – myriads of stars interspersed with an occasional cluster or nebula.

When finished, begin again. Unlike a traditional ocean cruise, this one doesn't cost a penny and the scenery is far more spectacular.

Your comments on this column are welcome. E-mail me at gchaple@hotmail.com



The Milky Way as seen from Stellafane; 28mm f/2.8. August 5, 2010 image by Jim Hendrickson from "Skyscrapers Hollow" at the southeast corner of the camping area at Stellafane.

August Reports

Ed Haskel, *Secretary*
Jim Crawford, *Treasurer*

Cash Flow

7/8/2010- 8/5/2010

INFLOWS

Cookoutinc	
Cookout Change Cash	100.00
Other Cookoutinc	390.00
TOTAL Cookoutinc	490.00
Donation	158.25
Dues	
Regular	170.00
Senior	20.00
TOTAL Dues	190.00
Magincome	
Astronomymaginc	34.00
Starparty	58.00
TOTAL INFLOWS	930.25

OUTFLOWS

Cookoutexp	314.59
Members Guide	18.59
Trusteexp	85.00
TOTAL OUTFLOWS	418.18

OVERALL TOTAL 512.07

Banking Accounts

Citizens Checking	3,956.59
Capital One	16,398.21
Total	20,354.80

EXECUTIVE COMMITTEE MEETING

WEDNESDAY, AUGUST 4, 2010

SEAGRAVE OBSERVATORY

Items Discussed:

AstroAssembly speaker slots for Saturday afternoon and Sunday are now filled, still working on Friday. Glen Jackson and Bob Horton have both agreed to give informal talks that evening. Dave H. volunteered to reprise his talk on the 150th anniversary of Seagrave's birth. Other than Bob Berman

(dinner speaker) there are no costs or fees being paid to speakers.

Caterer and facilities same as last year.

Elections: process review – how ballots sent and received, guidelines on how to do electioneering contacting – Kathy Siok to chair and produce document so everyone has clear understanding of process

Stellafane is unable to accommodate our name on some of their signage. We can accomplish our purpose by selecting a different mix of recognition options. Eboard will report actions to membership and offer proposal to the extent membership vote is required.

Observing committee should convene for 10 minutes after Aug 13 meeting

There are not enough keyholders for observing nights.

Need more members' obs nights

More members need to be trained on telescopes.

TRUSTEES – tree trimming required

Need some work sessions before astro assembly to paint trim and Clark roof waterproofing

Adjourned at 8:35pm

SKYSCRAPERS MINUTES

AUGUST 13, 2010

SEAGRAVE OBSERVATORY

Reports, no changes from floor Treasurer announced that published report does not include a 10 dollar returned check charge and has been corrected.

ASTROASSEMBLY speakers announced: Glen Jackson on recent trip to Green Bay WV, Bob Horton talk about the reconstruc-



tion of the Transit Room at Ladd Observatory, and Dave Huestis will reprise his talk about Frank Seagrave.

TRUSTEES – work continues with the sign kiosk and some miscellaneous items having to do with the Clark dome. Volunteers will be needed for yard cleanup prior to AstroAssembly. Additional keyholders are needed. The Observing Committee is

being revitalized to handle these issues and others as they arise.

THE LIBRARIAN reported that DVDs of the past two meetings are now available in the Library.

HISTORIAN DAVE HUESTIS reported on another historical moment in Skyscraper's distinguished past. Dave discovered a bill for the production of the 1957 25th Anniversary book from Boston Linotype Print for 200 copies. The minutes cannot do justice to Dave's fascinating comments about this discovery and the search for missing copies of the book. That discussion should be on the DVD of the meeting.

OLD BUSINESS: Clark Observatory repairs should be completed prior to AstroAssembly if all goes well. Moved that club provide funds up to \$3 per square foot to recover the floor of the scope room. This motion will be voted on at the next meeting.

FOR THE GOOD OF THE ORGANIZATION

Need some help at Al Hall's the next several weekends to polish brass fittings on the Clark telescope.

October 15th we will be providing observing session at the Women's Wilderness Weekend, need volunteers.

