Mingo Creek Park Observatory

The Guide Star

Newsletter of the Amateur Astronomers Association of Pittsburgh, Inc.

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

Website: 3ap.org

Nicholas E. Wagman Observatory

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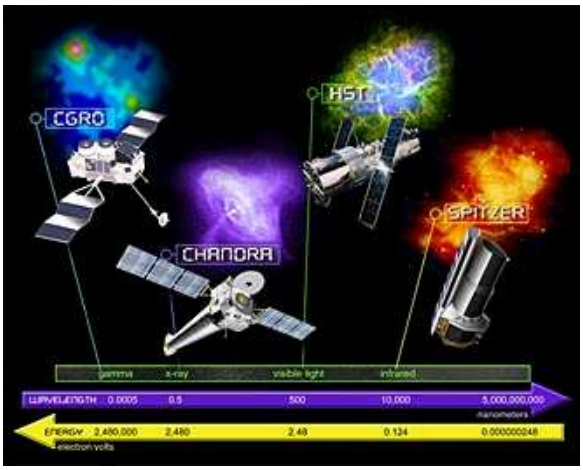
INSIDE THIS ISSUE:

New Buhl Planetarium Projector like a Giant Playstation 3!

By Ann Norman



This high-definition, all-dome capabilities of the Buhl Planetarium's newly purchased Skyscan Digital 2 planetarium projector will be demonstrated at the January 12th AAAP Meeting (7:30 at the Carnegie Science Center) in a show titled "*Windows to the Universe*". This new show will focus on NASA's four great observatories: the Hubble Space Telescope, the Compton Gamma Ray Observatory, the Chandra X-ray Observatory, and the Spitzer Space Telescope. Expect 3D, Playstation 3–like thrills and excitement. (Please meet at the main auditorium as usual—we will move to the planetarium after the break).

Last year some of the AAAP officers were invited to a demonstration of the projector, in an event designed to woo potential sponsors. Like the sponsors, we were sold! My honest opinion of this system: it can't get any better than this.

The stars are represented accurately, including colors and relative magnitude. The projector operators can even make them sparkle! This thing performs like your kids' favorite gaming system—except the action totally surrounds you. They say that further updates will only involve software; the hardware is—well—perfect.

To appreciate how far we've come, I looked back at an article I wrote for the March 2003 Guide Star. The article compares the planetarium's then-new digital projector to the old Zeiss II optical mechanical projector that it replaced:

[The Buhl Planetarium's] new projector [in 2003], the Digistar, is pretty cool. The Digistar has the position of 9,000 stars . . .,which can be viewed from any perspective—Earth, Mars, Betelgeuse—or time period, taking into account the proper motion of individual stars. One can view the radio sky at 30 MHz, or the sky in any other part of the electromagnetic spectrum; program in wire-line architectural drawings and have the audience "walk through"; add a three dimensional object—say a satellite—and have it float and turn in the sky. For fun, the programmer can have the audience zoom through a wormhole, watch fractal patterns evolve, or fly through a star field. The kids of 1999 are thrilled. The simulated motion is so convincing that some of the youngest viewers fear they have been blasted into space.

Still . . . those of us over twenty-five might feel a tiny twinge of disappointment. Didn't those simulated stars used to be crisper? Why are all the stars in Orion the same color—and why are they greenish-white?

. . . [Planetarium Director, John Radzilowicz, assures me that] the next wave of laser projectors, due in 2004 or 2005, will surpass today's optical mechanical projectors in every way . . .

Could it be that . . . more goodies are coming to Pittsburgh's amateur astronomers? In a separate interview I asked John Radzilowicz whether we might be getting the next model of Digistar—the one whose images will far surpass our memories of the Zeiss II sky. John beams and looks about to burst, "No . . . well . . . I better not say anything".

