

The Spectrum

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Autumnal Equinox Edition

September/October 2007



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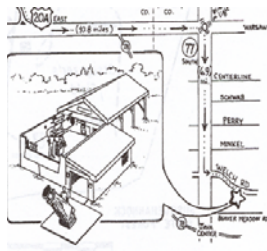
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Directions to BMO

From the Editor's Desk...

Where did the summer go? Boy it went fast didn't it? Before you know it, it will be lake effect season and we all know what that means. Let's keep a positive attitude. At least it will give our great astrophotographers time to process their data. Then we can all enjoy their wonderful photos of the night sky. We are lucky to have such great talent in our club. I don't know about you, but I thought it was a beautiful summer. As we enter autumn, remember that it is potentially a great time for astronomy; crisp clear nights that can provide great transparency. Oh I can't wait! Actually, I would have preferred another two months of summer, but I can't change physics! Actually, I could but to explain why is a theological topic that most of you folks probably don't want to get into. ☺

Also remember that it's time for monthly meetings again. They are the second Friday of every month (in case you forgot). Don't forget that we are having elections at the October meeting so come and vote!

Spectrum Submittal Request:

I would like to request that all future Spectrum submissions be submitted electronically if at all possible. If you have email, you can type the article as an email if you like. This will make it MUCH easier to put the Spectrum together and prevent tardiness. And please do not use fancy formatting. It doesn't always transfer well.

On a sad note:

The Spectrum staff would like to offer our sincerest condolences to Joe Orzechowski. Joe's father passed away just as this issue was going to press. Joe and his wife, Bev, have been longtime members and have contributed greatly to the success of the BAA. Our prayers and best wishes are with the Orzechowski family during this sad time.

BAA Officials

BAA Officers

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Location/Time of Meetings:

BAA meetings are held on the *2nd Friday of the month* from *September to June* in the *Science Building on Buffalo State College Campus*. Meetings start at *7:30 P.M.*, in the first floor auditorium near the entrance. See above web site for a map of the location. **Non-members are encouraged to attend.**

Spectrum Deadline

Articles for the next Spectrum are due by: October 26th

BAA Webmaster

Mike O'Connor

BAA Yahoo E Group

Coordinators

Dennis Hohman

Mike O'Connor

Important Announcement!

A special election will be held at our October 12th business meeting. Nominations are being accepted for the positions of club president and one at-large seat. These are the seats recently vacated. If you are interested in running or want to nominate someone else, contact the chairman of the election committee, Rowland Rupp. Nominations will close at the September 14th business meeting.

Speakers Committee Report

Hello All: This is a request for help to make the Sept & Oct topics happen.

Sept: "What I Did Last Summer". Each of n speakers gets 1/n minutes. If n is large, everyone wins. Please respond to the group. Don't be shy, we are all different, and we do different things. A short presentation might be an image you're proud of, a book/article/presentation that you found inspiring, a neat experience. Jump in!

Oct: We are inviting a panel on the topic of BAA Outreach. Since this is a family setting, I am publicly inviting on behalf of the Committee the following panelists who we know have been active this year and before: Mike Anzalone, Alan Friedman, Paul Tabor, Pat Lannon, Thom Bemus, Carl Milazzo, and one non-member who has helped us a lot-Jamie Patricola? from Science Spot. All will be contacted by a Committee member, but the surprise element isn't important. I love this idea, and not just because I suggested it. The BAA has been growing in this direction; let's celebrate BAA Outreach!

Jack Mack

Celestron C6-S Schmidt-Cassegrainian

(Something borrowed; something new)

by Larry Carlino

In the realm of Schmidt-Cassegrainian telescopes, a notable gap in the otherwise popular 6-inch range has existed since the demise of the Criterion Dynamax 6 over twenty years ago. Celestron has now rectified that oversight by introducing their C6-S SCT, resurrecting a size they briefly offered decades in the past.

