

# SIDEREAL TIMES

The Official Publication of the  
Amateur Astronomers Association of Princeton

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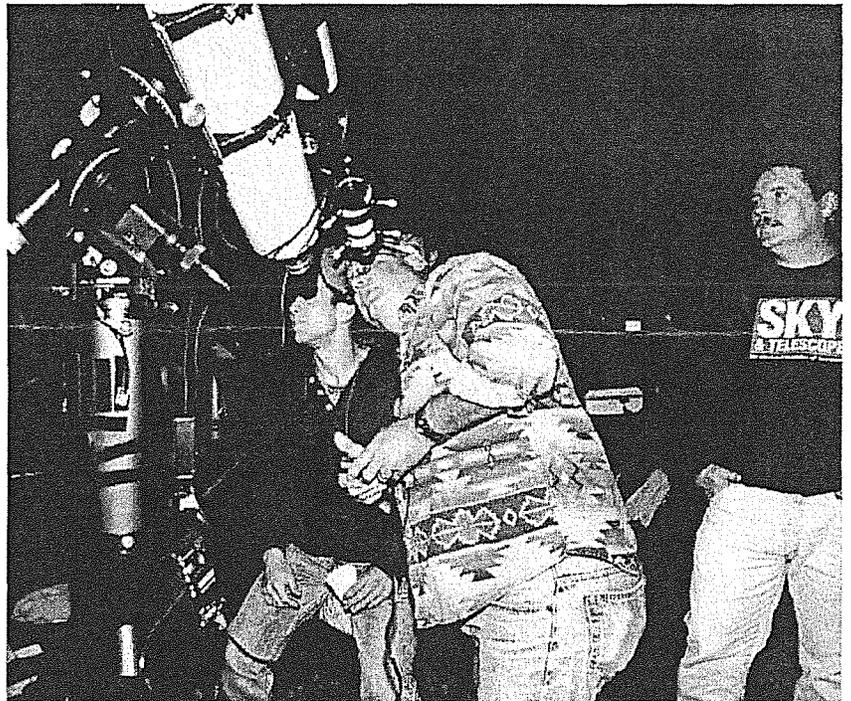
Midsummer 2002

Number 7

## From the Director

**AAAP History: Its Capture and Making** As we all know and as many songs keep reminding us, "Time passes on!" I cannot believe that it is already the middle of July. I find I can hardly account for my own days, let alone keep track of the history of an organization such as the AAAP. However, after being interviewed for the recent article in US/1 I not only realized how little I know/remember about the club's history but how little of this information we share with each other. I truly enjoyed John Church's talk last year about the club's early moments. John recently helped me with some of the facts for the US/1 article and recently reported in an email to the board that he is "about 2/3 finished with a project to summarize the club's history by going back through my collection of old newsletters and Sidereal Times since 1971." In addition, John has contributed a full CDROM of historical pictures for eventual posting on the club's website. Did you know that the club also maintains an archive? Our Club Archivist, Pete Oppenheim, welcomes all club members inquiries and suggestions.

All this has inspired me to see if we cannot get a little more momentum behind the idea of opening a new section on the club's website (<http://www.princetonastronomy.org>) to capture and present at least some part of our club's history. I would like to encourage all of the long standing members to think about what materials or knowledge they might have about the club and to forward it to me in email ([kirk@princeton.edu](mailto:kirk@princeton.edu)) or via snail mail c/o the club's post office box (AAAP, PO Box 2017, Princeton, New Jersey 08543.) I will see that it both gets to our archive and to our webmaster. I would also welcome anyone else who would like to contribute to this project to offer his or her time. One could spend an afternoon going through the archives, helping to choose images best suited for the web site, editing some copy...or thinking/contributing anything from artwork to pointers to other material. One member has already reported to me that he works in



*Ralph Marantino sharing his big refractor at StarQuest '02*

media, is a good writer and a host of various radio shows. Perhaps we can capture a bit of oral history as well!

History, however is also always in the making. One last thing it would be nice to start to capture would be the beginnings of the history that is to come. During our tremendously successful Jersey StarQuest this summer I happened to be sitting with Bill Murray at breakfast on Sunday morning as he was giving out pins for those who successfully completed his observing challenge. This turned out to be a record number of achievers...and something it would be nice to recognize. Further, Bob Vanderbei, our keynote speaker for the event stunned us all by setting a record of his own: he captured fully 26 CCD images of the globular clusters on the Challenge list in a single night (see: <http://www.princeton.edu/~rvdb/images/starquest02/index.html>) The list of successful attempts at the Challenge list is a perfect example of history in the making.

