



The Guide Star



**Mingo Creek Park
Observatory**

Newsletter of the Amateur Astronomers Association of Pittsburgh Inc.

A Section of the Academy of Science & Art of Pittsburgh

Founded June 9, 1929 by Chester B. Roe and Leo J. Scanlon

Web Site: www.3ap.org



**Nicholas E. Wagman
Observatory**

March, 2005

Vol. 39, No. 12

Eric Fischer Retires after 10 Years as Guide Star Editor!



You may notice a drop in quality in the *Guide Star* as we deal with sudden retirement of Eric Fischer. (We hope this drop in quality is temporary and not too drastic.) Eric decided to undergo major surgery to deal with a chronic illness. Another part of Eric's health program is to remove undue stress from his life—like that caused by *Guide Star* deadlines. We can all agree

that Eric has served above and beyond the call of duty for 10 years now. He was pleased to apply his professional training in journalism to turn a typical club newsletter into an informative, entertaining, online newsletter/magazine. We thank Eric for lending his skills and distinctive voice to the club all these years. We wish him a quick recovery. Perhaps he'll return to help us after a break!

March AAAP Meeting will Focus on Astrophotography

At this month's meeting, March 25th, 7:30pm at the Carnegie Science Center, Mark Arelt will be our guest speaker and will talk about the equipment and methods he uses to do his astroimaging.

With the advent of the CCD astrocamera and digital image manipulation--which have allowed amateur astroimagers to do work on par with professional observatories--one may wonder if there is any room left for the venerable art of capturing images using silver halide emulsion chemistry...film. Though apparently almost a dead art (as evidenced by the almost total lack of any amateur film images in current editions of magazines like *Sky & Telescope* and *Astronomy*), film is still a widely used and viable method of capturing astroimages. Especially when other expenses constantly prevent the astroimager of limited means from procuring that \$10,000 CCD astroimaging system his wife has convinced him he cannot afford. When combined with digital methods of image manipulation "on the back end," i.e. post development, film can be just as powerful and maybe even a bit more rewarding than "going digital" from beginning to end. So if you are would like to go digital but can't justify the expense and you still have that old SLR you've always been comfortable

with, you can still be "in the game". Come to our March meeting and find out how astroimagers can use film and other lower cost methods of imaging the heavens.

Astronomy Weekend April 2 and 3

AAAPers always help entertain the crowds at the Carnegie Science Center's Astronomy Weekend. If you have posters or photos, a demonstration or hands-on activity, or a telescope to point at the Point—we need you. We also need people willing to fill in and guard the equipment when members leave their booths to eat, visit other booths, wander around, and accomplish other necessary functions.

This year's special theme will be Saturn and the Cassini-Huygens Mission. The Science Center will have famous planetary scientist David Grinspoon, and author of *Lonely Planets*, at the event. They will also have a "teleconference" with NASA/JPL to discuss the Cassini-Huygens mission! The AAAP's own Art Glaser will present the history of Allegheny Observatory. Plans are being finalized. Check with the Science Center nearer the dates for the finalized schedule of events. Contact George Guzik (724-863-8008) if you would like to help at the Astronomy Weekend event.

Skies Clear for Wagman Winterfest!

Text and Photos by Pete Zapadka

The 12th annual Wagman Winterfest was, once again, a wonderful success, thanks mostly to all of you! What a nice turnout of the AAAP membership. Even in the mud (there was a little; not like last year) and the cold, a ton of members came to help.



We had a little more than 100 visitors this evening, many of whom were school students from North Allegheny and Plum who would not otherwise have had a chance to see the winter night sky. Several parents and students arrived early and stayed late -- one family came early, went home then returned! Even the North Allegheny teacher, Mrs. Clarke, came and stayed well into the night.