The newly-introduced C6-S is the first Celestron SCT to be manufactured overseas, and it fills a void in the product line-up that promises widespread appeal because of its combination of capability, light weight, and compact dimensions. The scope is offered as an optical tube assembly alone, a mounted CG-5 equatorial version, or as a full-fledged CG Go-To with computerized acquisition and tracking. Attractively priced, these new Celestrons cost less than Maksutov-Cassegrainians of comparable aperture. But how good are they?

Certainly, this 6-incher (actually a tad less with a clear aperture of 150mm) creates a favorable first impression. The tube is finished in a very attractive and uniform gloss black, with complementary textured black cast aluminum front and rear cells adding a professional touch. The scope came in a form-fitting Styrofoam cocoon with the 1.25-inch visual back and bracket for the 6x30mm finder already attached. A gold-orange anodized CG dovetail rail runs almost the entire length of the tube for easy balancing on a host of equatorial and altazimuth mounts. Insert the matching black 6x30 finder into the bracket, and the scope is ready to go.

Strikingly small, this SCT weighed in at a mere 8.6 pounds on a produce scale with the finder and visual back attached. With a length of only 14.5", it's an obvious candidate for grab-and-go or air travel duty, as a lightweight mount is able to provide adequate support. The Celestron CG-5 mount is positively overkill, but it provides almost instantaneous damping and a set-up almost impervious to vibration and wind.

Optically, the tried-and-true Celestron formula of a short focus primary mirror and overall f/10 focal ratio has been translated into the 6-inch size. StarBright XLT coatings maximize light throughput, but a wickedly large 37.1 percent central obstruction is bigger than that of most SCT's and almost all Mak-Cass scopes. Given these parameters, I was a bit apprehensive about the instrument's performance capabilities, particularly on the planets and double stars, though the excellent Celestron 5 acquits itself well with an even larger central obstruction.

As it turns out, I need not have worried; the image quality generated by the C6 is comparable to the best SCT images I have seen with 5 and 8-inchers. The foreign manufacture of the scope seems to have retained the normally fine Celestron quality control and consistency. However, two minor problems were immediately apparent: the 1.25-inch visual back stubbornly refused to come loose when I wanted to attach a thread-on 2-inch star diagonal, and the telescope was noticeably out of collimation – running my unbroken string of 8 STRAIGHT factory-fresh misaligned SCT's to a new record! The obstinate visual back was removed with a sharp tap from a mallet, finally revealing the threads that support a myriad of Celestron, Meade, and aftermarket accessories. The Celestron 2-inch diagonal, f/6.3 focal reducer; Meade f/3.3 reducer for photography and imaging; and just about anything else, all fit nicely.

Recollimation of the C6 was no particular problem, and I imagine that Bob's Knobs to simplify the process are already available or soon will be.

PERFORMANCE TESTS

While this new Celestron has no direct competitor, the Orion 150mm, f/12 Maksutov-Cassegrainian is similar. My recent testing of the Orion scope allowed for some direct comparisons, and I could also draw upon several 4 and 5-inch APO refractors, a C5 SCT, and a 6-inch achromat

for an impromptu “shootout” under the stars.

With the C6 perfectly aligned, star testing using Polaris showed a very nicely corrected optical system. Intra and extra-focal images were nearly identical with diffraction rings close to the ideal textbook appearance expected in a highly obstructed telescope. There was no evidence of astigmatism, spherical aberration, or rough optical surfaces. I would estimate the overall correction to be on the order of 1/7 to 1/8 wave. In focus, the image of the North Star at 180x (using a Celestron zoom eyepiece) displayed a hard, sharp airy disk with a well-defined first diffraction ring. Secondary rings came and went with changes in seeing conditions, and the nearby stellar companion was a fairly bright pinpoint. Unfortunately, the image shift prevalent in many SCT’s was also the case here. Although the moving-mirror focuser was very smooth and had a solid feel, the image migrated some 20 arc-seconds in a gentle linear motion at one point in the focusing range. Certainly not too bad, but it could be better.