Adjourned at 9:43pm



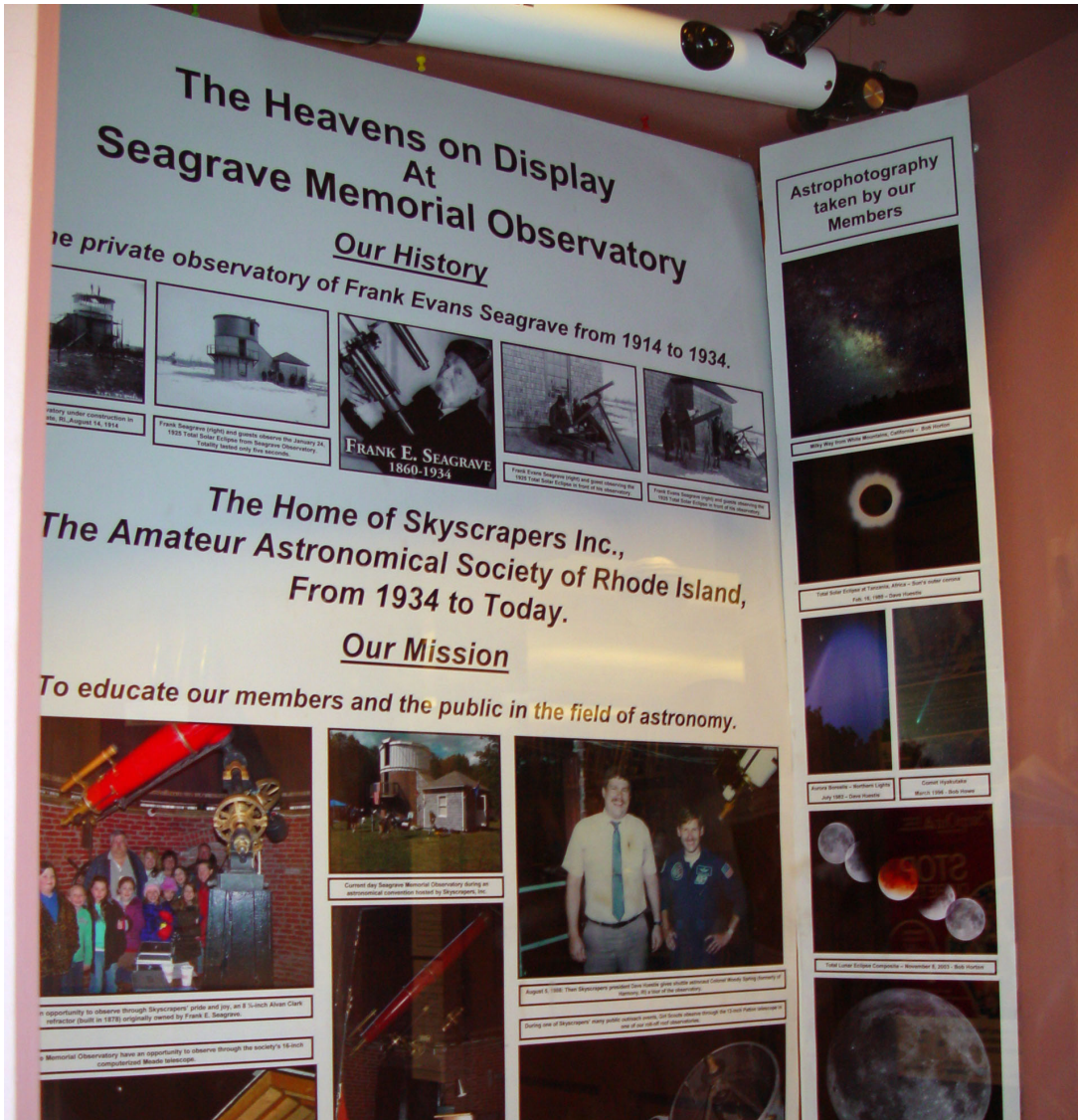
Left: Jim Crawford prepares to film the presentation at the August meeting. Right: Historian Dave Huestis reads from the 25th anniversary book. Photos by Jim Hendrickson.



M11, the Wild Duck Cluster in Scutum. Image by Jim Hendrickson, 80mm f/4.8 refractor Canon 40D from Pascoag, RI.

