

SIDEREAL TIMES

The Official Publication of the
Amateur Astronomers Association of Princeton

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From the Director

A New Season of AAAP. As summer vacations, travel, and adventure gradually give way to our busy fall schedules, it's great to know that we're poised for another great season in the AAAP (36th year). The club will again be the stage for pursuit of all things astronomical— from telescopes, deep sky observing, CCD imaging, and planetary sciences, to cutting edge astronomy, astrophysics, and historical astronomy presentations. And please remember that our annual dues cycle relies on membership renewals (\$40 dues payment) each Sept. Now is the time to recruit a friend or neighbor to consider joining the club— invite them to the Sept meeting. And there is increasing recognition of the role our club has in the community. Some of you may have noticed the recent front page article in the Hopewell Valley News (July 27 issue), in which I was interviewed about the AAAP's activities, the Observatory, and the pursuit of astronomy and our public outreach efforts in the area.

This year we will feature several new speakers on emerging and exciting topics, as detailed in **Program Chair Ken Kremer's** report in this issue. For the **Sept 12 meeting**, we will have a **presentation by Dr. John Church**, who will present "When Ireland Was the Center of the Universe". John is a AAAP member and past director of the club, with expertise in telescope design and optics and a professional background in chemistry and physical sciences. Some of you may not realize that John enabled the club's acquisition of the historic Hastings 6.25 inch refractor housed in the AAAP Observatory at Washington Crossing Park. Please be sure to encourage friends with an interest in the history of science and astronomy to come to this presentation- our lectures are open to the public as well as to members!

Early Fall Observing with Small Telescopes. With observing conditions improving as summer haze gives way to better transparency, many great deep sky objects are well positioned for observing in small telescopes. The Andromeda Galaxy (M31) stands out as a beacon to observers regardless of size or class of

Simpson Observatory (609) 737-2575



M31, the Great Galaxy in Andromeda

Photo by RA Parker using Tak FC-76 f/8 refractor and SBIG ST-10XME with Deep-Sky filter

instrument used. As a "nearby" galaxy only 2.3 million light years distant, M31 is often more impressive in small telescopes with wide fields than in large light buckets. At 130,000 light years diameter it is large even by galactic standards, and the large angular size and low contrast make it a challenging photographic object. I seem to gravitate to this object each August, and on a recent (rare) clear night I coupled my CCD camera to my Tak FC-76 (3 inch) fluorite refractor with a Lumicon Deep Sky filter, and accumulated a long CCD exposure (total 132 min in 33 x 4 min sub-frames). The result (below) shows what can be done with a small aperture scope (small but nearly perfect!). It would be interesting to hear how others use their small telescopes, visually or photographically. It has been suggested (by member and refractor aficionado Ralph Marantino) that this might form the basis for a users/special interest group of small scope observers in the club.

Plans Underway for an Observing Weekend in Northwest Jersey. The weekend of Sept 23 is planned for a dark skies

(Director, continued on page 3)

A Trip to Almost Heaven

On new moon phase in July, George Walker invited me to spend a week at his new residence in West Virginia. The trip from Ewing took about six hours and then an extra hour trying to find his place on back roads. With sparse cell phone reception, I was able to contact George to meet me back at the main country road. He then led me to his property. During my one hour excursion I found that I was close to his place, but no cigar. The road leading to his property is hidden by trees. George said it's easier to see in the winter months.

The road came out of the trees to an open space of 60 some acres. In this space are two houses, a large garage, a well stocked pond, and an additional 40 acres of woods. We first drove up to the high ridge on his property to unload our observing equipment. I had my C-11 and TV 102. George, had his Fuji 25X150 Binocs and C-11.

The night started rather clear. Transparency was above average. I aligned my scope and got "The Sky" cranked up to go hunting. I always start with something rather easy like M13. The globular fell right into the center of the field. I bounced to many objects. George has a very good view to the south. Being on this ridge the field is almost to the horizon. Hitting the objects in Sagittarius was a breeze.

