

The Spectrum

Volume 11 Issue 1

Sick of Winter Edition

January/February 2009



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From the Editor's Desk...

I hope everyone had a wonderful holiday season. Was Santa good to you? Anyone get a new telescope? Santa gave me the best present ever: Love! Her name is Lois and she is the woman of my dreams! I'm sure you'll be hearing all my stories about how we met so I won't spoil it but I will tell you that she does like astronomy! ☺

We have another packed newsletter! There is a great article by Larry Carlino comparing APO refractors along with the regular stuff like the BAA Annals.

This is the last issue (at least for now) that I will have the privilege of editing. Don't worry, I'll still be around. Our new editor is my good friend, Mike Benz. I'm sure Mike will do a magnificent job. As I pass the torch to Mike, I want to thank everyone for your compliments and support, especially those members who have been generous in writing articles. You made my job very easy. Thanks!

Rick Fusani

ORION 120ED vs. ASTRO-TECH 127EDT
(Bargain-priced 5-inch APO shootout)
by Lawrence Carlino

As a confirmed refractor enthusiast, I've searched for decades in trying to find the optimum combination of aperture, optical performance, portability, and price for my "dream scope." Having gone through several dozen achromats, ED's, and APO's in apertures ranging from 60 to 152mm, I have been happy with a number of choices, but usually at significant expense. Scopes in the 4-inch range, though very impressive when well crafted, seemed to lack the necessary light grasp for deep-sky observation and high-power planetary viewing. Six-inchers, on the other hand, required a heavy mount that limited mobility and cut down on the frequency of use. Something in the 5-inch range appeared to be the best compromise.

However, unlike the ubiquitous 100-110mm scopes, the 120 to 130mm spectrum has been characteristically lacking in choices. Pity.

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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** (Except the March Dinner Mtg). 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:
February 21st

BAA Webmaster
Mike O'Connor

BAA Yahoo E Group
Coordinators
Dennis Hohman
Mike O'Connor

President's Column

I hope you have enjoyed a warm and happy holidays with family and friends. I am still digesting the astronomical amounts of good food and drink.

2009 will be an exciting year for the amateur astronomy community and we have a full schedule of events lined up on the BAA calendar. It will be a moveable feast of programs at a variety of locations. Our website <http://www.buffaloastronomy.com> is the place to look for details – here is a brief summary to help you prepare.

To follow recent tradition, our January meeting (January 9th... note the early start time of 7:00pm) will be held at Williamsville North Planetarium. Observatory Director (and BAA member) Mark Percy will present a program titled *Cosmic Journey*. Clear sky observing usually follows for those hardy enough to brave the January temperatures.

Michael O'Connor was brave enough to host our February meeting on Friday the 13th – a roundtable discussion on the Many Faces of Astro-Photography. This meeting will be held at 7:30pm at Buffalo State College.

Our annual Dinner Banquet will be held on Saturday evening, March 14th in the grand setting of Hamlin Hall at the Buffalo Museum of Science. We have two honored speaker/guests: BAA lifetime member and former Museum president Ernst Both will be joined by former student and noted physicist and author Cliff Stoll (http://en.wikipedia.org/wiki/Clifford_Stoll). This should be a wonderful evening.

The 2009 public night season at Beaver Meadow will begin on Saturday evening April 4th. This year's opening will coincide with the cornerstone project of the IYA – 100 Hours of Astronomy. Come shake out the winter cobwebs and join us at BMO.

The April meeting (Friday, April 10th) will bring us back to the Museum of Science for a public program: Telescope 101. BAA members will share a hands-on look at their personal instruments. If you have (or know of someone who has) a telescope sitting in the hall closet for want of a little know-how, this program will be one not to miss.

Astronomy Day 2009 coincides with another major event – my birthday! We will celebrate during the daytime on May 2nd at the Museum of Science and follow with nighttime observing at Beaver Meadow. Michael Anzalone will be our coordinator for this year's festivities.