At January's AAAP Meeting (Saturday the 12th,7:30 at the Carnegie Science Center) we'll get to see a demonstration of the capabilities of the newly purchased planetarium projector. Googling I found this informative Post Gazette article from September. (I was tempted to steal the great picture for Guide Star but I didn't.)
http://www.post-gazette.com/pg/06271/725698-53.stm

A message from the Treasurer of the AAAP

By Mike Meteney

By the time you read this message you should have received your invoice for the payment that needs to be made to bring all memberships and subscriptions to the same anniversary date. All memberships will expire on December 31 each year, and subscriptions will expire with the March issue. This way we can publish renewal forms in the Guide Star. This will save future printing and postage expenses.

Please remember to return your completed invoice with your payment as early as possible, but no later than January 31, 2007. You may give me completed invoices and checks at the January meeting.

Speaking of expenses, I have included a report of income and expenses for 2006. Printing and postage has become a major expense for the association. If you look at the outflow column in my summary report, you will notice the cost of printing and mailing the Guide Star. You will also notice the expense incurred by the membership officer. These costs are for printing and mailing the reminder notices, renewal cards, and membership cards. By going to an annual common anniversary date for memberships and subscriptions, these costs will be eliminated.

In 2007 we will be looking at various ways to reduce operating costs. Remember, the less money we spend on operational expenses, the more money we have to spend on the observatories and programs for our membership.

If anyone has a question about their invoice and payments, please email Mike Meteney at Treasurer@3ap.org.

AAAP Financial Report 1/1/06 to 12/17/06

*This is a summary of accounts and categories, not a detailed report.

Accounts

CD (Dollar Bank)	24,458.26
CD (USX)	100,000.00
Cash Box	50.00
Checking	2454.47
Savings (S.H.O. Mingo)	3686.03
Savings (General)	16582.56
Savings (Grant)	25,146.70
Savings (Valley View)	32,116.60

Inflow

50-50 Raffle	412.50
Donations	
Fish Bowls	887.60
Key Fee	250.00
Mingo Obs.	4,500.00
SSP	1,800.00
Other donations	3,258.00
Government Grant	25,000.00
Interest	690.74
Memberships	
Junior	182.00
New	1,080.00
Renew	6,616.50
Sales	253.34
Stock Sale	22,368.31

Outflow

Bank Fees	350.00
Food	101.00
Gifts	
Cards	29.00
Christmas Party	163.55
Raffle Prizes	151.00
Misc. Donations	54.00
Guide Star	
Printing	3,723.00
Bulk Mailing	822.00
Meetings	912.00
Merchandise	290.59
Mingo Observatory	
Construction (fund)	1,069.53
Awards	240.00
DCED Grant (24" Tele)	38,000.00
Equipment (fund)	1,182.44
Supplies	506.00
Other	200.00
Officers	
Membership	1,177.94
Treasurer	157.95
Brochures	275.29
Stamps	293.78
Tax Audit	4,659.84
Insurance	4,132.00
Utilities (Mingo)	
Electric	572.57
Lawn-care	150.00
Phone	491.94
Porta-John	949.50
Utilities (NEWO)	
Electric	159.46
Lawn-care	900.00
Phone	513.10
Porta-john	1,095.68
Security System	240.00
Hats	240.00

MY "HONORARY MEMBERS" LIST

By Eric Fischer

In appreciation for receiving an Honorary Membership at the November meeting, I thought it would be appropriate to list various members I believe deserve at least some kind of Honorable Mention. After all, it's difficult to achieve an Honorary Membership all by yourself. You lean on your fellow AAAP members for a lot of help. Note: This list is limited to the folks I have worked with most closely, primarily in the "Wagmasphere" and at CSC Astronomy Days. There are many other members who, I'm certain, are equally deserving of an Honorable Mention.

"Best One-On-One" – Pete Zapadka: Pete has an easy, non-condescending way of talking to guests at star parties, Astronomy Days, etc. He makes them feel "not-so-dumb-after-all" for asking a question and gives answers not overloaded with astronomer's jargon. If the AAAP ever ran a TV ad, Pete would provide the perfect voice-over.

