

FBAC Member Profile: Paul Garossino

By Cynthia Gustava

As the George Observatory's Roving Reporter, my spotlight for the next issue of the Dashing Diplodocus is on a volunteer who is special in many unique ways. Paul Garossino is one of the observatory's 36" Gueymard telescope operators, a frequent volunteer for special events going on at the George, and a trainer for new volunteers wanting to learn how to use the 36" telescope. Using that same telescope and imaging equipment at the George, he is also involved in the ongoing process of helping the Fort Bend Astronomy Club's A-Team discover and track those elusive pieces of rock called asteroids.

Here is my interview with Paul Garossino. I hope you enjoy it...

Cynthia Gustava

~~~~~

## **Did you have any fascination with the sky and celestial objects as a youngster?**

My earliest recollections of a personal penchant for astronomy were fostered by my father. When I was about 8 or 9 years old, I came across his college astronomy textbook and spent countless hours immersed in it. It was fascinating, with pictures of various star fields and a whole section on impact craters. I was especially struck by Meteor Crater in Arizona. Amazing that some 47 years later, I would be actively surveying the night sky with the Gueymard Research telescope looking for the very bodies that had caused such features here on Earth. My dad noticed the time I was putting into the old text and fired me up with a great photographic experiment in the back yard. He was trying to explain how the stars traversed across the night sky and why. I was unsure of his explanation, so in an effort to prove his point, he mounted a camera on the swing set in the back yard, pointed it at Polaris, and set it for a couple of hours' exposure. This is something you couldn't do in a city anymore, at least not without some major filtering, but it worked very well to capture the winter sky in 1950's Winnipeg Manitoba, Canada. We got the film processed the next day and I was absolutely amazed to see the circular paths of the various stars, with Polaris pretty much stuck in place. From then on, a night never went by that I didn't look up in wonder. I started learning the constellations, which on cold, dark winter nights in Winnipeg, was a pretty spectacular thing to be doing. Along with very dark and clear skies, I also had to contend with numerous Aurora Borealis, which my dad again did a credible job of explaining to me as a child.

## **How did you get started in astronomy as a hobby? What piqued your interest?**

Believe it or not, my participation did not start until fairly late in life. I credit Joe Dellinger with pushing me over the edge. I have known Joe for about 18 years now. We first worked together at Amoco's Tulsa Research Center. Joe was always running off to an observing site near Zink Ranch. I was heavily into scouting at that time and as cubmaster for our local cub scout pack, I organized many campouts to the Zink Ranch facility where every night we were privileged to have an unobstructed view of the dark night sky. When Joe and I both ended up in Houston, due to the unfortunate demise of that world renowned research center, Joe joined the local astronomy club [FBAC] and found out about the George Observatory and the club's 18" Newtonian

scope available there for private use after the minimum of 20 hours of volunteering was fulfilled for the observatory. Joe started putting in the hours required to use the scope, met up with Bill Dillon et al., and started his massively successful asteroid survey career. He mentioned what he was up to at work one day and asked if I would like to join him one night. I jumped at the chance and the rest, you might say, is history. I spent many, many nights with Joe working the 18" for the public and later shooting asteroids. While doing so, I kept looking over at the research dome wondering why we weren't using that scope as well. I was told that you had to be checked out on it and Bill mentioned that the field of view was only one quarter that of the 18" and needed a mechanical mind to be comfortable running it solo. I couldn't resist and soon put in the hours to learn the ropes and pass the observing test for the 36". Dennis Borgman and Keith Rivich got me oriented to the imaging equipment, which I eventually learned to operate solo. I became about the only person to take any appreciable amount of research data using that system at the George. The highlight of these last few years at the observatory was a night when I ran both the 18" and 36" telescope simultaneously and solo, using both imaging systems and covering eight asteroid fields in one night. What a rush!

### **Are you a visual observer or mostly with cameras/other equipment?**

I try to split my time between visual and CCD observing, although it is getting harder and harder to do justice to visual observing due to the glow of the increasing light pollution at the George.

### **What are your thoughts on astrophotography?**

It is a lot of fun and with equipment available today it is well within the capabilities, both technical and monetary, of anyone with a keen interest.

### **Do you remember the first telescopic object that you observed in the night sky?**

When I was going for my geology/geophysics degree at the University of British Columbia in Vancouver, I lived my last two years in the upstairs unit of a duplex run by the Chinese family downstairs. The landlord's son was heavily into astronomy and had a 12" Celestron on a massive mount. He would set it up in the back yard at night. One evening, I got home late from studying and ran across him while he had the scope on Saturn. I can vividly remember that first view of our ringed neighbor.