Jude Sabato, will be the speaker for our meeting May 8th at Buffalo State. Jude has the honor of following the much loved professor emeritus Jack Mack as professor of astronomy at Buffalo State College.

Please stay tuned to the Spectrum and to our club website for more detail on these and other exciting programs for 2009 - the International Year of Astronomy!

Warm wishes for a very happy new year!
Alan

In the past 15 years, I've owned a Brandon 130mm triplet APO, two Vixen 130ED's (no longer produced), two Takahashi FS-128 fluorite doublets, a TMB Signature Series 130mm triplet, an APM (TMB) 130mm, f/6 triplet, an Orion 120mm ED doublet, and an Astro-Tech (Meade?) 127mm triplet. Other possibilities from Astro-Physics, Stellarvue, Pentax, William Optics, TeleVue, and Borg were either wait-listed or too expensive for consideration.

Of the telescope that I've actually owned, the Tak FS-128 has been the decisive winner in optical quality, but its long tube made mounting problematical and limited its "grab-and-go" potential. What I really needed was a scope that approached the Tak's optical quality with lighter weight and significantly lower cost.

When the Orion (Synta) 120mm ED doublet became available, I was severely tempted to try one, but estimates of theoretically less-than-optimum color correction put my desire on hold. With the recent introduction of the Orion Eon 120ED (really a gussied-up version of the original), the price of the scope dropped to \$1599, and I took the bait.

The Astro-Tech 127mm ED triplet became available in a rather unusual bit of serendipity: Originally designed to be imported under the Meade label and having suffered a long period of development and QC difficulties, a handful of these bargain APO's were brought in under the Astro-Tech banner at less than \$1700 and quickly sold out. This instrument is available in Europe as a "Meade" and in Australia as a "Maxvision" scope.

PHYSICAL PARAMETERS

The Orion 120mm ED doublet arrived as an optical tube assembly without a finder, tube rings, or star diagonal. As I already had a pair of light-weight 116mm Orion rings, a 9x50mm Celestron finder, and several 2-inch and 1.25" dielectric star diagonals, the scope could be quickly configured to fit a CG-5 equatorial or Universal Astronomics Unistar mount. With the finder slipped into the telescope's integral dovetail slot and the tube rings and Vixen-style mounting bar attached, the 120ED weighed in at a svelte 11.5 pounds. This lack of heft, combined with a tube length of 36 inches, was a real benefit in creating a nearly vibration-free set-up on both equatorial and alt-az mounts. Many 4-inch refractors are heavier.

Fit and finish of the telescope is typical of Orion products fielded from China: decent, but rather drab in a metallic dark gray finish. A friction-fit, non-retractable dew cap and single-speed Crayford focuser complete the ensemble. This focuser is no FeatherTouch, but it is reasonably smooth with a solid feel and no backlash or image shift. Certainly, the Eon 120ED that has now superseded the original version adds considerable cachet with its gloss black tube, dual-speed focuser, heavy duty tube rings, and retractable dew cap. However, as far as I can determine, the optics are identical. The same ED doublet lens is also available under the Skywatcher label in both the U.S. and Canada with different levels of trim, standard accessories, and color schemes.

The Astro-Tech 127EDT, in comparison, is a relative monster. Weighing 19 pounds with tube rings and finder attached, this triplet is a 127mm, f/7.5 set up with an efl of 950mm. With its retractable dew cap pulled in, its overall length is just 34 inches, but extending the cap fully makes it a bit longer than the Orion scope. The AT's tube is finished in an attractive gloss white: not particularly smooth or uniform, but without noticeable defects. Trim is typical "Meade blue," and a dual-speed Crayford focuser graces the back end. A very nice "chrome look" illuminated reticle 50mm finder is standard equipment as is a carrying case, 2-inch dielectric star diagonal, 20mm and 10mm wide-angle eyepieces, tube rings with a bridge for mounting accessories, and a Vixen/CG dovetail mount. The dust cap is a nicely machined thread-on unit. For \$1699, it's quite a deal.