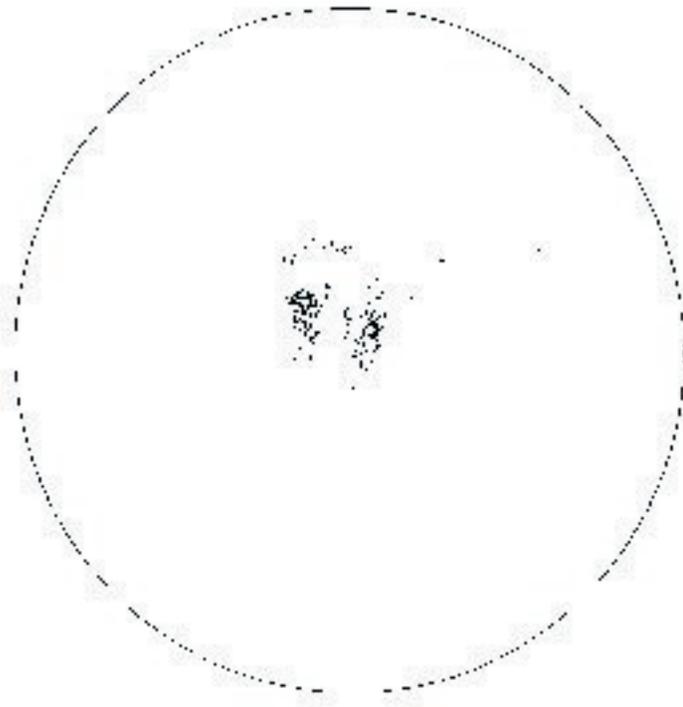
I finally found a use for the Tele Vue Bandmate™ NebuStar™ Filter. I was told that it could be used for such objects as the Vail Nebula, Lagoon, etc. I found this not to be the case. I have a Thousand Oaks OIII filter that does just fine on these objects. I turned to M20, the Trifid nebula. The OIII filter made the field so dark I could hardly see anything. Then I tried the Tele Vue filter and the nebula jumped right out. The divisions in this nebula were very distinct. I quickly grabbed my sketch book and revised the sketch I made a couple of years ago while attending the Summer Starparty. I have been revising my sketches as I visit especially dark sky sites. We ended our session around 1am when the sky turned rather "soft". The moisture in the atmosphere is such that the telescopes wouldn't focus the stars to pin points.

Most of our daytime activities were filled with target shooting at George's firearm range or fishing in the pond. His five cats are

always up to playing with the caught Bluegills on the bank of the pond. The fish always seems to find its way back into the pond before any damage is done.

One day we took a day trip to the Radio Astronomy Telescope at Greenbank. I found that because of the sensitivity of the equipment, there is no spark ignition of any type allowed in the immediate area. Only diesel powered vehicles are allowed. Scientists living in this area are house with no microwave ovens, no conventional type light switches, they use the rotary type. Not even a door bell is allowed.

Besides a tour of the facility there was also a tour of the control room of the large array. Funny how mentioning the name "Princeton" helps to gain entrance to these facilities where only a limited number are allowed to visit. The control room tour was very informative. I also found, like our very own Rus Belokov, they are also looking for planets orbiting around nearby stars. For more information see the GBT site at: www.local.gb.nrao.edu/GBT/GBT.shtml.



Messier # M20
NGC 6514
Magnitude 5.0
Type Diffuse Nebula
Name (if any) Trifid Nebula
Constellation Sagittarius
Date seen 7/3/06
Seen? L
Session Notes *Carroll's W. VA*

We had three decent nights of observing and the days filled with field trips, shooting and fishing. I took several firearms with me. Some liked my black powder muzzleloader, I haven't fired in twenty years.

Ralph and Barlow Bob will join me next year on my trip to West Virginia. By then George will have the main house renovated to his taste and we will have the guest house to ourselves.

Ron Mittelstaedt

Light Thimble Observers

Hello fellow members of the AAAP, I am interested in starting a new "user group" composed of AAAP members who use small aperture telescopes (4.25 inches and UNDER). The group would meet to observe celestial objects and discuss them on a Yahoo user group and maybe get Astronomical league observing certificates: double star messier etc...Please think about it and put in your less

than 125mm worth at the September's business meeting. Thank you. So far we have Ron Mittelstaedt with a Tele Vue 102 refractor, Rex Parker with a 3 inch Tak, Ken Kremer with a an ETX-90, and Ralph Marantino with a 63mm, f13.3 refractor.