With Mars climbing out of the turbulent low-altitude air, the Red Planet provided an attractive target and test subject. Under average seeing conditions (5 to 6 on a 10-point scale), the planet’s disk presented a fine sight at 167x with a 9mm TeleVue Nagler Type 6. The C6 revealed the bright north polar hood, limb brightenings, and fairly good contrast between the Martian maria and surrounding light pinkish desert areas. With a #21 orange filter, contrast was further improved, and the Hesperia “gap” between Mare Cimmerium and Mare Tyrrhenum was clearly visible in moments of steady seeing. A Takahashi FS-102 fluorite APO refractor showed essentially the same level of detail, but with superior contrast and slightly less brightness at the same magnification. An Antares 6-inch, f/6.5 achromat, despite its good optical quality, fell behind the Celestron, as its contrast was compromised by a purple “wash” of chromatic aberration, though it had the ability to bear power well. The 5-inch Takahashi FS-128, as expected, decisively trumped the other scopes in both the quantity of detail visible and the ease in discerning it. No real surprises here, but the C6 certainly didn’t embarrass itself in the company of some tough competition.

With the moon just a few hours before first quarter, the telescopes were turned to our natural satellite to generate some very pleasing views. I’ve always believed that a truly good scope will provide an “I’m in orbit” experience where the optics seem to disappear. On this count, the C6 delivered. At 50x, using a 30mm Celestron Ultima eyepiece, the lunar features stood out in stark contrast with no hint of spurious color or image softness. Earthshine was easily seen even when the moon was moved about and out of the field-of-view. The telescope’s effective baffling and well-controlled light scatter made for a very impressive view. With the magnification boosted to 224x with a Meade 6.7mm UWA, the richness of the lunar terrain was startling. Even at this power, the image remained bright, and tiny details in the Hyginus rill were sharp and well-defined. The Altai Scarp loomed large and impressive, and the lunar terrain north of Eudoxus and Aristoteles took on an almost three-dimensional appearance.

A day later, the Straight Wall became visible near the terminator and displayed its subtle irregularities and the elusive Rima Birt nearby. The view was strikingly similar to that afforded by the Orion 150mm Mak-Cass at similar magnification. Initially, I had the impression that the Orion scope had slightly better contrast, but now it seems that the significantly brighter image of the Celestron gave an erroneous read. These scopes are so close in revealing lunar and planetary detail that it’s difficult to choose one over the other – both are very good.

The compact Celestron also did well in resolving multiple star systems. The classic test, Epsilon Lyrae, showed a close but clean split of all four components at just 60x with a generic 25mm Plossl. At 150x, with a similarly inexpensive 10mm Plossl, the four tight airy disks were nicely defined and surrounded with clean but prominent first diffraction rings. These rings approached invisibility in the 4 and 5-inch APO’s, but the actual resolution was no better. Interestingly, the f/10 SCT showed

almost no sensitivity to eyepiece cost or design: everything from a \$20 Kellner to a TeleVue Nagler worked well.

More challenging doubles, Zeta Aquarii and Delta Cygni were also resolved without much difficulty. The latter's faint, close companion was the greater test as mediocre seeing conditions hampered the split, but moments of steady air showed the tiny secondary just outside of the first diffraction ring with the Celestron zoom cranked close to its maximum at 180x. Though Antares is gone until next spring, I suspect that the scope will handily reveal its companion when seeing conditions are favorable.

Though larger telescopes are much preferred for deep-sky observing, the C6-S did provide some very pleasing views. The StarBright XLT coatings help a great deal here as they push light throughput to just about the maximum this design can achieve. Junk the cheap 1.25" star diagonal provided with the scope and replace it with a quality high-reflectivity 2-inch unit, and the Celestron transmits a lot of starlight with minimal loss. The consequent edge over both the Celestron 5 and Orion 150mm Mak-Cass is very noticeable on almost all objects.