The scope arrived in good condition and perfect collimation, save for a broken switch on the finder illuminator. This was promptly replaced by the good people at High Point Scientific – an excellent example of top-notch customer service.

Also somewhat problematical was the focusing mechanism. It created some very unsettling grinding sounds when racking in and out with the coarse focus knob, though the fine focus worked smoothly. I invested a solid two hours fiddling with the numerous recessed hex-head tensioning screws in order to get the Crayford functioning properly. When the optimum tension was finally achieved, the unit operated with a smooth, "weighty" feel, though it still had a tendency to slip when the scope was pointed near the zenith. This is one area that could use improvement.

Mounting the AT127 was no challenge, but the Unistar mount afforded marginal stability because of the telescope's weight and length. A Celestron CG-5 with its 2-inch tubular steel legs worked very nicely, however. A 2-second damping time and an overall weight allowing single-stage movement of the combination for reasonable distances was the result.

THE OPTICS

Though the 120ED is not a full 5-incher, its 4.74" clear aperture puts it pretty close. The air-spaced ED doublet objective lens uses one element of Ohara FPL-53 glass, about as close the true CaF₂ as one is likely to get. The mating element is unspecified, but it does seem to be a good choice in the elimination of chromatic aberration without resorting to a triplet design.

At f/7.5 with an efl of 900mm, the telescope SHOULD display a good deal of false color, but surprise! It doesn't. In fact, at least for visual use, spurious color is limited to a small, faint violet halo around Vega at 250x plus, and just a touch of violet on the lunar limb coupled with a barely noticeable deep red adjacent to crater shadows at the same magnification. Racking Polaris through focus, I found the extra-focal fresnel rings to be beautifully defined and concentric with the outermost ring a deep red. Inside of focus, the outer ring was a cyan cast, and the observed pattern was slightly less well defined but still close to the outer configuration. Spherical aberration and astigmatism were virtually absent. In focus, the Orion presented a tight, well-defined Airy disk with a faint concentric first diffraction ring at 150x. Only when the air became turbulent did tiny flashes of violet and red become fleetingly visible.

The AT127ED triplet has a center lens element made of an undisclosed type of ED glass, presumably something like FPL-51 in its optical characteristics. The lens is produced in China by Kunming Optical, and is ostensibly hand crafted.

This full 5-incher also star tested well, producing a yellow outer Fresnel ring and cyan inner rings with Polaris racked outside of focus. Inside of focus, the outer rim took on a cyan hue with the overall ring pattern less well defined than that of the Orion doublet. Though correction for spherical aberration and astigmatism appeared to be quite good, I believe that the Orion scope has slightly better overall correction. This proved to be true especially in regard to false color as the AT scope did display a more prominent violet halo around Vega and a very thin deep indigo on the lunar rim at 150x. Not bad at all and hardly noticeable, but not quite as good as the 120ED.

However, in-focus stellar images did serve up a very tight Airy disk and thin first diffraction ring. Fainter stars delivered the highly-desired “diamonds on black velvet” appearance that refractor enthusiasts crave.

Both of these telescopes proved to be better than the minimum “diffraction limited” criteria by a good margin.

LUNAR AND PLANETARY OBSERVATIONS

In observing the moon through several cycles in most of its phases, I found that both the Orion and Astro-Tech scopes produced startlingly clear and impressive images of the lunar surface. Because of the relatively close (but not exact) focal lengths of the instruments (900 vs. 950mm), it was difficult to generate the same magnification with eyepieces of the same type. To equalize power, I used a Celestron zoom eyepiece. However, because of the scopes’ identical f/ratios, the same ep (for example, a TeleView Nagler 7mm) provided equal image brightness, albeit at slightly different power.

