Technical Committee Report for January 2012

January 9, 2012

A work day was held on December 26th to refine collimation of the 24".

In attendance were Jim Nordhausen, Al Witzgall, Joe Ascione, Tony Sharfman, and Aaron Zuckerman.

The focuser and rear adapter plate were removed, as well as the baffle tube, to allow inspection of the mirrors and to allow the perimeter of the secondary to be visible for more accurate collimation. Al Witzgall inspected the condition of the coating on the primary, and found it tolerable, but in desperate need of cleaning. The baffle tube was found to be lined with yellow glue residue that formerly affixed flocking which has been lost to moths and the elements. I recommend reflocking or at least painting the interior of the baffle flat black at its next removal. The primary diameter was measured at this time and found to be 24 5/8", with an 8" hole. The focuser was then replaced with the baffle out. We proceeded to center the secondary with the aid of a borrowed laser collimator, adjust its tilt visually to reflect a centered image of the primary, and then adjust the tilt of the primary to remove aberrant reflections. The focuser was removed again, the baffle replaced, and the focuser was reinstalled a final time. Work concluded at 14:30, pending a star test to finalize collimation. Photos of work performed are attached and are self explanatory.

That same evening was tolerably clear, so I returned, and assisted by Tony Sharfman, final adjustments were made under less than favorable conditions. Jupiter would still not come into sharp focus, but the scope was hot and seeing was poor.

Friday, January 6, the seeing was more favorable, and an improvement was noted by Allen Malsbury and me.

Sunday, January 8, following an excellent Research Committee presentation by Nirav on variable stars, the stragglers went into the dome with me to retest the effects of increasing the mirror spacing to reduce the backfocus to original specifications. I was assisted by Aaron and Tony. Our target was Jupiter and the 35MM panoptic was used for this test. Overall view of the target was first noted by all. We removed the focuser from the bayonet and replaced it with the short straight bayonet from the 10". Next we shifted the secondary with the old stepper motor paddle until focus was attained. A noticeable improvement in clarity was obtained, though sharp focus could still not be reached. We were joined by Marcus Valdez and Allen Malsbury, who noted the view; the focuser was returned to its original position, and all 5 of us were in agreement that the view had deteriorated again.

I have obtained a piece of aluminum to make a new focuser adaptor as soon as I can measure the focuser base for fit.

I would like to thank all those I mentioned in this report who helped this project along, and I would especially like to thank Jim Fusco of the Willingboro Astronomical Society for loaning me his laser collimator.

I was quite impressed with the machining precision of the laser collimator, and contacted its manufacturer, Howie Glatter, about obtaining one with the projection adaptor for the club, and he offered us a 20% discount on anything we purchase. I will call him in the near future to discuss a package that can be used for all club scopes, as well as member's personal scopes. I anticipate a final cost of $200 to $300 for a universal package.

While working on the 24" in daylight, problems were noted with the finderscope collimation mechanism which allows play and slop to shift the finderscope slightly as the scope changes position in the sky, especially across a meridian flip. We can keep the same 2 axis design but with tighter tolerances and jam nuts to prevent accidental miscollimation by the public to resolve this issue.

Sidereal Drive issues were minimal during the previous month, with RA lags noted, and only one crash of the Gemini system reported. Balance, torque, and friction issues in the 24" drive will be the next project to begin in earnest.

24" mirror cleaning and recoating are tentatively scheduled for the spring when the weather warms up.