Contact Ralph,

The 2006 Rockland Astronomy Club Summer Starparty

Well it's 6 am and I am off for my 12 th odessey to Savoy Mass for a 9 night starparty. There was absolutely no traffic the morning of July 21st and I arrived at the Shady Pines campground at 10:15 with my faithfull companion Buster (the boxer). My friend Ed Seimens had arrived on Thursday and he and his girlfriend Angela had all of the tents set up already at our campsite. I helped him set up his 12 foot diameter portable dome and his Astrophysics 1200 GOTO mount. We installed it side by side with his AP 130mm f/6 APO and my own AP 152mm f/8 APO refractoirs.

It was dark enough for star observing at 22:00 hrs and we stayed up until 3:30 am observing many things in the Southern sky, I would rate the seeing as 7 out of 10, and there were even a few good meteors to say ooh and aaah about. The long evening gave me an opportunity to try out my new set of UOP ABBE Ortho eyepieces and they gave a much darker background sky with more sharp star images than all of my other eyepieces. Having a rock solid goto mount allowed me to also use a new TMB Supermonocentric planetary eyepiece with only a 30 deg field the sky was a bit soft



for good seeing of Jupiter.

Saturday daylight came with a BIG rainstorm and plenty of wind, it blew away a 125mm ETX. On Sunday we had the very best seeing up there in maybe eight years. I would rate it at 9.5 out of 10, no dew clear and no wind, NGC 7000 the North American Nebulae was a naked eye object. Ed and I swapped my 152mm APO for his excellent C14 SCT OTA and away we went going for faint galaxies and fainter nebulae I never had to use an OXYIII filter all night and I saw the "Bug" nebulae for the first time, it looked so much like an ant that I itched. I gave up at 03:45 a record for me.

Monday was a 9.0, Tuesday the same and Wednesday degraded to about an 8.0 but I had a ball my friend Mike Pays brought his new takahashi 152mm f/8 Flourite APO on a GOTO mount, Dan had his 155 mm f/7 AP APO on a new AP 900 GOTO mount and a "Newbie" brought a 7 inch f/8 TMB APO on an AP 900 GOTO mount. It was the night of the "big glass." Friday it rained and Saturday it was cloudy day and night so that was it for observing. It took all day Sunday from 8 am to 4 pm to pack up and I arrived home at 9 pm, one of the best observing weeks that I have ever had.

Ralph Marantino

From the Editor

Introduction to Amateur Astronomy Nature Center interpretive ranger Wayne Henderick and I have set up the dates for our Fall course offering, "Introduction to Amateur Astronomy." As usual it will be conducted at Washington Crossing State Park Nature



Center classroom. It is scheduled for four consecutive Friday evenings starting October 6, and concluding on October 27. The first session will start at 5:30 PM to take advantage of daylight, each subsequent session will start at 7:30 PM. After the first session, and if the weather is clear, the group will go over to the Simpson Observatory at about 8:30 PM to be introduced to the sky. Our course has always been well received and resulted in

attracting new members to our club.

The course is open to interested persons from 8th grade through adult and may not be just for beginners. It is an excellent opportunity for school teachers and even experienced amateur astronomers that have considered teaching a course like this themselves. Contact the Nature Center to sign up (609) 737-0609, there is a \$5 fee to cover the cost of handouts. Enrollment is limited to 25 persons.

Vic

(Director, continued from page 1)

observing getaway to Stokes State Forest near High Point NJ. Bunkhouse accommodations are available at nominal cost. Please contact Ron Mittelstaedt for more information— this trip will be discussed at the Sept 12 meeting.

Dark Skies! -- Rex

Annual Membership Dues (\$40) Are Payable Now-- Please Mail or Bring Your Check to the September Meeting.

**Deadline for Submissions to the October Issue of Sidereal Times
September 29, 2006**

Science Outreach and Exploration Update

“Blast-off to Outer Space” at The Franklin Institute Science Museum: Philadelphia, Pa. Tue, Sep 19 from 5 PM to 8 PM. The museum has invited me as the featured guest speaker for their **Community Science Night** monthly event. Free and open to the public. Enjoy my interactive talks in the IMAX Theater: *“Roving Mars: The Magnificent Journey Continues”* and in the Fels Planetarium: *“Touring our New Solar System with a Journey in 3-D”*. Other activities include exploring the night sky and beyond at the *Space Command* exhibit, make and take for the kids, Space Boot Camp, Space Suit demos and more. Seating is on a first come, first serve basis. Several thousand people have been attending these free evening events.