Though certainly no RFT with its 1500mm effective focal length, the C6-S mated well with an Orion 2-inch, 40mm Optiluxe eyepiece. The resulting 37.5x generated an actual field-of-view of some 1.6 degrees – enough to frame the Pleiades and their soft blue nebulosity. In similar fashion, the Andromeda galaxy, M 31, spread from one end of the field to the other, enclosing both satellite galaxies and revealing a good deal of nebulosity and a hint of dark lanes. The background remained quite dark, and vignetting, if present at all, was subdued.

At 79x, using a TV 19mm Panoptic, the scope resolved M 13 to the core on a dark, transparent night; it partially resolved some of the lesser globulars such as M 2 and M 15, and dug into their cores when the power was upped to the 175x range. In comparison to the other telescopes, the C6 overwhelmed both the Celestron 5 and 4" APO in magnitude penetration. By counting stars in the beautiful Double Cluster in Perseus, I was able to determine that the C6-S provided about the same light grasp as the 5-inch Takahashi APO, and, surprisingly, almost the same as the 6-inch achromat. Stars were hard, sharp pinpoints in the SCT, but not quite the equal of the burning stellar intensity that only a high-quality APO seems to generate.

Overall, I'm very impressed with the C6-S. This is a telescope with fine optical quality, good fit and finish, and great versatility. Its compact size and light weight make it a natural for those who have limited space or who travel by air. It features enough aperture for some very satisfying deep-sky views and the resolution and contrast needed for worthwhile lunar, planetary, and double star observation. APO refractor fanatics (and I'm one of them) will still hunger for that last increment of perfection that only an unobstructed optical system can provide, but this little SCT will please many observers and imagers. Those who prefer tank-like ruggedness and relative freedom from collimation might opt for the Orion 150mm Mak-Cass – it's a good telescope as well.

As for me, the ability of the C6-S to use a light mount and to accommodate just about every SCT accessory (including the 2-inch variety) known to humankind is the clincher. And at \$699 with a CG-5 equatorial mount, it qualifies, in my opinion, as a real bargain. If they are all this good, Celestron has a worthy successor to the C5 and a real winner.

As for my example – it's a keeper.

Clear and steady skies,
Larry Carlino

BAA Annals

5 YEARS AGO - "What we did last summer" was the theme of our opening meeting for 2002. Carl Milazzo organized the presentations. In October, Joe Orzechowski spoke on variable stars. Summer nights that year were clear, resulting in large crowds for public nights at BMO. According to membership chairman Alan Friedman, several new members joined the club thanks to Astronomy Day and those clear nights.

Bill Aquino reported on the activities of HETE II orbiting observatory that localizes optical transients following gamma ray bursts. This allows astronomers at earth based observatories to study them during the brief period before they fade away. Carl Milazzo wrote about "Unsung Heroes of the BAA", many of whom were old-time members whose names are only likely to appear, from time to time, in these Annals.

10 YEARS AGO - John Allen Price, a science-fiction author, was our speaker in September 1997. He explained how he researches science facts to bring a sense of reality to his novels. The following month, Thom Bemus spoke on "The Possibility of Colonizing Mars".

Fred Price wrote about "Observations of Hale-Bopp". He made his observations from his home just outside London, which he noted is 10° north of Buffalo, making the comet correspondingly lower in his sky. Edith Geiger wrote another of her member profiles, this time about me! We also had an obituary for Ruth Christy, Darwin's wife.

15 YEARS AGO - Charlie Fassel from the Niagara Centre spoke at our first meeting of 1992. He reported on the activities of his club. Dr. David Meisel from SUNY Geneseo told us about CCD's at the following meeting. The topic was timely because the BAA was planning to add CCD equipment at BMO.

We were scheduled to host a meeting of the Niagara Frontier Council of Amateur Astronomical Associations at Buffalo State College in November. Ed Lindbergh was the coordinator. He was also the leader in forming that organization several years before. BAA president Bill Smith proposed preparing a survey to find out how to "satisfy the individual's needs and expectations".