Other highlights: a mostly clear sky . . . a geology professor from Indiana University of PA that visited and decided to join the club (I remember that AAAP President George Guzik and prominent member Bill Roemer also joined because of Wagman Winterfest) . . . a man from Somerset County made the drive and had a ball . . . Brent "Hooty" Hudock, wife Deb and little Hooty were there . . . Bernie Kreiger set up his scope with video feed . . . many, many folks asked about Mingo . . . Flacc Stifel adeptly guided the Brashear 11-Inch Refractor to deep-sky delights, including Comet Machholz and the Crab Nebula . . . Tim Manka gave some of his patented enthusiastic talks to some of the students . . . Wayne Meyers, our friend who had a heart transplant, came and stayed for a while . . . there was much more.



See Page 6 for more Winterfest photos.

Hospitalization for John Close

John Close is excused for missing his first Winterfest ever. He had a mild myocardial infarction followed by triple bypass surgery. John reports, "I doing great: Almost all pain is gone, even in the leg where they obtained the new plumbing supplies . . . [Its] good to be back at the computer . . . and I should be able to make the first star party in the spring."

Welcome to the AAAP!

The AAAP welcomes these new members:

Ken Coles	Jon Grimme
Gin Gutierrez	Derek Signorini
Christopher Waters	

Get set . . . Go! to the Messier Marathon

By Tom Reiland

The best dates for a Messier Marathon this year are March 9 thru 12. I'll be at Wagman Observatory on either the 9th or the 10th to try for the umpteenth time. I can give anyone assistance if they need any help on one those nights. I can't make it on the 11th or 12th because of gigs. March 10 is New Moon and the 12th is the closest to the prime time of the year, which is from March 12 to the 19.

Here's a quick guideline to trying for over 100 to as many as 109 M objects in one night:

Get set up around sunset and be ready for the objects as the twilight fades. I start with M45 because it's easy to do while the sky is still bright. From there, I work from the southwest to the northwest horizon on up. M79 in Lepus would be my second one. From there to M77 and then to the most difficult one in the evening, M74. Next would be M33, M31, M32, and M110. I'm going to list the rest of the evening M objects in order: M34, M76, M52, M103, then back to the Southwest in Orion with M78, M42-43, followed by M41, M50, M46, M47, M93, M48, M1, M35, M36, M37, M38, M44 and M67. Now you can relax and take your time with the Spring objects in Leo, Coma Berenices, Virgo, Hydra, Canes Venatici, Ursa Major, Draco and Serpens Caput. All but six of the objects in these constellations are galaxies. Four globulars, a double star and M97, the Owl Planetary Nebula. That will give you 68 deep sky objects by around Midnight. You can take a break for a while before you go for the final 41. Get the easy ones out of the way first so that you can spend more time on the difficult morning objects. You only have clusters and nebulae to go for from this point until use finish, except for the asterism M73 in Aquarius. Your most difficult objects will be in order of location are: M54, M69, M70, M55, M75, M15, M2, M72 and M73. There's no chance for M30 until April. One important note for anyone doing this is that many of the Messier Objects in the 30's, 50's and 70's are the ones that will give you the most trouble. Go for it and good luck.

[Editor's note: You have a second chance to do the Messier Marathon on the weekend of April 8, 9, and 10. Dress for success by wearing three of everything!]

Jokes for Astronomers

What if there were no hypothetical questions?

If you ate both pasta and antipasto, would you still be hungry?

How many of you believe in telekinesis? Raise my hand...

Quantum mechanics: The dreams stuff is made of.

Observing with Animals

Are humans alone in the universe? Definitely not—we share our space with a variety of other life forms. A coyote sighting on Observatory Hill got members sharing stories of a variety of close encounters of the wild kind—at Wagman and other dark and spooky observing sites. Glen Rockwell and others assure us that the deer, coyotes, and other wildlife roaming Deer Lakes and Mingo Creek Parks won't bother us if we don't bother them. It's about mutual respect. Here are some of the more creative contributions to a listserver discussion on "observing with animals."

A Poem by Tom Reiland

Several years ago I spent many fabulous nights observing under dark skies in Greene County with many interesting creatures roaming around me. My favorite was a red fox that would circle me on most of the nights on the hilltop, barking at me. I would bark back and hoped that it wasn't a mating call. One night I found a recently killed groundhog on the path down to the farmhouse. It was partially eaten and by my last trip down the hill, it was gone.