"The Un-Quantum Mechanic" – John Holtz: John's service to the club as Treasurer seemed like a violation of quantum mechanics. How so? When someone gets a lot of work done in a short time, precision suffers. When someone works slowly and precisely, not much gets done. Somehow John completed his enormous workload, always on time and with no loss of precision. Yoi!

"Mr. Wizard" – Flacc Stifel: Flacc has an amazing grasp of countless technical subjects, ranging from electronic controllers, to roller bearings, paints, junction boxes, lightning rods, mirror mountings, concrete pads, gadgets and widgets, and on and on. Can you image what it would have cost us to hire 15 different technical specialists to duplicate his contributions to both observatories?

"Best Mental Star Map" – Tom Reiland: Point to any area of the sky and Tom will tell you every nearby Messier, NGC and IC object, as well as all named and numbered stars, and the names and dates of any comets that passed through that area over the last 20 years. On many occasions, Tom has come to the rescue when the rest of us are struggling to find a particular object.

"Decorator and Decorum" - Bill Yorkshire: If it wasn't for Bill, the Wagman reception area might look like some college guy's dorm room. In addition to hands-on work sprucing up the observatory, Bill has helped keep each Wagman star party a safe, family-oriented affair. This is no mean feat given the hundreds of different people in attendance, cars moving about with headlights off, people lounging on blankets, etc.

"Was He Cloned?" – Terry Trees: My guess is that, like John Holtz, Terry was born with several extra brain lobes. He did a masterful job of choreographing Laurel Highlands Star Cruise (akin to herding cats), as well as ably serving as AAAP President for several years. When he was ready to fire up another LHSC, everyone else was already burned out.

"Mr. Nice Guy" – Phil Breidenbach: According to our records, Phil actually frowned for 10 seconds on July 27, 1992 J. Outside of that, Phil's perpetually friendly presence has been appreciated by nervous new members as well as SP guests. (Note: Wade Barbin is a close runner-up in this category.)

"The Great Negotiator" – George Guzik: George must come from Mr. Spock's family tree. His calm leadership and well-earned respect kept the AAAP from blowing apart during several turbulent periods. I hope George will consider another presidency when his work situation calms down (don't laugh, George!).

"Der Punenmeister" – Dave Smith: At Wagman star party some years ago, Tom Reiland described a dream where a telephone fell out of the sky, crashing right next to him. Dave Smith remarked "Must have been a close call." Dave is one of the Founding Fathers of the club's endless cycle of puns at star parties (e.g. Farmer-Astronomer? "Cowpernicus". Russian meteorologist? "Ivan Clearin'-Off" A singing star without musical instruments? "Ah, Capella").

"Exhibitionist" – Larry McHenry: One way to keep people away from AAAP tables at Astronomy Day is to put up a bunch of tri-fold poster boards

crammed with astronomical formulas and graphs. Larry brought us out of the Stone Age years ago with attractive multi-media displays that make the AAAP look more like a professional association than an amateur's club. Alas, Larry's contributions to solar observing have been "spotty" at best. J

"Club Psychologist" – Art Glaser: Although Art is best known as Chief Archivist of the Pittsburgh astronomical community, he has an uncanny grasp for what makes this club tick. In the process of researching the history of local astronomers, Art has learned much about how they interact and live to tell about it. The next time you want to bail out of the club because of some dispute, talk with Art first.

"Operator Standing By" – Joyce Osborne-Fischer: While the rest of us are outside Wagman Observatory enjoying the skies and chatting with guests, the "Queen of the Warm-Up Room" is answering the phone, stopping kids from going in the Brashear "Out" door, dealing with questions such as "*Can you show me my star*?" and making PA announcements. Every once in awhile, let's give her a break and have someone else do this thankless job.

"Nerves of Steel" – Ann Norman: Some of you may remember an Ed Sullivan stage act where a guy got about 20 dinner plates spinning atop an array of vertical rods. By the time he got the 20th plate spinning, the first had begun to wobble. He then darted back to that plate to spin it up again. This reminds me of Ann's ability to simultaneously manage her profession, a family with feisty teenagers, sometimes problematic guest speakers, multiple club projects, etc. Despite all these pressures, she always looks cool, calm and collected.