Respectfully Submitted
James Nordhausen,
Technical Committee Chair

Appendix: Work Day Photos

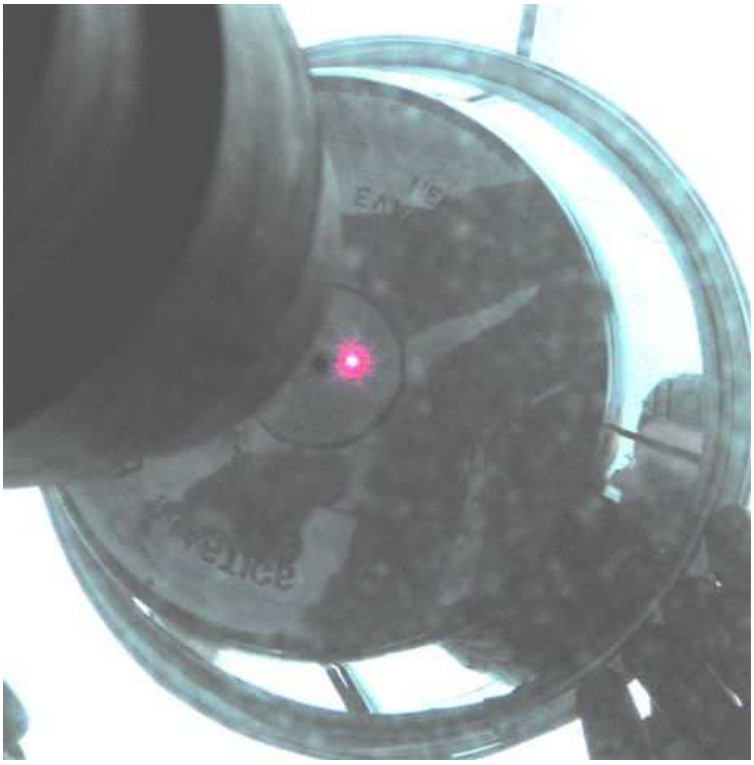

Photo 1 Secondary Centering Error

Photo 2 Overall multiple collimation errors

Photo 3 Current condition of Primary Mirror

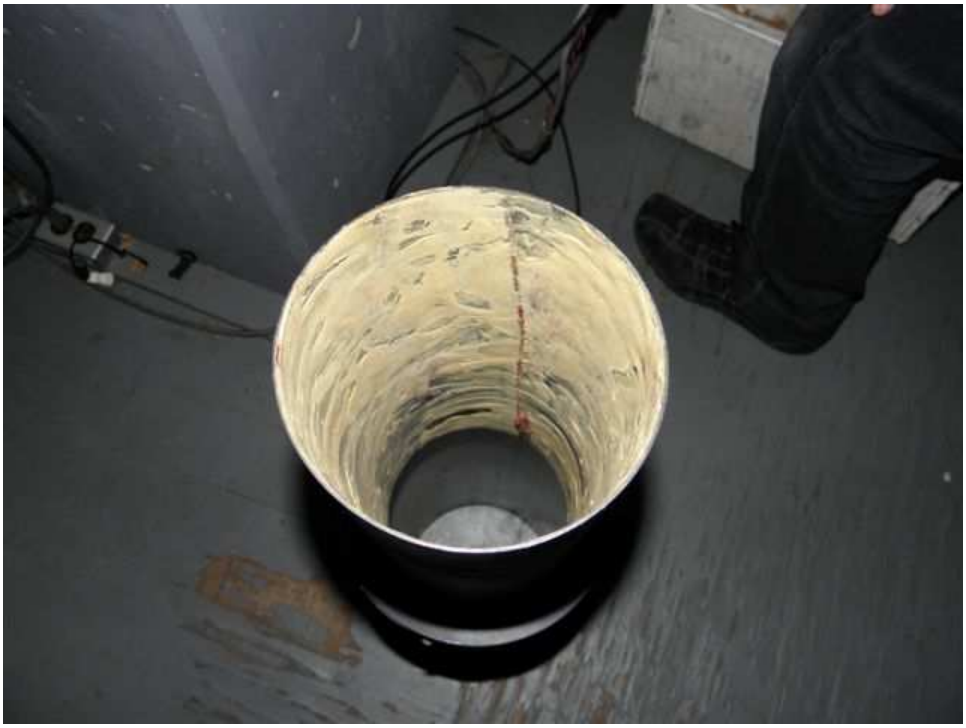

Photo 4 Baffle tube showing glue residue from former flocking

Photo 5 Al Witzgall inspecting the Primary

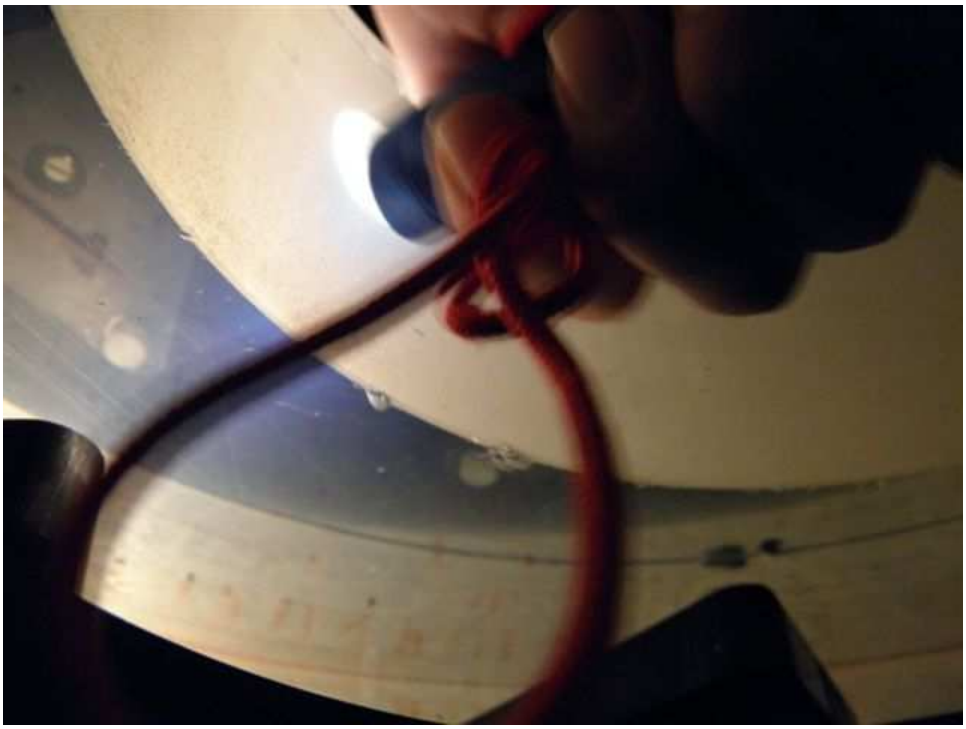