The Fox

On star covered nights I could only hear him barking
as he circled me on this stellar observing site
marking his world
and not happy about my place in it.
I could only mockingly bark back
and laugh at myself
wondering whose life was better.

Years passed until we faced each other
When one mid-morning he strolled onto the doorstep
of this old farmhouse
Stopped
Staring, surprised, yet curious,
if only for a second,
to see a man
where seldom one stood.

Wet with dew, his legs glistened in the sunlight
his red coat
matted
and his tail trailing behind like that of a crimson comet
But before we could exchange greetings,
he bolted from sight,
Probably ashamed of his appearance.

Later that night, as I hiked back to the house,
I found his latest victim
conveniently placed on the path between the cabin
and my celestial vista,
either as a warning or a show of prowess
or just telling me that this land was as much
or maybe more his than mine.

Tom Reiland (10/27-28/94) © 2005 Music'n'at

Why You Need a Dog

By Al Paslow

I live on an acre in Bethel Park, and where my property line ends, 1999 acres of South Park begins. While observing, I've had my share of deer, raccoons, ground hogs, squirrels mice, cats, dogs, varmints, critters, owls, bats, black birds, strange children, and other experiences. (Oh those bats at sunset...!!)

My trusty observing companions over the years were two Dobermans, "Lucky" and "Honey". They were great, beautiful dogs who laid at your feet or close-by. Powerful and loyal they were simply at home being close to you.

The dogs would respond; as they should to noises in the night by growling or barking. Of course at times they would run a short distance but always returned upon command. (I think deer or a pack of raccoons spooked them the most.) Dobermans are like this -very loyal and protective.

While I never had the dogs in the country at night, they were marvelous companions to observe with at home. Being with them you would never have fear of interlopers.

Animals sense other animals, I'm sure the dog's presence was enough to "warn away" almost anything strolling out of that old park.

I have found memories of "Honey" as she observed with me the great opposition of Mars in 2003. While she didn't get a look at the planet in the telescope; I'm sure she knew what I was doing was something that made me happy.

Believe me there was many times I felt like holding her up to the eyepiece! (Who knows she may have enjoyed the moon! Hmmm . . . I wonder ---looking through the instrument where does a dog's eye focus??)

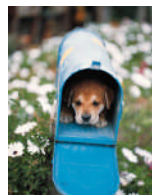
But, alas, both dogs now are gone and sadly missed.

Perhaps more of you need an "ASTRO DOG". A companion to share your observing experiences with. Its comforting, great companionship and they don't yell at you when you stroll in at 4 am. Just be careful where you step in the dark!

Excerpt from an Observing log

By Chris Genovese

M82 looks stunning, uniformly bright except for dark streaks going through it. Near M81, we find the pleasing NGC 3077 and move over to another Herschel 400 galaxy NGC 2787. We head out just before 1:00am. As I leave the park and drive up the hill, I have to brake for a stag that is standing in the middle of the road. I move the car close to him with high beams on and give a little toot of the horn. He only stands there for a while, eyeing me; then with a slight flip of his head, saunters to the other side. A rather uncompromising attitude, I'd say.



Mingo Gate Guidelines

When you enter Mingo Creek Park, please leave the gate the way you find it. For instance, if it was locked before you entered, lock it behind you. If it is closed, but not locked, leave the gate like that so others coming in behind you can open it more easily. The MCPO Committee is also developing a set of guidelines for use of the Observatory. They closely resemble the guidelines for use of Wagman. The guidelines will be published in the near future.