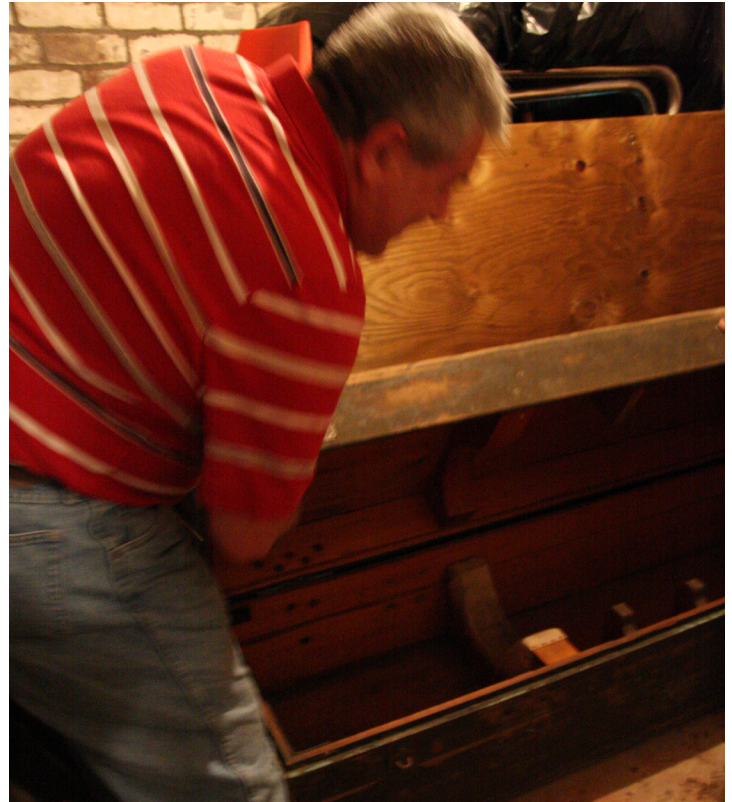


Four Day Moon. This image was taken on August 14, 2010 at the Rockland Astronomy Summer Star Party held at Shady Pines Campground in Savoy, Massachusetts. This photo was shot with a Canon XSi 12.2 Megapixel DSLR and a Meade 203SC Schmidt Cassegrain 8 inch telescope mounted on a Meade LXD75 computerized mount. Exposure was 1/30 of a second at f/10, ISO 200, daylight white balance, (true color). Photo by John Kocur.



Skyscrapers on display at the Chepachet Public Library, arranged by Penny Lesperance, created by Dave Huestis.