Photo 6 Illuminating the backside of the mirror to check for pinholing of the coating

Photo 7 This photo illustrates how far the secondary needed to be shifted laterally to center it

Photo 8 Adjusting the pointing of the Secondary

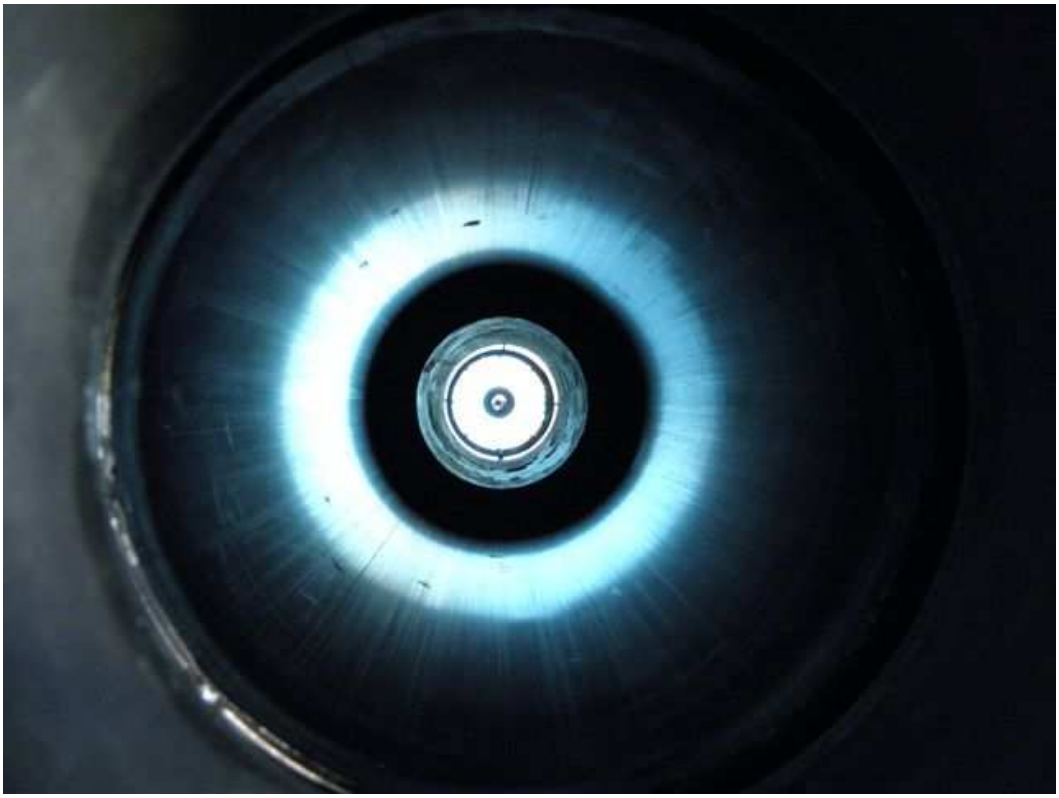

Photo 9 The view of the centered and collimated optics through the reinstalled baffle tube

Photo 10 Reinstalling the focuser bayonet

Photo 11"The Crew" discussing the old turret

Photo 12 All finished for the day

The End…..for now!