At powers in the 129 – 136x range, using a TV 7mm Type 6 Nagler, the nine-day-old orb was loaded with impressive high-contrast detail in both telescopes. The tiny chains of coalesced craterlets near Copernicus stood out boldly, and the miniscule Rima Birt near the Straight Wall was actually easy to pick out. The lunar north polar areas took on a three-dimensional appearance with pure black crater shadows, and the delicate bands on the floor of Archimedes displayed marvelous detail. Both telescopes performed in almost identical fashion, with the Orion giving a slightly “harder” image, while the AT127, possibly because of its greater aperture, seemed to create a more stark “big scope” vista.

With the power bumped up to the 250x + range (TV 3.5mm Nagler), the violet color error in the AT began to show. Though the image remained wonderfully sharp, a deep indigo rim could be seen on the lunar limb with perhaps a tiny bit of deep red adjacent to crater shadows. At similar magnification, the Orion displayed more red “spillover” near the lunar shadows, but it also generated a wonderfully sharp and satisfying image.

An even better test of the telescopes’ performance was the brilliant Jupiter. Though at low altitude, its unusually close proximity to earth made for a huge, detail-rich treat. I’ve always believed that the low contrast features of the giant planet provide the ultimate test of an optical system. A poor scope will show the equatorial belts and not much else, where a good one will extract minute detail in moments of steady seeing. Both the Orion 120 and AT127EDT passed this test with flying colors.

Even at powers of 90 to 100x, both telescopes furnished images of a hard, sharp planetary disk with multiple cloud belts and excellent color rendition. Pumping up the power to 180x and 190x with a 5mm TV Nagler Type 6 created a flood of detail within the North and South Equatorial Belts and revealed a distinct Red Spot Hollow and faded pink Great Red Spot. Both scopes showed delicate festooning in the Equatorial Zone and subtle detail in the polar regions. To me (and my sharp-eyed and experienced observing buddies, Tom and Rick) it appeared that the Orion provided slightly better contrast, but the AT seemed to have superior color saturation, particularly near the Jovian poles. Go figure! Neither instrument displayed any false color.

In comparison to the legendary Takahashi FS-128, both scopes did fall a bit behind. The Tak displayed an image with zero spurious color, deadly sharp contrast, AND amazing color saturation: not vastly better than the Orion and AT, but still noticeably superior.

DOUBLE STARS

Waiting patiently for nights with reasonably steady air, I was able to assess the performance of both telescopes on a variety of challenging multiple stars.

First and foremost was the devilishly tricky Antares. With fairly decent seeing conditions, both the Orion 120ED and AT127EDT were able to separate the tiny companion from the blazing low-altitude giant. At 180x, the Orion cleanly split the pair with dark sky between. The tightness of Antares’ disk and well-defined diffraction rings made it possible to hold the image without interruption. The AT, at 190x, also separated the duo, but seemed more susceptible to changes in seeing conditions.

Epsilon Lyrae, hardly a difficult test but an accurate gauge of performance, was beautifully resolved in both telescopes. Using the Celestron zoom and a 2x Orion premium Barlow to obtain 155x with the competitors, I looked in vain for traces of inaccurate color rendition or fuzziness around the quartet of stars: Nothing but brilliant white disks surrounded by faint first diffraction rings, with the Orion 120ED being just a tiny bit sharper. Very nice.

Likewise, both scopes separated the neat triple system Iota Cassiopeiae easily and turned the tight Zeta Aquarii into two white “headlights” at 200x. Compared to the superb Tak FS-128, the low-priced pair fell only a little behind in the overall quality of the image. The Tak always seemed to create a more intense Airy disk that almost appeared to “burn” in contrast to the dark sky background. The Orion came closest to duplicating the effect, and the AT127 fell just a bit behind.

DEEP-SKY OBSERVATIONS

Obviously, medium aperture refractors are at a serious disadvantage when compared to larger dobbs and catadioptrics where deep-sky observing is concerned. Nevertheless, both the Orion and AT performed admirably on a variety of open clusters, globulars, nebulae, and galaxies. The exceptional light throughput and fine contrast created some striking images, particularly at low and moderate magnifications.