"AAAP Trooper" – Bill Roemer: Until recently, Bill tended to the Manka Telescope at Wagman Observatory for many hours at a time during star parties. In the process, had to constantly keep 15 different guests from banging their heads on the counterweights, relocate "lost" deep-sky objects (after the scope was bumped), answer visitors' questions and, worst of all, correct faulty answers given by other club members. Bill deserves the astronomers' equivalent of the Purple Heart.

AAAP RECOGNIZED BY NIGHT SKY NETWORK

By John Mozer

The AAAP received some great recognition on the JPL/Night Sky Network website recently. Please go to the following link: http://nightsky.jpl.nasa.gov/news-display.cfm?News_ID=147

CHERRY SPRINGS STAR PARTY

By James Schultheis

Just a heads up on the date for the CSSP this spring. This is NOT the Black Forest Star Party. The Cherry Springs Star Party will take place on May 17-20, 2007. It will be just three nights long from now on. The president of ASH is currently working on restoring the star party domain.

NEW WAGMAN COMBINATIONS

By Tom Reiland

Please contact me or Flac for the new gate combinations. We may be setting up the key fee payment the same as the membership so that everything can be done at once. This way, those wanting the door combination will have to pay their key fee in December or January before they get the new combination.

NIGHT SKY SUBSCRIPTIONS

By Craig Lang

For those who have (or bought for others) subscriptions to Night Sky Magazine, here is the latest on the outcome of the remainder of your subscriptions from the publisher: "Current subscribers to Night Sky will receive the same number of issues of Sky & Telescope as you would have received for the remainder of your Night Sky subscription beyond the March/April 2007 issue. If you have questions, please send an e-mail to Customer Service or call toll-free 1-800-253-0245". Full article can be found here: http://skytonight.com/about/3847697.html

AAAP CHRISTMAS PARTY 2006
Pictures by Dave Smith

Honorary Members
Tom Reiland Eric Fischer

OBSERVATIONS

Larry McHenry: That's no Moon, it's a space station!!! Wow!!! What a great pass. I, too, at first thought it was an airplane. Just think how bright it will get when the station is finished. While Suzanne, Kyle, and Tara observed from our back patio, I was down the yard in my observatory trying to image the pass with several different cameras. I attached a 24mm cctv lens to my StellaCam Ex and mounted it on a camera tripod with the exposure set to 1/4 sec deep-sky mode. Then I had my other two standard security cameras attached to my 80mmfinder and to the C8, with auto shutter & gain set. I was able to capture images with the StellaCam and the 80mm, but was not successful with the C8. Here they are:
http://home.comcast.net/~lemastro/vidcap/images/ISS-Shuttle-12-19-06a.jpg

http://home.comcast.net/~lemastro/vidcap/images/ISS-shuttle-12-19-06b.jpg

http://home.comcast.net/~lemastro/vidcap/images/ISS-Shuttle-12-19-06c.jpg

The last image is a little overexposed, but there is possibility a “hint” of the station structure (this was visible on a number of other single shots) but it also could just be some type of lens reflection.

FYI: Something to look forward to in a couple of years! "Evidence is mounting: the next solar cycle is going to be a big one." http://science.nasa.gov/headlines/y2006/21dec_cycle24.htm

Mary DeVaughn: I got a lovely view from my front driveway in heavily light-polluted South Oakland. I could just make out the two points of light naked-eye. My one regret was that my 10x50's were locked in the van and I didn't want to miss any of the pass by running back into the house to get my keys. And bright? Wow! I think the two together were brighter than the last Iridium I saw, which was supposed to be a -5 or so, but wasn't. Actually, I have a second regret -- that I didn't drag the family out to see it. They don't know what they missed.