Details at the Museum Website:
<http://www2.fi.edu/>

Washington Crossing State Park, Nature Center: Titusville, NJ. Sat, Sep 30 from 1 to 3 PM. All are welcome to attend my presentation on *“A Tour of Our New Solar System”* to experience the beautiful and amazing new discoveries in our Solar System at Mars, Saturn, Pluto, Comets, the new 10th *“Planet”* and more. Open to kids of all ages 4 to 84. The program will include a non-technical illustrated presentation, display, 3-D pictures, hands-on activities and take home materials. Weather permitting, AAAP members Ralph Marantino, Ron Mittelstaedt and Gene Ramsey will be setting up an array of solar scopes for thrilling views of the Sun just in time for the AAAP solar speaker on Oct 10.

WC Nature Center Website:

http://www.state.nj.us/dep/parksandforests/parks/washington_crossing_calendar.htm

“World Space Week” at The Franklin Institute Science Museum: Philadelphia, Pa. Sun, Oct 1 from 10 AM to 3 PM. This annual UN sponsored event celebrates the achievements of astronomy and space exploration on behalf of all humankind. The organizers have invited me back for presentations on the exploration of the Solar System. Last year the AAAP also had an astronomy display booth. A full slate of space related activities are planned by the museum.

Details at the Museum Website:

<http://www2.fi.edu/>

Amateur Astronomers, Inc: Cranford, NJ. Fri, Oct 20 at 8 PM. AAI is one of the largest astronomy clubs in the US with over 300 members and has invited me to present *“Exploring Mars, the Search for Life, and a Journey in 3-D”*: A comprehensive review of the ongoing NASA Rover Mission to Mars covering the explorations and adventures of *“Spirit”* and *“Opportunity”*. Free and open to the public. AAAP member Dr. Rus Belikov gave a research talk to AAI last year. AAI is located on the campus of Union County College.

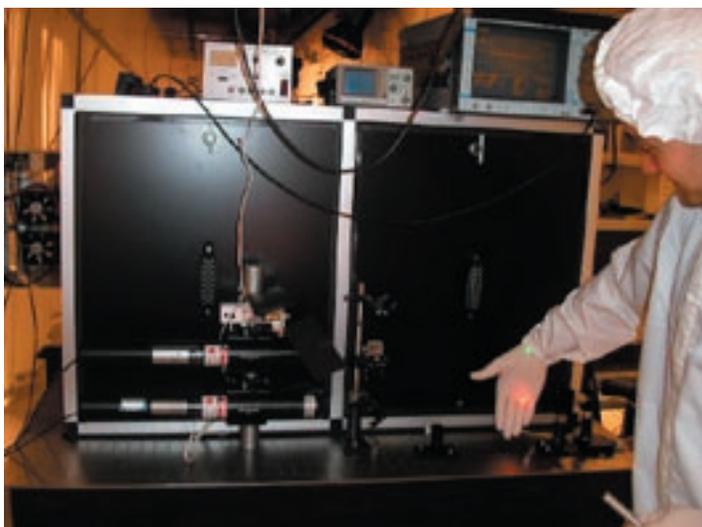
Website: <http://www.asterism.org/>

Tour of Dr. Rus Belikov Lab at Princeton U: July 18. As a follow-up to his outstanding keynote lecture at Starquest, Rus kindly gave a detailed tour of his lab in the Mechanical and Aerospace Engineering Dept. to several AAAP members. We enjoyed a first hand up-close view of the research apparatus used in the search for and formation of Extrasolar Planets. He is an active member of the AAAP and will lead the Public Observing

nights in Peyton starting this fall. Afterwards we enjoyed dinner and camaraderie at a local restaurant.



Dr. Rus Belikov (right) gives a lab tour of the Terrestrial Planet Finder (TPF) Mission HQ at Princeton to AAAP members Ron Mittelstaedt, Bryan Hubbard and AAAP Program Chair Dr. Ken Kremer



Rus gets zapped by twin laser beams while searching for other Earth's.



Rus with Shaped Pupil Coronagraph, a key component for TPF.