The Astro-Tech, with just 11 percent more light grasp than its smaller Orion competitor, wasn't expected to be significantly better at bringing in faint details, but I did notice a slight difference on some objects.

Using powers in the 100x to 130x range, I discovered that both scopes provided wonderful rendition of M 13, dozens of its brighter stars being resolved right across the core of the stunning globular. However, the extra aperture of the AT127 did make the resolution just a bit easier while making the use of extreme averted vision less necessary.

Likewise, M 57 easily showed its annularity in both instruments, but the nearby 13th magnitude star stood out more boldly in the Astro-Tech: A small difference, but a major improvement over the view afforded by my exceptional Tak TSA-102. The jump from 4 to 5 inches is a major one, with the 4.74" Orion and 5.00" AT both outperforming even the best 4-inch refractor where light grasp is concerned.

THE COMPETITION

Through dozens of observing sessions, numerous "A-B" comparison tests, and gleaning opinions from knowledgeable fellow observers, I've been able to rank these 5-inch telescopes with a fair degree of confidence. However, it must be remembered that the particular scopes I've used may NOT be fully representative of the entire breed. In particular, a number of the Chinese-sourced instruments were obviously defective from the start and might not provide an accurate picture of true performance.

RANK – OVERALL OPTICAL QUALITY (Visual observing)

1. Takahashi FS-128 : Superb image contrast, absolutely no spherical aberration or astigmatism. Visually, almost zero false color except for a tiny bit of violet excess around bright bluish stars at ridiculously high powers. One FS-128 just a bit better than the other.
2. Orion 120ED : Amazingly sharp and contrasty images. Very nice star test with some out-of-focus color but almost none that I can detect in focus. Great "snap to focus." Views of the moon, Saturn, and Jupe generate "Wows!" at star parties. Image brightness is reduced because of its lesser aperture, but this a VERY good telescope.
3. Astro-Tech 127EDT and APM/TMB 130, f/6 (TIE) : This shouldn't be the case, but the AT 127EDT, at one-third the price, was at least as good as the APM/TMB at revealing lunar and planetary detail, though it lagged a bit in color correction. Though the APM scope's test data showed a Strehl ratio of 95.4 and peak-to-valley correction of .212 wave, it was evidently compromised by its fast f/6 optics. For imaging purposes, it might fare better than the AT127, but visually, I have to rate it a toss-up.
4. Brandon 130mm triplet : Sharp images with just a touch of false color. Views of the planets show a noticeable yellowish cast but excellent detail.
5. ?? TMB 130mm Signature Series : The example I received had serious optical defects and had to be returned. Most reports on this scope are generally favorable, but I can't comment because of my limited experience.
6. Vixen 130mm ED doublet : Of the two Vixen 130's I've owned, one was significantly better than the other. Very good color correction for a short f/ratio (f/6.7) doublet, but some spherical aberration and evidence of zones. Not bad, but not truly satisfying.
7. Vixen 140mm Neo-achromat : On a lark, I decided to try one of these. Color correction decent but clearly an achromat. Too much spherical aberration and zonal irregularities. Sloppy planetary images with a large violet halo. Powers above about 120x got ugly on double stars. Probably a defective unit. I returned it.

IN SUMMARY

Both the Orion 120mm ED and Astro-Tech 127EDT have proven to be fine telescopes whose performance belies their reasonable cost. Though neither instrument achieves parity with the "gold standard" from Takahashi, particularly in build quality and (probably) consistency of quality control, both provide a viable alternative for those who can't mortgage the farm to obtain a premium 5-incher. There is a lot to be said for the pure value represented and the consistent satisfaction generated by both scopes.