OBSERVATIONS (continued)

Al Paslow: I, as well as others, was surprised to see the combination in what I first thought was the wrong part of the sky. My daughter, Stormie, who was outside with me first saw them approaching and said " Daddy is that the Space Station?". I was using binoculars, saw the differences in magnitudes and naturally assumed the object to be an airplane due to the additional dimmer "light" accompanying the moving object. But the dimmer light did not pulsate or rotate which usually indicates an airplane's transponder; thus, it was not an airplane. As they moved along in the sky so close together, it was fantastic to watch the shuttle increase so dramatically in brightness. When it finally moved into the NW by Cygnus, I could easily see both objects were the same apparent magnitude. Best show ever!

Bill Hayeslip: I also thought it was an airplane atf first and heard the sound of a nearby plane. The silhouette also made me think it might be a plane until it approached zenith and I realized it couldn't be the plane's front lights. Wish I remembered to take my binoculars with me. Pretty spectacular anyway.

Shirley Ann Caseman: I dragged a couple of my friends up to Wagman to see the Conjunction of Mercury, Mars and Jupiter. We froze our buns, but were excited to see the planets. Please view the photos from my Smugmug site:
http://shirley-caseman.smugmug.com/gallery/2226079

John Pane: I stepped out onto my driveway to observe the planets this morning. Beautiful! Here is a quick photo:
http://www.cs.cmu.edu/~pane/tmp/mjm.jpg

Also, I snapped a shot of Saturn with the Moon:
http://www.cs.cmu.edu/~pane/tmp/ms.jpg

James Schultheis: I dragged the 15" f/4.5 out last night figuring that it may be the last good night of observing till next dark of the moon. The conditions in Scottdale were 0% clouds , good transparency, and fair seeing. I, again, was taken by surprise at what constellations were up and their location in the sky. The first thing I went after was NGC 1514, "The Crystal Ball Nebula" (Mv =10.0) thinking it would not be that hard to find..... Well, after about twenty minutes of searching, the thing skunked me. After further research on the net , I did not know what I was looking for. Then, I went after NGC 1501 (Mv =13.3), a planetary nebula. I did find it and it sort of looked like a soap bubble and I could see the 14.4 Mag. central star. I felt better now after 1514 got the best of me. By now, ice was starting to form on the top of my hat, sides of my scope, Telrad, and finder scope..... it was about 28 degrees. I then , feeling in the holiday spirit, went after NGC 2264 The Christmas tree cluster and while I was there checked for nebulosity around 15 Mon, to no avail. I found out if you can see nebulosity at 15 Mon then there is a chance of observing the Cone Nebula, but not around my neck of the woods. Sue was then calling me to come in so I wrapped things up with the Rosette Neb./Cluster Just wanted to share with the group. Clear skies!

Steve Schafer: Here in Sioux Falls (business trip) a wonderful aurora was visible. About 7:30 PM, I drove out of the city about 15 minutes on a gravel road between soybean fields, and saw the aurora—it was huge, covering a wide swath of the northern sky with bright silvery white, green, and light blue curtains. It was very active; the intensity and dispersion varying in cycles that seemed to last about 15 minutes. Some of the brightest, most defined rays appeared low on the horizon, which surprised me. It was a great treat. The local TV stations devoted time to the likelihood of an aurora and noted the clear skies. The NOAA Space Environment Center on the web confirmed that the statistical aurora oval would reach here. It didn't hurt to also be under a wonderfully dark sky for a change! It took me awhile to find the familiar constellations with so many more stars. The combination of endless starry diamonds and shimmering light curtains was awesome.

ALUMINUM CAN COLLECTION

Please bring your aluminum cans to Winterfest on February 24, 2007 at Wagman to the attention of Ray Lahet. Wagman will receive 60 cents per pound! Thanks for your help!

NOTE FROM MEMBERSHIP SECRETARY

By Mark Schomer

In an effort to keep our records as up-to-date as possible, I am asking all members to look over their listing in the Membership Directory, the On-Line PDF version, and let me know of any changes in address, phone number, or email address. Thank you.