Mingo Activities/Job Opportunities

By Larry McHenry

We have begun to organize the Mingo Creek Park Observatory standing committees. I would like to invite any interested AAAP members to participate in one of the following committees:

Educational Activities
 Research Projects
 Telescope/Accessory Equipment
 Physical Plant
 Public Relations
 Information Technology
 Star Party Activities
 Fund-raising
 Light Pollution
 Observatory Dedication

Our first "official" star party is for the Mon Valley District of Greater Pittsburgh Council Boy Scouts of America Camporee April 15-17, 2005. We will be helping the scouts, who will be camping that weekend, with earning their astronomy merit badges. We need to have the observatory and planetarium/classroom up and running for them.

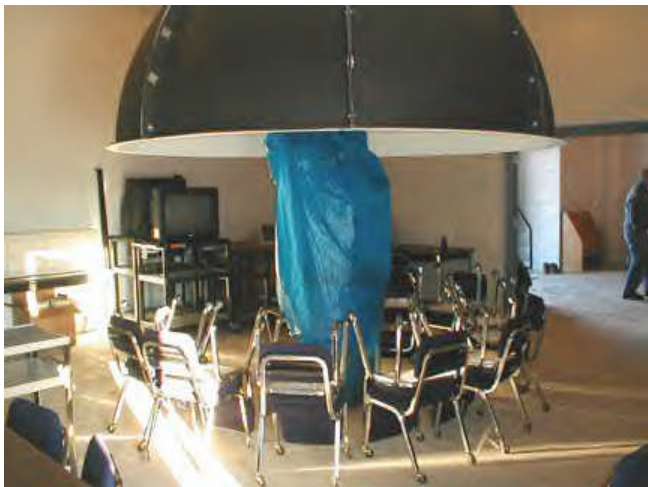
Our first public night is May 13th and 14th.

We are looking forward to an exciting first year in the new observatory. If you would like to help out, please let us know.

Mingo Gets Furniture

By Larry McHenry

I want to thank everyone for helping with the furniture move from the Old South Park High School to the new observatory.



Volunteers included Chrissie Chojnicki, Richard Frye, Dick Haddad, Mike Meteney, Ken Sacks, Michael Hruby, Gene

Kulakowski, David Smith, Ed Moss, Richard Urban, Peter Urban, and Larry McHenry.

We especially want to thank AAAP member Mark Schomer and his friend Ned for supplying the moving van. Also we owe a big thanks to Mike Meteney for getting the furniture donated to the AAAP. [The picture shows the new furniture in the planetarium.]

Telescope Purchase for Mingo

The Executive Committee recently passed a motion to purchase:

- 1) One 24-inch RC optical tube assembly and accessories from Optical Guidance Systems
- 2) One HD300 GTO mount and pier from Parallax Instruments with delivery and installation of the mount by Parallax

These purchases will be funded by the PA DCED grant the AAAP received late last year. Purchase arrangements will be made in the very near future. Delivery of the mount is expected early this summer. Delivery of the telescope is expected early next year.

Σ Amateur Astronomers Association of Pittsburgh, Inc. Σ

A section of the Academy of Science and Art of Pittsburgh

Founded June 9, 1929 by Chester B. Roe and Leo J. Scanlon

2004-2005 Officers:

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Guide Star Editor: (Retired)	Eric Fischer emfischer@switch.com	412-487-7011

AAAP Member Dues*:

AAAP Dues:	\$18.00
Junior Member (under 18):	\$13.00
<u>Sky & Telescope Magazine:</u>	Add \$33.00
<u>Astronomy Magazine:</u>	Add \$29.00

*Basic Procedure for Paying Dues:

1. Make check payable to "AAAP Inc."
2. Send check to John Holtz, Treasurer, 176 Hidden Hill Rd, Sarver, PA 16055-8907

Whither Star Trek

By Mark Arelt

UPN finally went and did what they wanted to do last season. They canceled Star Trek: Enterprise, arguably the only real quality television show they had. Why? Not enough people were watching. Especially annoying is that Paramount had the opportunity to sell Enterprise to CBS, still keeping it "in house," as both UPN and CBS are owned by Viacom, or spin it into

general syndication, as was done with both The Next Generation and Deep Space 9, where its exposure to a wider audience may have been the remedy that was needed; but they did not.