*(Director, continued on page 2)*

Simpson Observatory (609) 737-2575

*(Director, continued from page 1)*

Can you think of categories of other such events past or present that could become part of the history section of our website?

So while you're waiting for your next astrophoto exposure to complete, or sitting around on a rainy summer evening, put some thought into helping capture a bit of the AAAP's memory for others. If you're interested, drop me a line or give me a call. Meanwhile, have a terrific summer and enjoy some of these beautiful clear nights we have been having lately. I'm getting blurry-eyed at this very moment from several nights of observing marathons. Hope you're finding the stars too!

Kirk

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### From the Treasurer

The treasury balance stands at \$8352.74. Jersey StarQuest brought in \$986.96, a correction after some last minute expenses were paid. If your dues are coming due, you may send them directly to me at: Ron Mittelstaedt Treasurer, 149 Palmer Lane, Ewing, NJ 08618-3207. The rates are \$30 per year, \$60 with one magazine subscription, and \$90 with both.

StarQuest was one of the best in recent years, almost two perfect nights. Friday night wasn't as transparent as Saturday night. On Saturday at around 12 or 1 AM the sky was as clear as I have seen in North Jersey.

I judge the transparency by a galaxy near the globular cluster M-13. NGC 6702 is a galaxy at magnitude 11.6. On Saturday night I was able to see structure in the spiral arms. I've only seen it better on a good night at the summer star party in Northwestern Mass.

Bill Murray's deep sky challenge was different this year being that it was only globular clusters. Never looked at so many in one night. There was some discussion about NGC 5053 next to M53. It was very hard to observe even with averted vision. I thought I saw it but after trying to find it again, was mistaken.

This was the first year in many that I won a door prize. Of all things I won a Telrad finder. I have four now. Seems every time I buy a scope it comes with a Telrad. I sold it to our guest speaker Dr. Mary Lou West. Someone got it that needed it.

I have to put this as one of the better StarQuests.

Ron

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### From the WC Observatory Chairman

**AAAP Washington Crossing Observatory Update.** The observatory recently received some long-awaited and significant technical improvements as well as intensive maintenance. The fabled 6-1/4 inch Hastings refractor has been refurbished and now sports a high-end brass focuser (custom made by D & G Optical). This is the result of persistent work by several members, notably John Church, Ralph Marantino, and George Walker. Early this summer the observatory was also given some much needed TLC by Gene Ramsey, Bill Murray, John Church, and others. The observing field project (adjacent to the observatory) has been finished a looks great (thanks to Gene)! Based on his dedicated work on the facility, Gene Ramsey has been appointed by our Director as assistant chairman of the observatory. Thanks to all who continue to make the AAAP WC Observatory a great astronomy place for the cogno-

scenti and the public.

**Observatory Training-- Call for Candidates.** Here's your chance to become a AAAP Observatory Keyholder, which is the only way to gain 24/7 access to the C14/ Paramount computer-driven telescope and the Hastings 6-1/4 refractor at WC Park. In contrast all AAAP members can observe but only under the auspices of a Keyholder who must be present. We are planning to develop a new training course for club members interested in becoming expert observers and improving their ability to conduct public astronomy. In order to develop the training plan, we need to know who is interested. Please reply to me by e-mail or phone to indicate your interest (even if you've spoken to me before). The training will consist of several sessions, to be held on weeknights at the observatory, learning about the optics, software, and hardware, as well as public duty and park rules. Awarding of the key comes with demonstration of proficiency, so that the number of sessions required depends on previous experience in astronomy. All AAAP members are welcome, we only require your commitment and good will!

**Hayden Planetarium/Rose Center AAAP-Hopewell Township Trip Sept. 7.** AAAP members who would like to volunteer for a field trip on Sat., Sept. 7, with the Hopewell Township Recreation Dept., should get in touch with me. We're looking for a few AAAP members to act as informal astro-tour guides on a round trip via chartered bus to the Hayden Planetarium/Rose Center in NYC. We will coordinate the township group and provide astronomy interpretation, and in turn our expenses will be covered. Please contact me at the earliest opportunity if you're interested. This is a low-key event and a chance to have a great time with folks who are motivated to learn more about astronomy.

Rex

Rex Parker, Ph.D.,  
WC Observatory Chairman

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*(Focuser, continued from page 4)*

shorten the diagonal a bit or get a special diagonal.

Again, nothing's easy when it comes to telescope engineering, but at least the refractor is functional again, and much easier to use than it ever has been. All you fuzzy blobbers out there, a little color on Venus won't kill you; welcome back to the world of sharp, quickly-cooling refractor optics!