BOOK REVIEWS

By John Cheng

Alexander's book "The Planet Saturn" goes on to mention that two British observers using 6.5-inch scopes; one a refractor and one a reflector, recorded over two dozen shadow transits of six different moons in 1891 and 1892. He goes on to say that some of these early claims were called "incredible" in a 1951 British Astronomical Association article, which I interpret as a reserved way of saying, “Yeah...right". In any case, as the following posting mentions, Titan's shadow should appear about the same size as Cassini's division, which would allow it to definitely show up in a decent three-inch scope if not smaller.

Ed Zarenski posted the following to the ALPO Saturn group back in 2004: SHADOW TRANSITS OF SATURIAN MOONS. The distance to Saturn when we are both on the same side of the Sun is about 8 A.U. Currently Saturn is nearing a distance of 9AU. For a distance of 9AU from Earth, Titan is 5150km),(3193 miles), 0.78 arcseconds diameter; Rhea is 1528km (947 miles) 0.23 arcseconds; Iapetus is 1436km (890 miles) 0.22 arcseconds; Dione is 1120km (694 miles) 0.17 arcseconds; Tethys is 1046km (650 miles) 0.16 arcseconds. Titan is 3200 miles in diameter. Titan would appear to be 0.78 arcseconds in diameter when Saturn is 9AU from Earth, 0.86 arcsec when it is 8AU. Titan is close in size to Cassini. The Cassini division is 2,800 miles wide and at 8.A.U. it appears 0.75 arcseconds wide at its widest point, at the ansae. The second largest of these moons, Rhea, will appear in our scopes as only 0.23 arcseconds in angular diameter. We see the moons as point sources, but their shadows are seen as a special form of extended object.

A black spot on a white background, a shadow of a moon, is a perfect example of a special extended object resolution. If the stated resolution of your telescope is R, this special condition can sometimes be seen at a size of R/2 to R/3. That means if you have an 8" scope with a Rayleigh Limit of resolution calculated at 5.45/8 or 0.68 arcseconds, your R/2 and R/3 limits would range from 0.34 to 0.23 arcseconds.

With Rhea, the second largest moon to Titan, casting a shadow only 0.23 arcseconds in diameter, you would need everything to absolutely be the best possible condition in the best sample of equipment with the best possible contrast to see any moon shadow other than Titan on the disk of Saturn with an 8" scope. (This ignores the small variance in the size of the shadow due to the light cone from the very distant Sun).

You would have a slightly better chance with a 10" scope. At 5.45/10 = 0.545 arcseconds, R/2 and R/3 would be 0.22 to 0.18 arcseconds. At least a 10" scope could possibly see a dark spot caused by the two largest of these other moons. Dione's and Tethys' shadows would be too small to see in a 10" under the best possible conditions.

Titan, if it were passing close enough, could be casting a shadow 0.78 to 0.86 arcseconds. That would appear just a bit wider than the Cassini division. Rarely would we ever see Saturn's moons transit. Because of the plane of tilt that so nicely shows us the rings, the moons appear to follow an elliptical orbit around the planet. However, when the rings near edge on, we may have opportunity to see Titan transit. We'll have to wait a few years for that.

By the way, Jean Meeus lists September 4, 2009 as our (Earth's) next passage through the Saturn ring plane. Saturn will be in the vicinity of Leo/Cancer - decent altitude for us - for the next couple years. So, let the games begin.

BOOK REVIEWS (continued)

A poster on one of the news groups mentioned the *Hubble Atlas of Galaxies* and the *Carnegie Atlas of Galaxies*. Surprisingly, both are still in print and readily available. Lowell Observatory's Brian Skiff posted his 1995 review of the *Carnegie Atlas* (note: the prices are 10 years old in his review). The URL lists refer to the current volumes, their prices and their order information.