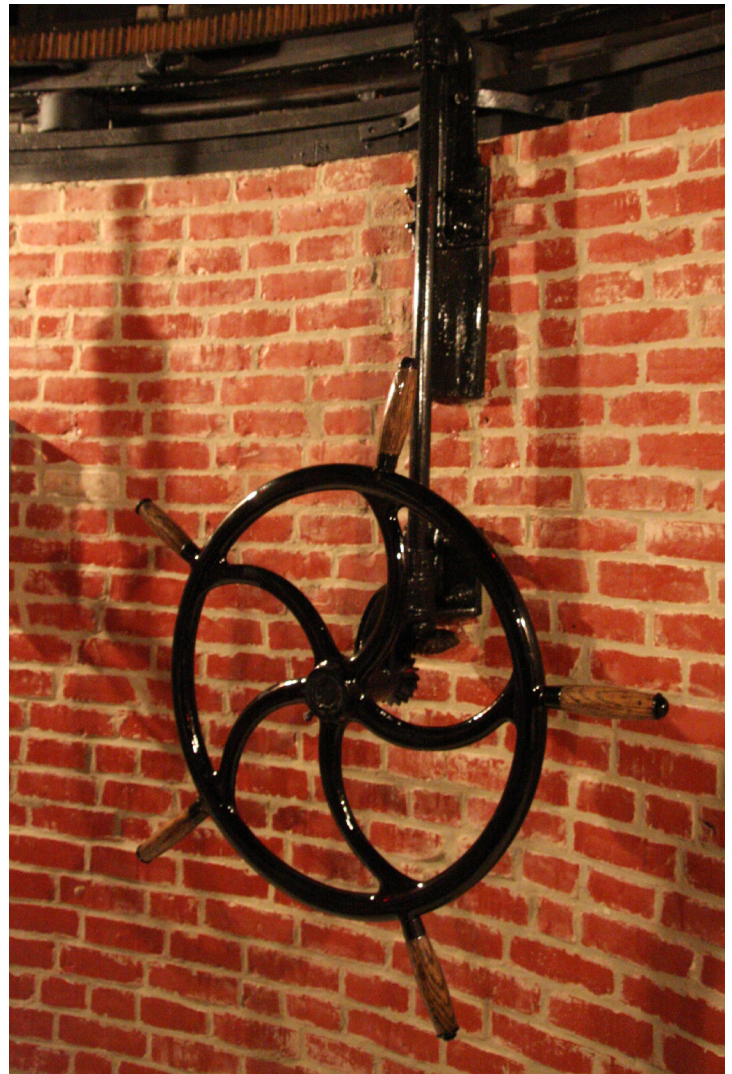
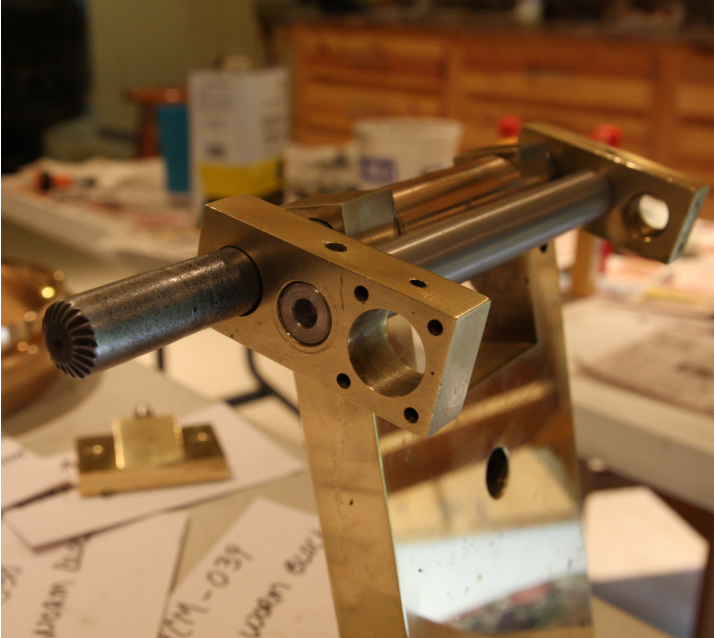




Clark Restoration Update:

Top, right: Al was curious as to what was inside the old Alvan Clark crate in the basement of the observatory, so we moved all of the junk into the anteroom to uncover it. Dick Parker, Dave Dixon, Frank Dubeau, and a couple of other onlookers watch as Al prepares to pry open the crate. "Wouldn't I feel stupid if the governor was in here," said Al. We got it open, but it was empty.

Below: During a work session on August 21, Al repaired part of the right ascension assembly by fabricating some new parts to remove the backlash and turn much smoother. Bottom right: Jim Brenek has been busy cleaning and painting the inside of the dome. Here the wheel that turns the dome looks new. Photos by Jim Hendrickson.





Skyscrapers Incorporated Presents

AstroAssembly 2010

Friday, October 1 & Saturday, October 2
at Seagrave Memorial Observatory



Todd Kozikowski

Measuring the Expansion of the Universe from the Backyard! (The Hunt for Supernovae)

Topics of Todd's talk will cover: Anatomy of a supernova and why we search for them; Selecting target galaxies based on distance, morphology, luminosity, size, and inclination; Robotic telescope setup; Demonstration of software used; Data post-processing; and reporting a discovery.



Rev. Robert Bachelder

Protecting the Outer Space Environment

Orbital space must be protected because it is a valuable natural resource, serving as home to satellites that are essential to communications, weather forecasting, Earth observation, and other activities. However, orbital space is becoming congested with debris, the results of the expanded utilization of space for scientific, commercial, and military purposes. The

2009 collision of a functioning U.S. satellite with a defunct Russian spacecraft underscores the importance of timely action to mitigate and remove debris from key orbits. It is time for humanity to enlarge its environmental perspective to encompass outer space as well as Earth.