“MARS DAY 2006” at the Smithsonian National Air and Space Museum, Washington DC: July 21. The museum celebrated the 30th anniversary of the Viking program, the first missions to successfully land on Mars in July 1976, with a day of educational and fun family activities. Three Viking scientists and myself were stationed at the Viking lander to answer questions and describe current and future missions.

“MARS DAY” website and pictures:

<http://www.nasm.si.edu/marsday/>



(Above) Large crowds enjoy the 30th anniversary of the Viking landings on Mars.

(Right) Viking Mission scientists Bob Tolsen, Norm Crabill, Gus Guastaferrro and Ken Kremer (NASA consultant) at the full scale Viking Lander engineering model with historic Viking image display. The scale model was a fully functioning back-up to the Viking 1 and 2 landers.

Pluto Demoted by IAU and Solar System Shrinks to 8 Planets: On August 25, Pluto was reclassified as a “Dwarf Planet” in a vote by only 424 astronomers present out of more than 8000 members worldwide at the closing session of the International Astronomical Union meeting in Prague. This highly controversial action has ignited an energetic debate among professional and amateur astronomers and the general public.

Mars Rovers: Opportunity arriving at giant Victoria Crater. As this newsletter goes to press, the *Opportunity* rover is less than 200 meters from the ½ mile wide crater. As you read this, she will most likely be perched at the rim and peering down inside for the first spectacular panoramic views revealing new geologic layers of ancient Mars. Both rovers have exceeded 10 times their design lifetime as they approach 1000 Sols of continuous science operations.

Cassini: Celebrates 2 years at Saturn and discovers a region of methane filled lakes in the north polar region.

Space Shuttle: ISS Construction to Resume: The space shuttle *Atlantis* is set to lift off with a crew of 6 as we go to press in late August and deliver a massive 17 ton truss and 2nd set of solar arrays

to the space station.

For science outreach presentations please contact me at Email: k

Ken Kremer
AAAP Program/Lecture Chairman

From the Program Chair:

Upcoming 2006-2007 AAAP Lecture Season

Sep 12: Dr. John Church, past director of the AAAP, will be the keynote speaker and present an astronomy history talk titled “*When Ireland Was the Center of the Universe*”. John will tell the remarkable story of William Parsons (3rd Earl of Rosse) who from 1841 onwards, designed and built the largest telescope of the 19th century, a 72-inch Newtonian reflector, on his large private estate in the town of Birr in central Ireland. Called “The Leviathan of Parsonstown,” this remarkable instrument was the first to disclose the spiral structure of galaxies, notably M51, the famous Whirlpool Nebula in Canes Venatici. John visited the estate in 2004 and will present an overview of the telescope, the history and details of its construction, the significance of Lord Rosse’s discoveries, and some views of the grounds. The estate contains not only the restored telescope and its mounting, but also a fine arboretum and a hundred-yard-wide spiral model of M51 constructed of young lime trees, through which visitors can stroll to its center, and the old castle-like family residence.

Dr. Church has been a member of the AAAP since the early 1970’s. He served as Assistant Director (1972-73), Director



(1973-75), Program Chairman (1975-77), and currently serves as Historian and member of the Observatory Committee. He was active in the building of the Washington Crossing observatory in the late 1970’s and was custodian of the 6-1/4 inch Hastings-Byrne refractor before its installation in the observatory.

John holds a doctorate in physical organic chemistry. He retired from the Colgate-Palmolive Company in 2001 and is currently a private consultant and writer. He has over 25 scientific publications and is the author of two books which include
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(Program, continued from page 5)

chapters on chemistry, astronomy, telescopes and the observatory construction. He has recently edited *Korean Odyssey: A Separated Family* by Tai K. Shin.

Link to Birr Castle website:

<http://www.birrcastle.com/index.htm?mainFrame=http%3A//www.birrcastle.com/telescopeHistory.htm>

Oct 10: Dr. Therese Kucera from NASA Goddard Spaceflight Center will discuss “*The Sun as seen from SOHO and STEREO: NASA/ESA Missions*”. Terry will describe the many discoveries for the Solar and Heliospheric Observatory (SOHO) mission, which has just reached its 10th anniversary and the upcoming Solar Terrestrial Relations Observatory (STEREO) - soon to provide the first 3-D view of the Sun. She is currently the deputy project scientist for NASA’s STEREO mission and the US SOHO deputy project scientist.