The *Carnegie Atlas of Galaxies*; Allan Sandage and John Bedke; Carnegie Institution of Washington and the Flintridge Foundation, Washington DC,1994; two volumes, 750 pages total, 35x44.5cm, wt. 11.5kg. This is the galaxy atlas that Edwin Hubble dreamt of completing before his death in 1953. It is the atlas that his student, Allan Sandage—nearing the end of his career more than 40 years later—and darkroom wizard John Bedke have finished just in time before the demise of the photographic plate. It is almost certainly the last major photographic atlas of large-scale astronomical images that will be published. Printed with state-of-the-art technology both in the darkroom and at the printing press (300 line/inch halftones, 100 lb. paper stock), the results are simply stunning. The design and production of the volumes was undertaken with obvious great care. Even the endpapers were attended to: not-the-usual views of the telescopes and sites on Mount Wilson, Palomar Mountain, and Las Campanas Observatory, where all the atlas photos were taken. The 1200 photographs in these volumes show just how far CCDs have to go before being able to match the pure aesthetic satisfaction of emulsion. CCD pictures are garish, whereas the mature technology of photography like this is luscious.

Volume I begins with four brief chapters on the subject of galaxy types, which might be summarized as "Zen and the art of galaxy classification". The first two chapters concentrate on the philosophical considerations of classification in science generally, and are of interest for revealing how a thoughtful scientist approaches his subject. Sandage discusses the more traditional approaches of deductive and inductive reasoning that derive from Greek and renaissance philosophy, but also the less strictly rational approach of raw intuition---galaxy classification "by hunch" as a result of complete immersion in the data for long periods. All three approaches are valid in making any study of the external world, and Sandage gives examples of the value of classification from biology, chemistry, physics, and astronomy.

Chapter 3 especially gives an outline of the details of the well-known Hubble classification system in its final form. This section includes a fourteen-panel "teaser" of photos showing prototype galaxies for each general classification bin. The bulk of both volumes of the hefty tomes is taken up with the photos. The galaxies are arranged by type, running from pure elliptical galaxies to the most diaphanous irregulars. For those stuck on RA sequencing, there is an index arranged by NGC number to facilitate finding the photo of a particular object. Purists will notice that neither image scales nor orientations are given anywhere in the volumes; perhaps these can be supplied in the index of a second printing. Similarly, the photos are an inexplicable mix of positive and negative images. I would have preferred to see only negatives (white sky background), with positives reserved for special cases. No matter, they all look great.

Although the pictures themselves attract the eye, the real heart of the book is the running commentary on the photographs, which appears on the pages facing each panel of plates. Nearly every image has one or two paragraphs of description, often cross-referenced to pictures elsewhere in the book. These contain compelling detail, minutiae concerning the peculiarities of any galaxy, and the endlessly fascinating range of galaxian form. After poring over the photos, you will not be able to look at an image of a galaxy again without seeing curious stuff you've never bothered to notice before. Unusual for such works---not likely to be found on the racks at the supermarket checkout stand. The price of these books is very low at $96 postpaid. This was made possible by a subsidy from the Flintridge Foundation to defray the manufacturing costs. Representing the culmination of work started in 1909 with the commissioning of the Mount Wilson 1.5-m telescope, this atlas is a visual feast; eat it up!
http://www.carnegieinstitution.org/books_in_print.html

IMPORTANT DATES

Carnegie Science Center Club
Meetings 7:30 p.m.

January 12
February 9
March 9
April 13
May 11

Wagman Winterfest
February 24

Wagman Picnic
Angler's Grove
Deer Lakes Park
June 9

S **Amateur Astronomers Association of Pittsburgh, Inc**. S

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

2006-2007 Executive Officers:

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Guide Star Editors:	**Bill & Maureen Moutz** gseditor@3ap.org

AAAP Member Dues*:

AAAP Dues:	$18.00
Junior Member (under 18):	$13.00
Sky & Telescope Magazine:	Add $33.00
Astronomy Magazine:	Add $34.00

***Basic Procedure for Paying Dues:**

1. Make check payable to "AAAP Inc."
2. Send check to Michael Meteney, Treasurer, 1070 Sugar Run Road; Venetia, PA 15367-1514