In particular, though I found the Astro-Tech 127EDT to be an amazing instrument, the Orion 120ED has turned out to be my most often used refractor: light enough to be truly portable with optics good enough to cut like a laser through unsteady air, this scope comes perilously close to delivering a premium APO image on every class of celestial object. Now, if they'd just make a 140mm version.

Clear and steady skies,
Larry Carlino

BAA ANNALS

5 YEARS AGO - At our January meeting Janice Gardner, our perennial hostess, let us in on some of her secrets of food selection and preparation. For February we were to hear about our robotic telescope which had then been in use for several months. This topic was only "tentatively scheduled." Alan Friedman reported that the Museum of Science had inaugurated its new astronomy exhibit "Our Place in Space." The BAA had a large turnout for the dedication in late October, and later we strongly supported the Museum with lectures and help with observations for the November 8th lunar eclipse. The Museum's extensive schedule of astronomy events and talks was given in *The Spectrum*.

Rowland Rupp wrote an article about the controversy over which type of Cepheid variable star was used in making distance measurements by Shapley and Hubble early in the last century. The distances were highly dependent on the stellar type observed for the measurement, a fact unknown to the two famous astronomers at that time. Besides Edith Geiger's "Spy and Tell" and the annals, there were no other articles.

10 YEARS AGO - A planetarium show hosted jointly by Joe Orzechowski and Jack Mack was our feature for January 1999. Bob Hamilton, a meteorologist from the Buffalo office of the National Weather Service was our speaker in February. We were in need of a volunteer to share observatory director responsibilities with Neil Dennis. As of the July/August 1999 *Spectrum* the position was still "open." An amendment to the BAA bylaws made the Editor of *The Spectrum* a Board member as well.

Bill Smith wrote about choices in eyepieces, listing his own personal ones and explaining the advantages of each. Helina Biernacki wrote about the history and benefits of artificial earth satellites under the title, "Synthetic Stars." Carl Milazzo contributed an observation report on the Perseid, Leonid and Geminid meteor showers he observed in 1998.

15 YEARS AGO - Channel 4's meteorologist, Mike Cejka spoke to us in January 1994 on how solar cycles influence our weather. In February, Dr. Sevrn Zoledziowski spoke on Copernicus and why his work challenged existing theories. *The Spectrum* gave no additional information about who Dr. Zoledziowski was or where he came from. President Bill Smith asked members to send in much needed articles to *Spectrum* editor Darwin Christy. Bill had also prepared handouts about light pollution. Observatory Director Dan Marcus reported that, thanks to an additional \$1500 allocation from the Buffalo Audubon Society, the addition to the observatory was nearing completion. We used just over \$900 from these additional funds.

Bill Smith reported on his efforts to meet the "President's Challenge", a list of 100 objects that are fairly tough to view. Bill also reported on an observing session he had one morning in mid- September when the sky cleared following a rain. There was an article on eyepieces for which no author was given. I suspect this, too, was Bill's work. Still one more unsigned, brief article appeared. It was about the late nineteenth century American professional astronomer, James Keeler. I suspect Darwin Christy was responsible for this one.

25 YEARS AGO - Dr. James Birx from Canisius College was our January 1984 speaker. His topic was entitled "Eternity and Infinity: Speculations in Cosmology." Dr. Birx was a lecturer and author of science and philosophy. For February, Claudia Bielinski gave a demonstration of how astrologers cast a horoscope. Claudia was our Membership Chairman at the time. Observatory Director John Riggs noted that the 12.5-inch telescope mirror and the diagonal had been returned after being re-aluminized. He also commented that Rowland Rupp had repaired the frequency controller (clock drive) originally designed and built by Bill Deazley, and that Darwin Christy had donated an 8-inch telescope that he and his son Orrin had built and used several years before.