### **Tell us about a typical observing session at home.**

A visual session starts early in the afternoon by bringing up Kstars on my LINUX laptop and creating an observing list for the night. With a plan of what I want to look at, I move my scope out to the driveway early enough give the neighborhood kids a chance to see that I will be out later. As it starts to get dark, I set up a card table containing my laptop, gear case for the scope, pointing laser, etc. As soon as I am out there, the kids start filtering over asking what is up tonight. I spend the next few hours showing them the brightest objects in the sky and anything special that may be out that night. By about 10:00, they drift off to home and I have the scope to myself. I usually spend a couple of hours observing before carting everything back into the house for the night. The neighbors are pretty good about shutting down outside lighting when they see me out there, as I have educated them into the evils of light pollution. :-)

An imaging session, usually of asteroids and/or variables, starts early in the afternoon by utilizing the MPC object locator services to get ephemerides for all bodies to be imaged that night. I then try to get out to the

George early enough to get the imaging gear attached and fired up, and the scope and dome to ambient temperature prior to shooting.

I try to shoot bias and dark frames early, as well as twilight flats before starting on the first field. I calibrate the autoguider, get on the field, tweak the focus as required and start acquiring data. On a typical night, I will shoot three five fields, assuming no problems with equipment or weather.

I grab another set of bias, dark and flat control images at the end of the night, download the data and take it home for processing the next day. Typically, this session will see me going home at sunrise.

**What astronomical equipment do you presently use for your personal use?**

I have an Orion 10" Dobsonian with 9600 step encoders and an electronic planimeter. I have a growing selection of eyepieces and lots of software on my laptop to give me a clue what to look for each night I get to observe.

**You put in a lot of hours at the George Observatory...what keeps you busy during your sessions there?**

Maintenance of the 36" telescope and the dome itself, and then running the RD during public outreach nights. I have run both the 18" and 36" scopes, but most definitely prefer volunteering and doing research with the 36" Gueymard scope.

**Do you work with a team, solo, or both?**

I joined FBAC to be able to use the 18" for asteroid research, which I do in concert with the A-Team. When I work the 36", I almost always work it solo for asteroid research, as the rest of the team favors the 18" with its larger field of view. Of course, when we have to chase an object that has faded to magnitude 21, I get the nod and with the 36", have recovered many such objects over the years.

**How does "star hopping" fit in to your work during a typical observing session at the George?**

When the go-to systems fail, this is mandatory. I have the full set of Uranometria 2000 that I keep for that purpose. It works great out at the George. It is pretty much useless here at home as light pollution takes out too many of the field stars. Recognizing the field and walking along a line of stars to get on the intended field is a lot of fun and when you get there, gives you a feeling of accomplishment. Like just about any technical pursuit, the more you do it, the better you get at it.

**For you, what is the most rewarding aspect of this hobby?**

Definitely playing with the gear. Initially, it was all about observation, but slowly over the last few years, it has become all about the equipment. I still very much enjoy the observations, but being able to operate, break, repair and help maintain such fantastic equipment is a lot of fun.

**Tell us about your software, website work, etc. (e.g., the moon program you developed).**

Whoa, big topic!

I work in the Unix/LINUX world. I actually do not own a copy of Microsoft's operating system and so do not use a lot of the software that most of your readers would be familiar with.

For data processing, I have downloaded the professional IRAF [Image Reduction and Analysis Facility] system of software. For astrometry, I use a program written by Jure Skvarc in conjunction with the TASS [The Amateur Sky Survey] project in 1999. I also make use of software written by Joe Dellinger for shift stacking of asteroid images, as well as a smattering of software that I have written myself.

For quite a few years, I was trying to keep a catalog of asteroid observations online so that the A-Team could keep up with the data. Over the last couple of years, I have ceased to update the site much as it became way too much work and really wasn't being used as intended. There is quite a bit of material still out there however and it is a nice resource for training new team members, as they can download raw data from many discovery nights and try their own hand at astrometry.

As for my interactive moon resource, I got the urge to image the moon in HA (hydrogen-alpha) and after taking over 45 images and then stitching them together in a mosaic, I was able to build the whole image. Once I had it processed and composed, I built HTML support to make it interactive for some of the major elements of the moon such as maria, craters, and rills. You can find my interactive moon project at <http://www.freeusp.org/~fbac/>.

When you first get into the site, click on the top box "HMNS George Observatory Gueymard Research Telescope Observations." Once in, click on the first link called "Interactive Moon" and run your mouse pointer over the image of the moon till the mouse turns into a pointing finger. Look down at the very bottom of your screen and you will see the name of the surface object in the box. Some of the brighter objects are Craters Tycho, Aristarcus and Copernicus. Don't miss the darker maria such as Mare Serenitatis and Mare Imbrium. Click on each area and you will see that I have provided links to close-ups of the objects. Clicking on Crater Tycho brings up an image with information on the diameter of the crater and a short explanation of what you are seeing. I frequently use this program for public outreach purposes.