But bless them for at least allowing Enterprise to run to the end of its last full season--to give the writers and producers a chance to wrap up loose ends over the next few months and get the beginning of the Star Trek time line in order.

Forgive the rant, but I like Star Trek, darn it! I have been a Star Trek follower...O.K., a Star Trek fan, since the first time I saw that intriguing, un-spaceship-like starship swoosh past the camera back in September of 1966. Can any of us really remember how truly unique it was (both ship and show)? And while much of what has been filmed under the auspices of the franchise since then has been mediocre-to-good television some of it has been VERY good television--oases in the television dessert. Among the nearly 700 shows produced, are some of the best examples of episodic television production of any genre.

I don't think any set of television series have been as dedicated to a single vision as has Star Trek. That vision was, of course, the brainchild of Gene Roddenberry. His dream was of an adult-oriented, "thinking man's" work of speculative fiction set in the not-too-distant future—a future in which all races, genders, creeds and xenotypes work together to further individual and corporate enlightenment and good will. His story was set against the background of the grandeur of humanity's exploration of the galaxy--an exploration that saw good times and bad times, fast friends and murderous enemies, tragedy and comedy. In short, Star Trek has a larger-than-life, "mythic" quality about it--some have even called it "operatic"-- that more mundane shows lack.

But Star Trek also brazenly attempts to be a morality play. Through the better episodes, we are invited to hold up to scrutiny some of our closely held beliefs, or at least be persuaded that those beliefs may not be as monolithic as we had thought. When was the last time a television show challenged your perception of the world in such a mythic fashion? Many law-and-order type shows do, but not in such a grand manner. While I may not cotton to the full depth of Mr. Roddenberry's vision--it seems too simplistically humanistic in my experience--I still appreciate the challenge. In the last few years Enterprise has caused me to think a little more deeply about such important issues as stem cell research, cloning for organ harvest and our national reaction to fanatical terrorism. All important and timely issues.

Sure, sometimes this morality play comes across as clumsily "preachy" or pedantic. Only so much can be crammed into a one-hour-a-week format. But those involved in producing the show obviously love what they are doing. It is high art for them to be able to craft a set of shows of such consistent vision and lofty caliber even when they often fall short of their goal. As Patrick Stewart once said of their efforts "There is one word that describes us at our best and at our worst, and that word is 'worthy.'"

It's sad to see something that is worthy go the way of the dinosaur. However, the recent evidence indicates that dinosaurs did not go extinct; they simply flew away. Perhaps Star Trek can reemerge in some mutant form just as birds emerged from the theropod dinosaurs. There is certainly a thriving fan-based and semi-professional film and online video industry dedicated to it.

(If you have a broadband, high-speed Internet hookup please check out www.newvoyages.com.) And who knows? Some turn of events may yet save Enterprise. (For more info go to www.saveenterprise.com.)

Some have argued that the whole Star Trek phenomenon has been losing steam (or venting warp-drive plasma?) for a number of years now. This may be so; or maybe we've just come to take it for granted.

So what will become of Star Trek? The dream and vision of Gene Roddenberry and Rick Berman and many others, their gift to us through the medium of television lived out in five (six if you count the animated series) incarnations, is truly mythic and universal. We can't help but return to it someday when we come to ourselves again. "Whither Star Trek? It really doesn't matter. We have its legacy...all we have to do is use it." *

*Stephen E. Whitfield's and Gene Roddenberry's The Making Of Star Trek, 1968

A Cold, Clear Night

By Chris Genovese

It's almost inhuman what the human body can withstand.

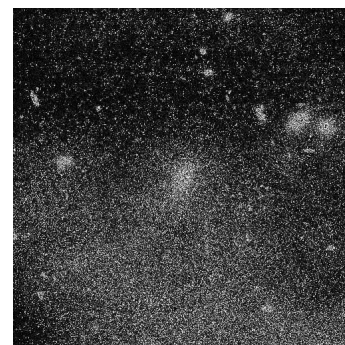
Harry Houdini acclimatized himself to cold with regular soaks in a bathtub full of ice water. Inuit hunters and Norwegian fishermen regularly go gloveless as they work in sub-zero cold, blasting winds, and frigid seas. Yet their hands don't freeze because of

periodic surges of warm blood through surface capillaries – known as the "Hunter's Response" -- that can raise their skin temperature by more than 15 degrees.