<http://sohowww.nascom.nasa.gov/>

http://www.nasa.gov/mission_pages/sterEO/main/index.html

Nov 14: Al Nagler, the founder and CEO of Tele Vue Optics in Spring Valley, New York, will speak on Optics, Eyepieces and Manned Spaceflight in a talk titled “*Giant Eyepieces that Swallow Spacecraft*”. Al will discuss how his experiences in flight simulations for the Gemini and Apollo projects, led to the development of wide angle eyepieces which recreate the experiences of a spacewalk for the amateur astronomer.

Dec 12: Prof. Jim Bell of Cornell University is the lead scientist for the panoramic cameras on the Mars Rovers. He will present “*Postcards from Mars: Spirit and Opportunity Roam the Red Planet*” and will be autographing his new book “*Postcards from Mars*”, scheduled to appear in mid-November.

Jim Bell is featured on the cover of the August 2006 issue of Sky and Telescope. Please read his full length article on p. 40 titled “Backyard Astronomy from Mars” for insights prior to his upcoming AAAP lecture.

Jan 9: Prof. Jim Gunn from the Astrophysics Dept. of Princeton University will discuss the *Sloan Digital Sky Survey*.

March 13: Prof. Edger Choueiri from the Mechanical and Aerospace Engineering Dept. of Princeton University will discuss “*Plasma Propulsion and the Exploration of Space*”.

Please send me your suggestions for speakers, with contact/topic information. Email:

Ken Kremer
AAAP Program/Lecture Chairman

dim nebula appear as pale wispy smoke clouds, glowing faintly among the dust lanes of the Milky Way. Are the challenging faint fuzzy objects worth observing? Most amateur astronomers enjoy observing these faint fuzzy objects, while others continue to observe only bright objects, in the sky.

If the Messier objects are like the bright lights of Broadway shows, the faint fuzzies are the dimmer lights of smaller shows off Broadway. Please consider the challenge of observing off Broadway faint fuzzies, among the dust lanes of the Milky Way.

Barlow Bob (Godfrey)

Barlow Bob’s Corner:

The Faint Fuzzy Thing Finder

Most amateur astronomers search in vain for faint fuzzies in the night sky. Faint fuzzies are dim galaxies, star clusters and nebula. Bright fuzzies like the Pleades, Bee Hive and M13 star clusters shine, like the bright lights of Broadway. However, faint fuzzies like tiny globular clusters, planetary nebula, dim galaxies and nebula shine like the side streets off Broadway.

You can locate these faint fuzzies several ways. Modern computer controlled telescopes can instantly locate these dim objects for you. If you are a stargazer or future stargazer, who does not own this modern marvel, you need a *Faint Fuzzy Thing Finder* and a lot of patience.

Purchase three small chrome antennas for a transistor radio. The antenna should extend out like a spy glass telescope. Attach the first antenna to the middle of a six inch piece of wood. Then attach the other two antennas to the left and right of the piece of wood. Coat the ball on top of the antenna in phosphorus paint. When you shine a bright light on the tops of the antennas, they will glow at night.

Locate a faint fuzzy object in the Summer Triangle on a star chart. Extend the left antenna and place the tip on the bright star Denab. Place the right tip on Altair. Place the middle tip on the on the faint fuzzy object.

Remove the *Faint Fuzzy Thing Finder* from the star chart. Hold the FFTF in front of you, facing the Summer Triangle. Place the left bright tip on Denab, in the night sky. Place the right tip on Altair. The middle tip will point to the faint fuzzy object.

You can attach the FFTF to a photographic tripod with duct tape, or an L-shaped metal bracket used to hold binoculars. Stand behind the mounted FFTF and look at the bright middle tip through binoculars or a telescope. You should notice the faint fuzzy object in the sky.