**Would you say astronomy is an obsession in your life? How important is it?**

Well, not an obsession as such, but certainly a big part of it. Just ask any of my neighbors. I hold astronomy nights on my driveway many times a year. As soon as the scope and computer table are set up, the neighborhood kids start lining up. Within an hour or so, all the adults are over as well. They get a big kick out of it. We had a week there following Comet Holmes where the neighbor kids would ask even before I set up if we were going to be looking at the comet tonight. That was fun.

**Do you have an amateur observing mentor?**

I have a couple. When it comes to imaging, it is most definitely Joe Dellinger. Joe's expertise and understanding of imaging for asteroids is unparalleled. He is expert with systems and also an excellent programmer who has written many of the programs we use to reduce our data.

For visual observing, she may not realize it, but it would be Barbara Wilson. She has taken the time to show me quite a few tricks to observing while using the 36". When Mars was on close approach a few years back, she got me observing the planet for hours. The level of detail that one could amass in memory by catching spectacular views in variable seeing was very impressive. One night we split Sirius by getting inventive with eyepiece blocking to kill off a lot of the light from the main star. Very cool to actually make out the companion star in the diffractive light from Sirius. Waiting on the seeing, putting in the hours, all are courtesy of following Barbara's lead.

**How do you envision amateur astronomy in the next 25 years as it pertains to your expertise?**

I expect that in the next 25 years, anyone who wants to should be able to set up a scope in their back yard, equipped with adequate hardware to take scientific data, and process same to their heart's content. At the moment, this activity is limited to the few who are either financially well off and can afford it, or the slightly less well off who still have enough discretionary spending to be able to afford the use of robotic scopes.

**How can we keep the science of astronomy pumped up in our youngster's minds?**

That is really tough to do in a place like Houston where most people can neither see the night sky, nor care much about it. It is one thing to say "you should see the sky in a truly dark sky environment" and quite another for a youngster to actually get to do it. There is no substitute for observation when it comes to understanding just what we have lost in our major cities today.

So, places like the George, urban telescope parties, outreach with youth groups, etc. , really are important. I would say that my volunteer work at the George has had the greatest impact on young minds. I always cater to the little ones in the audience, especially if they show any sign of wonderment while in the facility.

**How does your area of expertise relate to youngsters? Do you find they are interested?**

Youngsters just love astronomy. The kids in my neighborhood are a good example. They range in age from 4 to 65 and every one of them gets something out of looking through the scope. I have to tailor explanations to the age of the observer, but getting the young ones to take their time and really see what they are looking at is very rewarding. Are they interested? Most definitely.

**Do you have any helpful advice to pass on to observers just starting out in astronomy?**

Thinking back to my early observing days the most important advice would be to take your time. When I first started out, I would whip around to 10 or 15 objects, take a quick look and pack it in. While it was fun seeing all those things briefly, I didn't really get a chance to know the object. It is amazing how "variable" seeing can be and how rewarding it is to catch a very clear and distinct view of an object after observing it for an hour or so.

**Speaking of astronomy equipment, what reference materials do you use to find your objects?**

A combination of things. I always refer to Guy Ottwell's Astronomical Calendar for the month we are in. I also fire up the LINUX desktop planetarium program K-Stars, which has a very nice feature "What's Up Tonight" which allows me to quickly scan through thousands of objects available each observing night and build an observing list of interesting possibilities. I also surf the internet for such great sites as the SEDS Messier List

and 9 Planet Tour. At the George, I also make use of Megastar. At home, I also use the object locator that came with my dob, as it has coordinates for over 14,000 objects on board.

**How do you envision amateur astronomy in the next 25 years?**

I can hardly wait. The level of gear that is available for the amateur is ramping up fast. I fully expect to be doing asteroid studies out of my back yard any time I want within the next five years as the price and quality of decent equipment continues to come down.

We're now at the end of the interview, so I asked Paul if he had any helpful advice to pass on to anyone wanting to get started in astronomy and he said "Sure...just do it. Get yourself a starter telescope big enough to be useful, but small enough to be transportable. With today's encoder and electronic planimeters, it is easy to get on any star field and start observing. Drawing what you see is also very useful, as it helps slow you down and gives you a much better education into the object you are studying in the eyepiece. You will be amazed at what you will learn along the way!