As I pull into Wagman at 8:00 pm, the temperature is in the low 20's and dropping. The wind is whipping hard from the south. To avoid arriving at the gate a sweaty mess, I've driven without my outer layers; so when I step out of the car, I must scramble to put them on. The icy wind hitting my skin leads to a response alright, but rather than the "Hunter's response" I have the less-than-ideal "guy-who-sits-typing-at-a-keyboard-all-day response."

What genetics and freakish mutant powers won't do for me, clothing must. By the time I'm dressed, I have attained roughly the size and shape of the Michelin man. Feet: polypro sock liners, wool socks, fleece socks, and insulated boots.

Legs: two pairs of long underwear, wind pants, and trail pants. Torso: two layers of long underwear, moisture-wicking shirt, synthetic sweatshirt, heavy Polartec sweatshirt, vest, and a winter jacket. Head: fleece neck covering; insulated and hooded "head sokz" which covers my head, neck, and shoulders; my favorite hat with ear covers, and my jacket hood. Only my nose, mouth, and right eye are exposed. On my hands, I have glove liners and warm mittens, but whenever I need to adjust this or that, the mittens come off and my fingertips get colder. A bag of glove warmers in the car gives me a psychological edge, but by



morning, my fingertips will be cracked and bleeding. Otherwise, I am toasty warm.

I start out in Cassiopeia, hoping to finish off the Herschel 400 open clusters there that I had previously neglected.

About this time, Jeff Kearns shows up, earlier than expected from his evening appointment. He sees the wind blowing me and my charts around and feels the wind chill. "We should move to the north side," he says. I resist at first, though I know he's right.

I get a nice view of Saturn and five of its moons. Titan is clear and bright some distance off (15'-20'?) from Saturn. The other five moons [Tethys, Enceladus, Rhea, and Dione] are scattered in a loose arc around the planet. Seeing and transparency both are improving noticeably

I think of Leo as a spring constellation, but it's well placed already. We start with NGC 2903, a large and bright elliptical smudge that is easy to find off lambda Leonis. Next, we move northward into Leo Minor, a constellation that I have seen on star charts but never actually looked at intentionally. Jeff and I stare upward for a while, trying to decide what's what. Eventually, we begin to see the constellation clearly. Neat. In keeping with its name, Leo Minor has many galaxies that are quite small and dim but which show up pretty well because of high surface brightness. For lack of a better term, I'll call these minor gem galaxies.

I continue in Sextans, finding the superb pair NGC 3166 and NGC 3169 (add 'em to the list). I star hop up to NGC 2974, which is detectable with direct vision. There's something strange. Compared to my charts, there's a star "in" the galaxy that is brighter than it should be. Three cycles of "Could it be" ... "Nah" follow in my head before I mention it to Jeff. "I'm not saying it is a supernova, but it would be foolish to ignore this." We look up the galaxy in some of our books and eventually find a picture -- the bright star is there. Oh, well.

I'm getting tired now but not enough to stop. Jeff and I have a list of allowable reasons to stop and being tired is not on it. (Rain, sun, and volcanic activity top the list.) As Bootes, Coma Berenices, and Virgo rise higher, I romp through Messier and other prominent objects, including M53, M101, M51, M94, and M63. Haze is building to the south and a few clouds pass by. Finally, list or no list, Jeff and I decide to quit for the night. I close things off with a nice view of Jupiter. It's hard to leave with clear skies above, but I have to get to work early. We lock up the gate and head down the hill just after 4:00 am.

