

Reminiscing about Mt. Wilson 60-inch Nights

By David Nakamoto

With the LAAS reserving more nights on the 60-inch this year, I thought I'd think about my experiences with the venerable telescope. I wrote an article about my experiences with the 60-inch, which was printed in the July 1999 issue of Sky and Telescope. Unfortunately, I can't reprint that one, but I believe it can be obtained through SkyPublishing. But I've been back to the venerable 60-inch a couple of times since then, notably for the famous Mars 2003 opposition.

60 inches of glass, a LOT more than any amateur telescope you're likely to use and see through, partially because that big a piece of glass weighs a couple of hundred pounds at least, which means hernias galore, and due to the large size of the telescope needed to mount such a beast . . . and more hernias. But a select group of amateurs have never let such considerations defeat their ambitions, so I expect to one day hear of some amateur with a 60-inch diameter Dobsonian, needing an army to set it up and take it down, and a portable elevator to reach the eyepiece. I also expect him to haul it out only once a year or so, just to show off. ☺

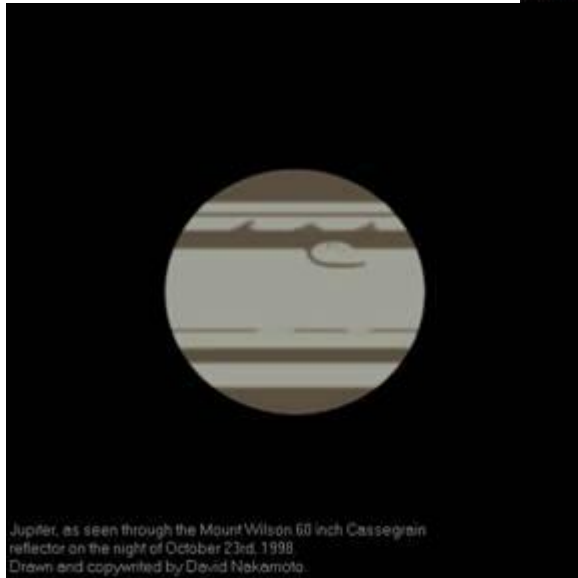
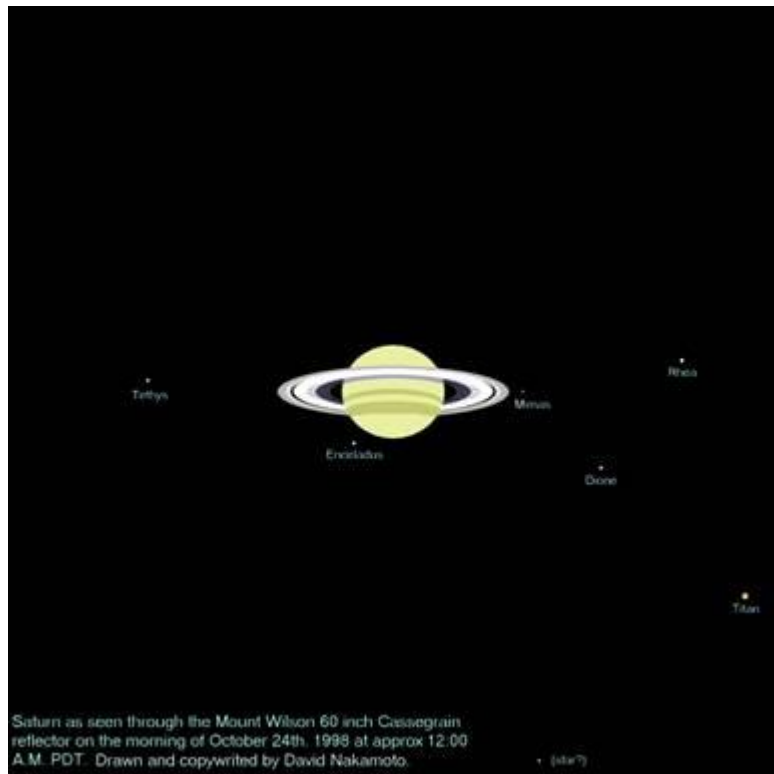
One strange aspect of the 60-inch is that it is the only telescope I've looked through where you can sit on the telescope ! This happened during August of 2003, the great Mars Opposition night, when Mars would make its closest pass to the earth in hundreds of years. But that news was mostly hype. Close approaches, where Mars gets to a similar visual size, happen every 13 years or so. And the difference is around 2 or so arc-seconds, out of an average size at these closest oppositions of 22 arc-seconds, so perhaps less than a 10% difference. But hype generates tremendous interest, so Mt Wilson was crowded that night, as was the Griffith Observatory satellite facility.

One memory from that night was that Norm Vargas thought he saw one of the moons of Mars. I confirmed it, seemingly . . . except when we drew what we thought we saw, the two positions didn't match ! So a quick check of the charts to see where each moon was, and it turned out that Norm saw one moon and I the other !