Ruben Kier

Best Targets For Autumn Astrophotography

Ruben Kier's lecture will focus on the choice of celestial objects for astrophotography, especially objects situated for imaging during the months of October and November. In choosing targets for imaging, amateur astrophotographers should seek out compositions that inspire the viewer. For most amateurs, the object should be bright enough to

image with an average CCD camera through a backyard telescope during a single evening. The target needs to be large enough to show detail, and high enough in the sky to be captured from northern latitudes. Choosing the right target for the season, sky conditions, and equipment keeps the process of imaging a pleasure. After all, a hobby should be fun!



Bob Berman

Light and Color in the Universe

George Berkeley, for whom the town and campus were named, said, "The only thing we perceive are our perceptions." This means that the colors of the cosmos come partially from our own retinal biases. This colorful lecture, which includes demonstrations, examines the universe's "favorite" color, provides vivid demonstrations of color illusions, and makes

clear the four major quirks of human scotopic (low-light) vision upon which all astronomers rely. We'll also explore light's amazing oddities (e.g. the day sky is actually not blue but violet, most of the yellow we see is not yellow at all, but solely a mixture of green and red light, etc). While we're at it, we'll learn the only way that light is created, what it truly is, and how it delivers the electromagnetic force from distant empires.

Friday Evening Informal Talks

Contact Steve Hubbard if you would like to give a talk

A Fabulous Saturday Evening Reception followed by a
Sumptuous Catered Banquet

You must pre-register for this banquet

Raffle & Door Prizes

Name _____
Address _____
Email _____

Send completed form and check (made payable to **Skyscrapers Inc.**) to:

Steve Hubbard
AstroAssembly Registrar
45 Church Street
Auburn, MA 01501

(508) 832-8746
cstahs@yahoo.com

Registrations at \$17.00 each

Registration cost is \$17 per person through September 15. After September 15, registration cost is \$20.

Total \$ _____

Banquet tickets at \$17.00 each

Banquet tickets must be pre-ordered. No tickets will be sold the day of the event.

Total \$ _____

Total \$ _____

I would like to give a short 20-minute talk on Friday evening:

Indicate the title of your talk below. AstroAssembly registrar Steve Hubbard will contact you via email to confirm your talk.

Directions to Seagrave Memorial Observatory

From the Providence area:

Take Rt. 6 West to Interstate 295 in Johnston and proceed west on Rt. 6 to Scituate. In Scituate bear right off Rt. 6 onto Rt. 101. Turn right onto Rt. 116 North. Peeptoad Road is the first left off Rt. 116.

From Coventry/West Warwick area:

Take Rt. 116 North. Peeptoad Road is the first left after crossing Rt. 101.

From Southern Rhode Island:

Take Interstate 95 North. Exit onto Interstate 295 North in Warwick (left exit.) Exit to Rt. 6 West in Johnston. Bear right off Rt. 6 onto Rt. 101. Turn right on Rt. 116. Peeptoad Road is the first left off Rt. 116.

From Northern Rhode Island:

Take Rt. 116 South. Follow Rt. 116 thru Greenville. Turn left at Knight's Farm intersection (Rt. 116 turns left) and follow Rt. 116. Watch for Peeptoad Road on the right.

From Connecticut:

- Take Rt. 44 East to Greenville and turn right on Rt. 116 South. Turn left at Knight's Farm intersection (Rt. 116 turn left) and follow Rt. 116. Watch for Peeptoad Road on the right.
- Take Rt. 6 East toward Rhode Island; bear left on Rt. 101 East and continue to intersection with Rt. 116. Turn left; Peeptoad Road is the first left off Rt. 116.

From Massachusetts:

Take Interstate 295 South (off Interstate 95 in Attleboro). Exit onto Rt. 6 West in Johnston. Bear right off Rt. 6 onto Rt. 101. Turn right on Rt. 116. Peeptoad Road is the first left off Rt. 116.



47 Peeptoad Road
North Scituate, Rhode Island 02857