They say that judgment is the first thing to go in the cold. As the body's core gets chilled, brain metabolism slows as you slip toward a befuddled hypothermic state. If it continues too far, hallucinations and cognitive deficits follow. People in the deepest throes of hypothermia, just before losing consciousness for the last time, will often rip off their own clothes, a phenomenon called paradoxical undressing. The cause is still unknown but some researchers have concluded that a sudden release of constricted blood vessels near the end produces a sensation of extreme heat.

As I head down the hill through Deer Lakes Park, I put the heat on medium and remove a few layers. (No ripping!) Near the park exit, a deer jumps out across the road right in front of me. It's

close, but I swerve quickly to avoid it. Hah! Cold or no, the kid's still got it.

More Winterfest Photos!

By Pete Zapadka












TNX1E6

By George Guzik

"Thanks a Million" to Ann Norman and to Cathy Rivi for their extra effort on this "interim" issue of the *Guide Star*. We'll introduce a new *Guide Star* Editor in the very near future.

MARCH 2005

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
		1	2	3 	4	5 
6	7 Spring is when you feel like whistling even with a shoe full of slush. ~Doug Larson	8	9 Messier Marathon time! March 9 through 12	10 	11 Messier Marathon	12 Messier Marathon
13	14 	15	16 	17 	18 Free AO Lecture (RSVP required) See below	19
20 Vernal Equinox 7:34 a.m. EST Palm Sunday	21	22	23	24 ...	25 AAAP Meeting 7:30 PM Carnegie Science 	26
27 Easter Sunday	28	29	30 	31	Let the Messier Madness begin! March 9 through 12 is the best time for viewing.	

<p>March 18. Lecture: Prof. Jeff Peterson, CMU, "The Cosmic Microwave Background". Allegheny Observatory. Free but registration required. 7 p.m. Sponsored by University of Pittsburgh (412)-321-2400. Looking ahead: Astronomy Weekend April 2-3. Carnegie Science Center First Wagman Observatory Star Parties of the New Year: April 15 and 16, 2005 Moon phases are based on Eastern Standard Time.</p>	<p style="text-align: center;"><u>AAAP Long-Range Meeting Schedule</u></p> <p>Apr. 22, 2005 May 20, 2005 Summer Break</p>
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Classifieds

FOR SALE: Classic 3" Brashear Refractor. Contact Tom Killorin (Seattle). E-mail k.plus@comcast.com. Phone: 425-629-2755 (day): 206 363-3444 (eve.)

FOR SALE: Orion ED80. Perfect condition, although the focuser is a bit loose. Focal ratio: f/7.5. Focal length: 600mm. New price: ~\$500 + shipping. YOUR PRICE: \$425 + shipping. Also: Pair of 80mm Losmandy dovetail-mounted guidescope rings. \$50. They won't fit the ED80. Can purchase 125mm rings for an additional cost. Contact Howie Silberg at howie@hmspgh.com.

FOR SALE: NexStar GT Series 80GT. Great starter scope; easy to use. Asking \$300 for scope and accessory kit. View specifications at:

http://www.celestron.com/prod_pgs/tel/nx80gt.htm

http://www.celestron.com/prod_pgs/accessories/kits_accessories.htm

E-mail yakbls@gmail.com.

FOR SALE: 10" Schmidt Cassegrain. Used once. LX-50 with heavy-duty tripod and case. Upgraded to Magellan 2 computer corrector system. Extras: solar filter and 3 color filter sets. 4 filters per set. Paid \$3400. Asking \$1500. Contact Todd Holtz at (412) 901-7566 (cell) or (724) 444-1093 (home). E-mail holtz@nauticom.net

FOR SALE: 8" Celestron. Good condition. Seldom used. Paid \$1,500. Best offer over \$1,000. Call Mike Brown at 412-563-6702.

FOR SALE: Eyepieces. 16mm Televue Nagler, Type II – fits 1 ¼" & 2" focusers 9mm Televue Nagler – fits 1 ¼" & 2" focusers. Celestron 2x Barlow lens 1 ¼". Package price available. Contact Brent Hudock at hooty@atlanticbb.net.

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