Rowland wrote an article on the contrasting colors of double stars. He compared his color observations to those of three authorities. He didn't agree with the authorities, but they didn't agree with one another either. There was an observation report by Michael Idem on several evenings under the stars. Darwin Christy observed the partial penumbral lunar eclipse of December 19th. He observed it differently: He designed a sensitive circuit to detect the light level and then recorded its electronic output to determine the dimming of the moon's light as the eclipse progressed. The moon's light diminished by 0.47 magnitude at mid-eclipse.

35 YEARS AGO - In January 1974, BAA member Dale Hankin spoke on astro-imaging with modest equipment. His talk encouraged me to give it a try. Several of our members were contributing articles for Dale's newly created magazine, "Modern Astronomy", which he was publishing at the time. Jack Mack spoke in February on black holes, a hot (pun) topic at the time. It was his first, though far from his last, talk to our club.

We had an article on "Spacecraft Launch Windows" by Dr. Fred West. Fred was a BAA member and a professor at Buffalo State College. Another member, also from Buff State, Dr. Fred Price, reported on the transit of Mercury (Mercury crossing the face of the sun) on November 10, 1973. He observed at the Museum's Gee Solar Observatory where the image of the sun was projected. The transit was already in progress as the sun rose. It reminds me of the similar but, I'm sure, more spectacular 2004 transit of Venus that also was first seen at sunrise. Warren Steinberg reported on the November meeting of the Instrument Section, where Gordon Rees gave a talk on the use of pitch laps in the figuring of mirrors.

Rowland A. Rupp

A Review of Astronomical Observatory Data That Relates to Dark Energy And a Demonstration of a Simulation of Dark Energy

August A. Cenkner Jr.

B.A., B.S.,

M.S., Ph.D.

Dark energy – the unidentified repulsive force that’s responsible for the acceleration of galaxies in the outer reaches of the universe – was coined after two independent teams of astronomers observed this acceleration in 1998.

A search is being conducted of the Hubble telescope database, as well as other astronomical databases, to identify any information that might be related to the identification of this dark energy. Of particular interest is any information that supports the theory that dark energy is actually the energy contained in traveling gas cloud shock waves that are associated with star explosions, etc.

This classical theory, initially proposed in Ref 1-7, is based on the results of small scale laboratory simulations in a plasma wind tunnel. The theory leads directly to a classical application of Newton’s Law of Motion and the First Law of Thermodynamics, for quantitative predictions.

The search is currently concentrating on data relating to the position and velocity of stars and galaxies, and on the reported characteristics of galaxies and other star groups, including galaxy clusters and superclusters, the local flow of galaxies, walls, voids and unusual star behavior.

Spectroscopic data is relied upon to identify stars with blue-shift spectra (moving toward earth) and red-shift spectra (moving away from earth). Complicating the interpretation of blue-shift spectra is the fact that many stars are revolving stars. For example: binary, tertiary, and multiple star groups, in addition to galaxies, revolve around their center of mass. Furthermore galaxies, in galactic clusters, revolve around their cluster center of mass. To challenge us even further, we also have to throw in the Hubble recessional velocity, which is the velocity associated with the expansion of the universe, and earth’s motion.

Current findings will be discussed, along with the implications of how these traveling shock waves can affect the future of the universe.

Finally, a time line will be suggested to show how traveling shock waves could have influenced the evolution of the universe, throughout space and time, starting with the “Big Bang” or “Rapid Expansion”.