Larry Carlino wrote "A Buyers Guide To Affordable Telescopes. One wonders how many of them remain available after fifteen years. Ed Lindbergh wrote about using a "pinhole" light source for mirror testing, noting that the size of the pinhole depends on each observer's eyes. Bill Smith reported on a variety of observations he made during the spring and summer, and Darwin Christy wrote about the English astronomer of the past, Sir James Jeans.

25 YEARS AGO - A former BAA member, Larry Hazel, gave our September 1982 talk on "Astrophotography With A Surplus Lens". Charlie Fassel was our speaker in October with "Space Exploration: Early Days to Colonize in Space". The NFCAAA was to meet in Waterloo, Canada in November. Observatory director John Riggs reported that he, Ken Biggie, Carl Milazzo and Allen Mohn replaced rotten beams in the roof structure of BMO. John was the subject of Edith Geiger's member profile. New officers were: President - Rowland Rupp, Vice President - Ken Biggie, Secretary - Ken Kimble, Treasurer - Edith Geiger.

Ed Lindbergh wrote about the limitations and variations of the human eye and his Instrument Notes. Darwin Christy's Japanese colleague, Masahiro Yamaguchi, wrote "The Brightness Of The Totally Eclipsed Moon: 1939 to 1978", in which he tested for correlation with sunspot numbers, but found it to be very weak. Darwin Christy, Carl Milazzo and Rowland Rupp gave observation reports.

35 YEARS AGO - Several BAA members opened the new year with their observations of a recent solar eclipse. Our own Walter Semerau gave a talk in October on "Recent Activity On The Sun". Walt was internationally known for the solar instruments he had made, as well as for his observations. By the way, we met at 8 p.m. in those days. New officers for 1972-1974 were: President - Darwin Christy, Vice-President - Tom Dessert, Secretary - John Riggs, Treasurer - Bob Kartyas

Our third astrophotography exhibit was scheduled to be held at the Buffalo Museum of Science starting in January and extending to February. John Riggs wrote about deep sky objects one could observe in the early fall.

Rowland A. Rupp

Buffalo Astronomical Association Members Astronomy Websites

Compiled by Tom Bakowski

- Tom Bakowski -- www.tomseyeonthesky.com
-- Wide Angle images of the sky thru the seasons, from dark skies of PA, using a dslr camera and lens.
- Thom Bemus -- www.upstateastro.org/stars/index.html
-- Astronomy resource site.
- Anthony Davoli -- www.astro.premcom.com/ADM/index.htm -- www.admaccessories.com
-- Images of deep sky objects using a Takahashi FSQ-106 and a dslr camera.
- Tristan Dilapo and Mike O'Connor -- www.orbitjetobservatory.com
-- Images of deep sky objects and transient events.
-- Tristan uses a fully robotic Meade 12" LX200 and CCD.
-- Mike uses a fully robotic Celestron 9.25", Takahashi TOA-130 and CCD.
- Alan Friedman -- www.avertedimagination.com
-- Highest resolution images of the solar system using a Astro-Physics 10" - 6,5,4" refractors.
- Mike Israel -- <http://users.adelphia.net/~armis/>
-- Images of deep sky objects using a TeleVue101 and dslr camera.
- Dr. Jack Mack -- <http://facstaff.buffalostate.edu/mackje/>
-- Astronomy resource page.
- Mark Percy -- www.williamsvillek12.org/planetarium
-- Williamsville Planetarium schedule.
- Peter Proulx -- www.gotastronomy.com -- www.ip4ap.com
-- Images of deep sky objects using a Meade 10" RCX and CCD camera.
- If you're a BAA member, and not on the club's message board, then you're missing out on communication and current events. This message archive, started in 1999, has 134 members and had over 12,130 messages!
-- http://groups.yahoo.com/group/buffalo_astro_assoc/

The Spectrum

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