*[Refer back to the June issue to see a picture of John with the newly refurbished 6.25" Hastings refractor. Also make sure to visit the Burg Optics website (<http://www.bdinstruments.com/generic9.htm>) where you will find some beautiful color photos of the focuser and detail views of the adjustment mechanisms. Mr. Burg and his machinists, the Dentons, do excellent work. Burg Optics also has a superb line of Crayford Focusers for the amateur telescope making community, their quality and prices will satisfy the most discriminating telescope makers. -- ed]*

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**Our next regular meeting** will be Tuesday, September 10, 2002 at 8:00 PM in Peyton Hall. Be sure to look for an announcement of the speaker and topic in the September issue of the Times or check out the announcements section of our website.

## From the Editor



Everyone that I've talked to agrees that StarQuest 2002 was a huge success even though attendance was off a little from past years. I guess we'll have to have a few events with good weather and viewing to get the folks back after our miserable 2001 weekend. Bill Murray's observing award challenge had more participants than ever and gave away lots of beginner and advanced Observing Pins to prove it. Even I earned the advanced pin this year to add to my beginner pin that I earned in 2000. I only brought my Meade ETX-125 this year and was surprised by its performance on faint globulars considering its scant 5" aperture.

Bill Murray's challenge was a list of 40 of these ancient objects from the 150 or so in our Milky Way. A little over half on the list, 23 to be exact, were familiar ones from the Messier catalog but he only allowed 15 to be used toward the advanced challenge. Another 10 had to be found that were more difficult NGC objects out of the remaining 17. They ranged from magnitude 8 to a very faint 10.6 of NGC-7006, a challenge for 8 and 10 inch apertures but my 125 mm Maksutov dragged it out of the background as verified by Bill himself at 2:45 AM, Sunday morning. My batteries died within a half hour of that pleasant surprise and I had to find my last object with Rex's telescope to complete my Challenge List and earn my advanced award.

The feature photo of Ralph and his Astro Physics telescope can be viewed in color along with many other StarQuest photos on our Website. Take a moment and visit us at [www.princetonastronomy.org](http://www.princetonastronomy.org) and see the great job John Miller is doing.

It was good to see our old friend Mike Peebles back even though he wasn't ready to have a booth. As he lines up his distributors I'm sure he will be present at upcoming events under his new banner of High Point Scientific.

As many of you know Bill Murray and I have gone to the Winter Star Party in the Florida Keys several times and viewed some Southern hemisphere objects from the south facing beaches of

West Summerland Key. My daughter has a summer job in the Keys as a dive master in a Boy Scout Camp so I had another opportunity to observe again 4 months later from a similar beach within 25 miles of the WSP site. My wife and I took the same RV trailer down again and were fortunate to get a beach site with hook-ups for under \$25/night (cheap for the Keys, most run \$40 to \$55 per night and are not on the beach). Long Key State Park has about 40 campsites and each is on the beach as shown in the picture above and though your neighbors will have some outside lighting in their sites there are no big obtrusive overhead lights as park budgets are usually austere.

Though weather was partly cloudy every night, I was able to get in a good couple of hours of observing while we were there. Again, I was using my ETX. I really wanted to catch Omega Centauri before it sank into the sea and I should have been able to see this brilliant naked eye globular, but the horizons were always obscured with clouds. Scorpio and Sagittarius did put on

a good show for me between cloud banks and the globulars gave the best opportunities. Because of humidity and haze nebulosities were washed out but open clusters and globulars were still worth seeing. We had the added bonus of having my son fly down to Marathon on one of his helicopter training flights the last day we were in the Keys and we got to go SCUBA diving with my daughter in the Looe Key National Marine Sanctuary.

I would like to extend my thanks to Nick Hillman and Gene Ramsey for helping me on July 3, with my group of young people and camp counselors from Mount Misery. There were 17 in all that had a great time viewing nature's offerings through the two telescopes at the Simpson Observatory.

This was also the first time I got to use the new focuser on our Hastings refractor. The Machinist did a beautiful job in maintaining the antique character of the Hastings while producing an exquisitely functioning mechanism. If you would like to see quality photos of this masterpiece of craftsmanship, visit the B&D Instruments website, (<http://www.bdinstruments.com/generic9.htm>) where our focuser has been featured by them as a special project.

As in past years, I will be doing my Introduction to Amateur Astronomy course at the Nature Center. The first session will be Saturday, Sept. 21, at 2:30PM. Subsequent sessions will be on Fri. evenings; 9/27, 10/4, 10/11, 10/18, & 10/25. Contact the Nature Center to sign up (609) 737-0609. Enrollment is limited to 25 persons.