But the telescope was pointed as far south as it could go. So far south that the telescope operator needed me and another observer to watch CAREFULLY as he lowered the telescope to the deep southern skies, trying to avoid hitting part of the mount ! We wound up within an inch or two of doing so !

But the other planets are wonderful sights also. With an f-ratio of 16 and 60-inches of objective glass, the focal length is a whopping 960 inches or over 24,000mm ! Even a 16-inch SCT is only 160 inches or 4,000 millimeters, only 1/6th as much magnifying power for a given eyepiece. A 50mm eyepiece, a very low power eyepiece for an amateur, gives a magnification of nearly 490x on the 60-inch ! If you want to go to the Rule-of-Thumb theoretical maximum of 90x per inch of aperture, then the 60-inch can give you 5,400x ! But you'd need a 4.5mm eyepiece or the equivalent, and dead-steady, clear skies. But even using the observatory's 100mm eyepiece you get 240x, about twice the magnification through most amateur instruments, with tons of eye relief, a definite plus for those of us who have to wear their glasses at the eyepiece. And Mt. Wilson occasionally has nights of dead-steady seeing, like looking through optically perfect glass, rather than from the bottom of a swimming pool as most nights are.

One such night occurred when Jupiter and Saturn were near their opposition points on October 23rd 1998. On either side are drawings I created digitally after that night. The different dates are due to the fact that we observed Jupiter in the evening, then Saturn later in the morning. Saturn was especially interesting, since Norm Vargas and I were pretty sure we were seeing Mimas, although I couldn't hold it steady. What you do to confirm an observation that comes and goes is to verify that you see the same thing in the same location several times in a minute. This happens with objects or details that are JUST at the limit of visibility. But there was also detail in the B-ring (note the shading at the ends), and the C-ring which was plainly visible.

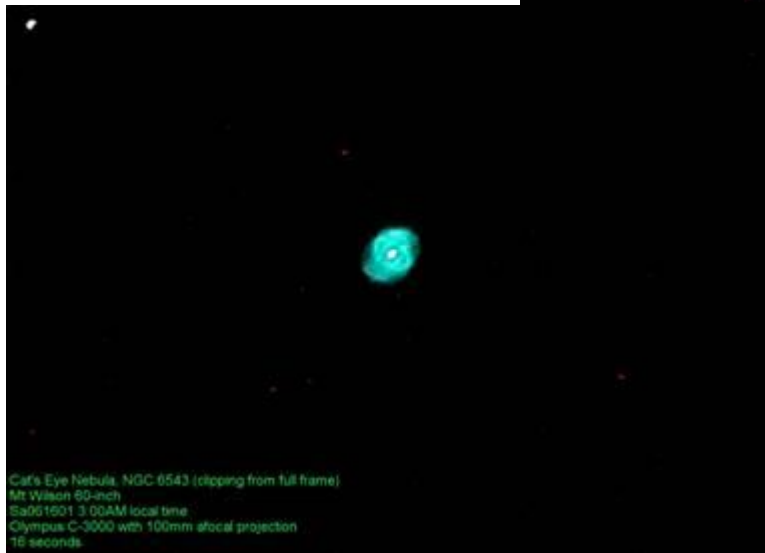


The great light-gathering power of 60-inches of glass makes seeing deep sky objects a completely different experience from smaller scopes. M42, the Orion nebula, show definitely colors; pastels of pink and green mostly, both due to various excited states of hydrogen gas. Even its stars show definite and pronounced colors. Unfortunately, I didn't have a camera that night. Fortunately, on June 16th 2001, I had a digital camera, and took the image at left of the Cat's eye planetary. It was definitely much brighter through the 60-inch. Because the eye is more sensitive to greenish colors when color vision is possible, most deep sky objects have a definite greenish tinge, but Planetaries show it more due to the Oxygen-III line typical of such objects. Here is my image of it, taken by holding an Olympus C-3000 to the 100mm eyepiece and setting the camera's focus to infinity and holding down the shutter button for about 16 seconds.

But the great magnifying power of the telescope makes it unsuitable for a lot of other deep sky objects. Many galaxies are either too faint, too large, or too far north or south to be seen through the 60-inch. But planetary nebula, and globular clusters are much bigger, and much brighter, than any amateur instrument can offer. But the larger the object, the less you'll see of course ! But in some cases, more is seen. The

image at right is of M13, the Great Hercules globular cluster, was taken earlier in the evening from the previous image of NGC 6543, and with the same settings. Of course, what we see here is the magnified core of the globular, at 240x, but the high resolving power of such a large primary mirror allows the individual stars to be seen with great clarity. Again, something beyond the capability of any amateur instrument.

I think that every amateur should take the opportunity to see through this wonderful and historic instrument at least once. I'd recommend timing it so at least Jupiter and/or Saturn are in the sky, or perhaps a Mars opposition. These three planets are the only ones that show any good details in any telescope, and in the case of Saturn and especially Mars, the only way to see some of the fainter moons of each. This year offers good



nights to view Saturn, and with the Summer Milky Way coming into view, planetary nebulas and globular clusters are available.