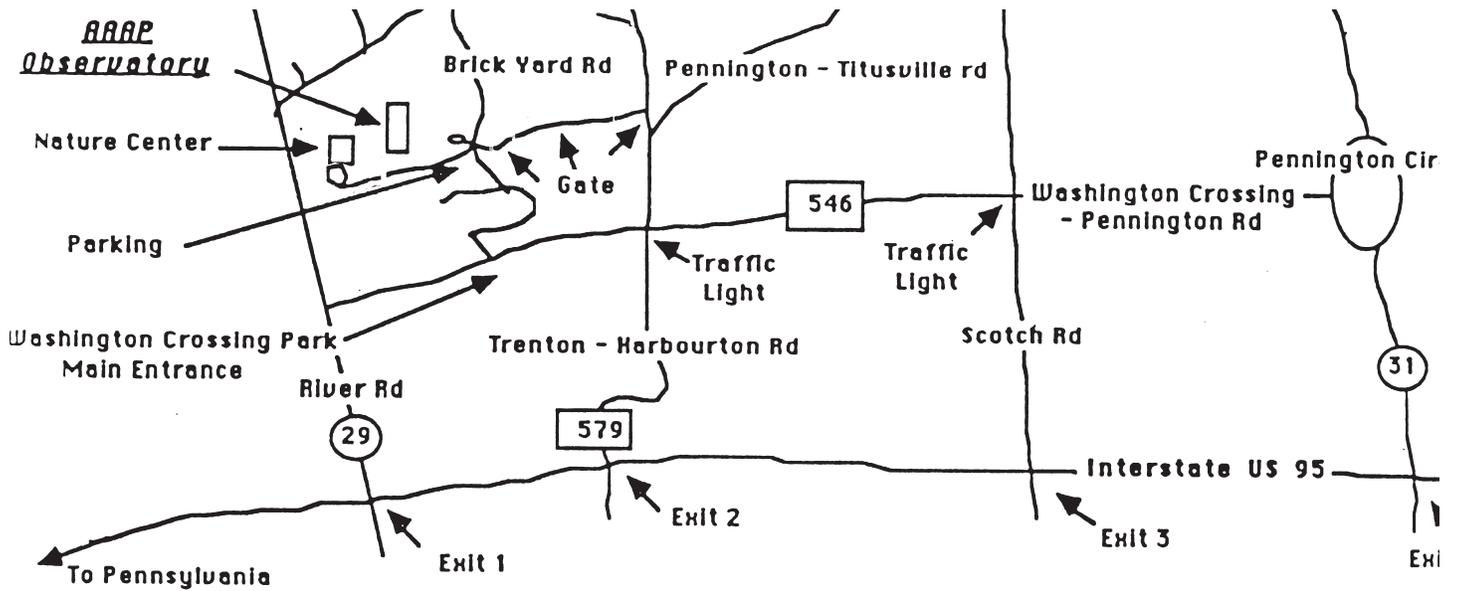
Each month astronomy magazines contain columns devoted to observing interesting faint fuzzy celestial gems. The *Deep Sky Wonders* column in *Sky and Telescope* magazine, written for many years by the late Walter Scott Houston, usually contained an observing challenge. He would ask his readers to observe faint objects in the sky, buried beside the bright show-stoppers.

Unfortunately, future stargazers of today have never experienced the excitement of reading these original *Deep Sky Wonders* columns. Many amateur astronomers read his column first, before they read their *Sky and Telescope* magazine from cover to cover. Fortunately, Sky Publishing sells a *Deep Sky Wonders* book, containing a collection of Walter Scott Houston’s marvelous columns, edited by Steven James O’meara. Sixty of Sue French’s past columns on deep sky observing are compiled in a new book *Celestial Sampler*, also from Sky Publishing.

While Walter Scott Houston is no longer with us, there are a variety of excellent amateur astronomer contributing editors continuing his legacy. Sue French and Steven James O’meara write for *Sky and Telescope* magazine. Phil Harrington and Glenn Chaple write for *Astronomy* magazine. Each of these talented people still challenge their readers to locate and observe faint celestial gems.

Once we locate these dim star clusters, they appear as miniature celestial diamonds, sapphires and rubies on black velvet. Some

(continued at left)



The best way to get to the observatory is to take Interstate 95 South towards Pennsylvania. Then take Scotch road at Exit 3 and proceed north (this amounts to right). Then, at the third traffic light take a left onto the Washington Crossing-Pennington road (County Route 546). Take this road to the first traffic light and take a right onto Trenton-Harbourton road (County Route 579). Take this road to the first driveway on the left, this is the Phillips Farm/Soccer Field entrance to the park. There is a series of three gates with club combination locks. If the gates are not open, you will need the lock combination to open the gate or be accompanied by a Keyholder member.

September 2006

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