Vic

Deadline for the  
September Issue of the  
Sidereal Times  
August 23, 2002

## Focuser Wars

by John Church

When I picked up the new focuser that had been custom-made for our Hastings-Byrne 6-1/4 inch refractor by Burg Optics and the Dentons (their machinists) from John Miller in May, I was extremely impressed with the quality of the workmanship that had gone into it. It is indeed a beautiful piece of telescope machinery. The AAAP owes a debt of gratitude to Ralph Marantino for suggesting this upgrade, to say nothing of the idea of buying the new Losmandy mount, which has been and will continue to be a pleasure to use.

I had no idea that the new focuser would be so massive. It is machined from solid brass and aluminum, and when I took it home and put it on my bathroom scale, it weighed in at 12 pounds! I thought we might be in for some serious trouble, because the original focuser weighs only 4 pounds by comparison, and so how were we going to balance the new one?

Well, we could hardly send the focuser back, so there was nothing to do now but take this bull by the horns and see how it was going to go. The refractor tube had been beautifully refinished and remounted under the direction of George Walker, and was ready for the focuser. So Gene Ramsey and I proceeded with the installation task, thinking it might take all of one afternoon, provided we could solve the balance issue. It wound up taking about five afternoons, all told.

The focuser had been designed and fabricated to slide into the end of the existing tube, and we and the Dentons had taken great care to insure that its outside diameter (5.116 inches) matched the inside diameter of the tube. And so it did, basically. The Dentons had provided a channel into which the tube end was designed to slide, to make a neatly finished job. It turned out, however, that the focuser wouldn't go home: the tube was just a little too thick (or the channel too narrow), and moreover the tube was about 2 millimeters out of round at one place, besides having an inner reinforcing seam that made matters even more complicated.

OK: time for some custom modification work. (As they say in the transmission repair shop ad: "We'll MAKE it fit.") We had to carefully grind down and file the end of the tube, especially where there was a thick spot due to the inside seam. This took quite a while. Then we had to make the tube round. How to do this? Fortunately we had the solid test plug that the Dentons had sent us for a trial fit. We put this in the tube, then carefully tapped it into roundness from the outside, using a wooden block between the mallet and the tube. After many tries plus some re-grinding of the tube end, we finally got it to go in and all the way home.

But now the six equally-spaced, carefully drilled and tapped mounting holes in the new focuser did not quite line up with the pre-existing holes in the tube that held the old focuser in place with screws. Nothing's easy! The Dentons had done the best they could, using the old focuser as a guide, but it just couldn't be made this precisely. So, rather than drill new holes in the tube, which would have been very difficult to position exactly, Gene and I carefully enlarged some of the existing holes to the point where the new stainless steel mounting machine screws could line up with the focuser holes and still have enough material left under the head to secure the screws. We also had to take into account the orientation of both the focuser and the finder, so that the large knurled

knobs as well as the finder would be in the best overall location for most of the likely observing positions of the telescope. We still hadn't gotten into the balance question; first things first.

We had the focuser finally attached. We knew we'd have to slide the tube well up in the rings to give the objective lens end enough overhang to balance the eight extra pounds of focuser. This was without even considering the other balance problem, namely the extra counterweight that would be needed on the declination axis to keep the whole thing from swinging down around the polar axis even after it had been balanced in declination alone. I had done a preliminary calculation of moment arms, which showed that the tube would have to go a foot or more up in the rings. The question was, could we go that far without running into some other issue, such as a weakness in the tube? Fortunately, Gene noticed that the tube had been made with extra reinforcement in the middle section, and that this reinforcement extended far enough down the tube so that the lower ring would still be around the reinforced section. But then there was another problem: the tube tapers. When we slid the tube up the rings, the lower ring couldn't take up the extra space. So Gene wound up making special new felt spacers for both rings, and we were finally able to grip the tube successfully, aided by an additional adjustment (provided by Losmandy) in the position of the ring mount, which had escaped our notice up to this point.

During all of this work, we had to keep tying and untying the tube to the roof rafters so that it wouldn't be swinging down unexpectedly when out of balance. And I had to keep taking the lens cell in and out, which is always a cause for some anxiety, even though I've done this countless times in the past. A long refractor on a German equatorial, with heavy assemblies on both ends, is inherently a very unstable thing and can quickly get away from you unless it's firmly secured with ropes, until the balancing job is finished.