References

- (1) Cenkner, August A. Jr., “Dark Energy Identified”, Sky and Telescope, 7/8/08, pg. 85.
- (2) Cenkner, August A. Jr., “Dark Energy – Laboratory Simulations Lead to Predictions of: Star Accelerations; Creation of Spiral Galaxies; Formation of Voids, Walls, and Clusters”, 2nd edition, ISBN 978-1-4343-0661-6 (sc), 194 pgs, Authorhouse, 8/22/07.
- (3) Cenkner, August A. Jr., “A Dark Energy Theory”, Origins of Dark Energy Conference, McMaster University, Hamilton, Ontario, Canada, 6/14/07.
- (4) Cenkner, August A. Jr., “A Dark Energy Theory Correlated With Laboratory Simulations And Astronomical Observations”, ISBN 1-4208-3447-9 (sc), 98 pgs. Authorhouse, 8/23/05.
- (5) Cenkner, August A. Jr., “Galaxies”, Buffalo Astronomical Association, Buffalo State College, Buffalo, NY, 6/12/05.
- (6) Cenkner, August A. Jr., “Universe Acceleration Predictions Using New Dark Energy Explanation”, Buffalo Astronomical Association, Buffalo State College, Buffalo NY, 7/10/04.
- (7) Cenkner, August A. Jr., "A Theory to Explain Dark Energy", The Spectrum, Buffalo Astronomical Association, Buffalo State College, Buffalo NY, 3/7/04.

College of Fellows Meeting

The annual College of Fellows meeting will be held at 7:30 PM, Thursday, January 29, 2009, at my home at 132 Burroughs Drive, Snyder. Please give me a call at 839-1842 to tell me if you are or are not coming.

I've been asked to explain what the College of Fellows is, and something about its history. It is an honorary organization within the BAA, as defined in Section 1.C of the bylaws. To qualify for membership a candidate must have been an Association member for a least ten years, have been an officer for at least two terms (four years) or have made significant contributions to the club. Also, achievements in astronomy (observational, theoretical, teaching, or in instrument making) are considered. Not all these requirements must be met by the candidate; the bylaws essentially require that two of the three be met. Finally, the candidate must be nominated by two or more Fellows. One member of the College, chosen by his or her colleagues, is also a member of the BAA's Board of Directors.

The organization was established in December 1964 when four distinguished BAA members were installed. For the record, they were Ernst Both, Rudy Buecking, Ed Lindberg and Walt Semerau. The club had already existed for more than a decade so, obviously, there must have been a revision to the bylaws that defined the newly established College of Fellows. In 1970 three more members were added: Ron Clippinger, Walt Whyman, and Dick Zygmunt. Others, including the late Edith Geiger, were installed in either the late 1970s or early 1980s.

By 1985 the ranks had somewhat thinned by death or by dropped BAA membership. Six new members, myself included, were added at that time to bolster the organization. I asked what the Fellows did and was told that they had no activities other than proposing new candidates. I suggested that we should have a meeting to see if we could think of some enterprise that would benefit the BAA or the astronomical community in general. The idea was enthusiastically endorsed by the newly inducted members, and by the older ones as well.

We met at my home and tossed around a number of ideas. Finally we arrived at the program we still use. I'm not sure who first proposed the plan, new member Ken Biggie comes to mind, but it is essentially this: The College of Fellows will meet annually to consider making an award to a BAA member or members who have recently, preferably in the last year, made some significant, and favorably recognized, contribution to astronomy that extends beyond the BAA. Contributions to the BAA are not considered - that's how one becomes a College member. Outreach to the community, a published book or paper, an innovation in instrument making are a couple of examples of the kinds of achievements that are evaluated. We don't have precise written rules about this for the clear reason that we don't wish to restrict ourselves so rigidly that we can't accommodate an unusual circumstance. The award will not be made during years when no one meets the qualifications. That way we retain a high standard for the College of Fellows Award.

Rowland A. Rupp

Buffalo Astronomical Association Members Astronomy Websites

Compiled by Tom Bakowski

- Tom Bakowski -- www.tomeyeonthesky.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://poochpa.myjalbum.net/>
-- Images of solar system and deep sky objects using a TeleVue NP101 and Meade 8" LX200GPS with a webcam or 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.
- Derrick Bill -- <http://homepages.roadrunner.com/astropics/>

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/

Thank you so very much for allowing me the privilege of serving the Buffalo Astronomical Association for 5 fun years on the board of directors and as editor of this newsletter.

God Bless You and Clear Skies!

Richard L. Fusani

The Spectrum
The Newsletter of the Buffalo Astronomical Association

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