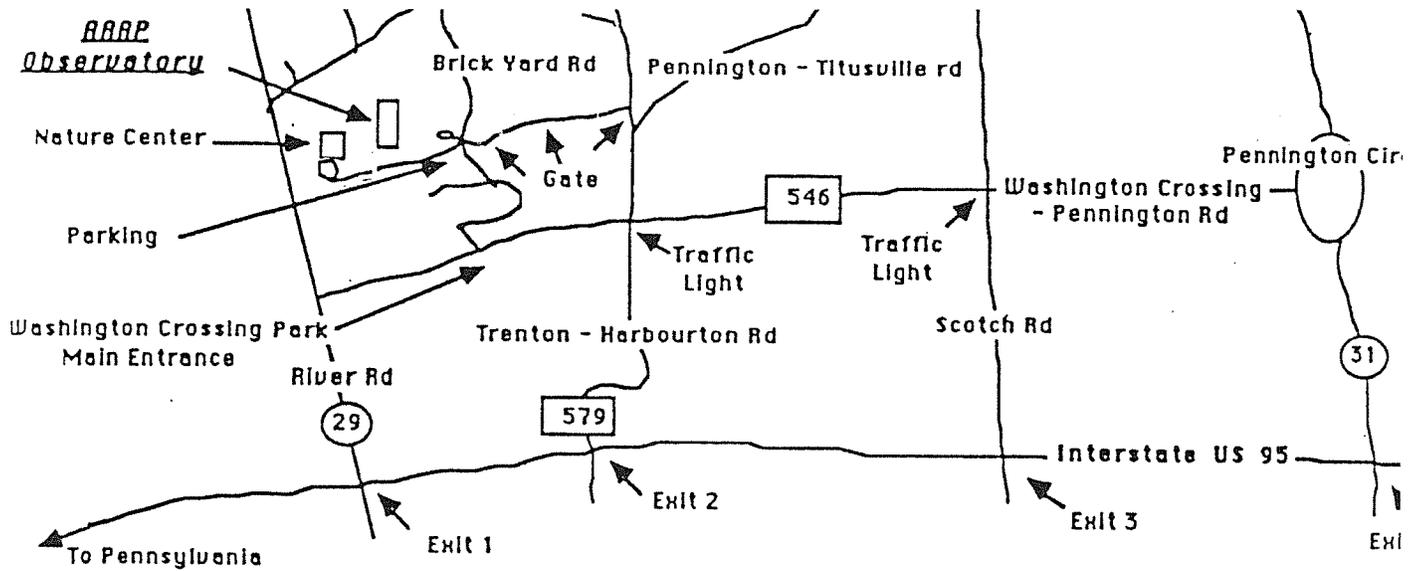
After finally getting it balanced in declination, including the weight of a diagonal and eyepiece, we came to the moment of truth. Could we balance it in right ascension also? And here we finally got lucky, which we felt we richly deserved after all this trouble. By moving the heavy declination counterweight all the way out to the end of its axis, we were just able to balance the whole thing in right ascension. What a pleasure it now was, to be able to set the tube in any orientation we wanted to and have it stay where we put it, and to have the clock drive function correctly. We worked on this all Friday afternoon (May 24th) and managed to get it ready just in time for the public observing session. It was mostly cloudy, but visitors were able to see the full moon briefly. Happy ending!

This isn't quite the end of the story, however. Because we occasionally will want to use the "hand grenade" Nagler, which exerts quite a bit of leverage, we may want to install a rod on the upper tube end with an adjustable sliding counterweight. This will also be useful when attaching a camera or CCD, or a heavier finder. The Losmandy mount does not effectively lock in either declination or right ascension, so we will need to arrange for adjustable balancing of this type, and also put a small extra adjustable weight on the declination axis. Also, since we can't quite reach focus with the heavy Nagler in the existing 2-inch diagonal (although all the other eyepieces do reach focus), it will be necessary to either

*(Focuser, continued on page 2)*

**Amateur Astronomers' Association  
of Princeton  
Officers and Committee Chairpersons  
June 1, 2002**

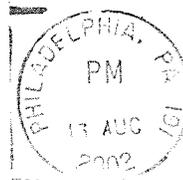
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The best way to get to the observatory is to take Interstate 95 South towards Pennsylvania. Then take Scotch road at Exit 3 and proceed north (this amounts to right). Then, at the third traffic light take a left onto the Washington Crossing-Pennington 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.

Amateur Astronomers'  
 Association of Princeton  
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Midsummer 2002



See us on the Web: [www.princetonastronomy.org](http://www.princetonastronomy.org)

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