

THE HORSIE, THE DUCKIE, AND THE BLUE ROSE NEBULA
or
FOR A NICKEL YOU GET TO FOCUS

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Lick Observatory hosted its 2001 Volunteer Appreciation Night, for docents who had helped with public programs that summer, on September 15, 2001. Early clouds and more munchos than we could reasonably hope to eat threatened, but the cirrus passed swiftly and our appetites rallied to the cause. One potential disappointment proved a boon: The 36-inch Great Refractor was unavailable because the motor that rotates its dome had broken, so we used the 38.5-inch reflector instead. This instrument, called the Nickel Telescope not because it was inexpensive (though it was) but because it was funded by Anna L. Nickel, is an f/17 Ritchey-Chretien in an English yoke mount, with drive and slow motions and all manner of professional accoutrements. It even had an eyepiece. What's more, its Cassegrain focus is accessible from the floor, or a few steps up a movable stair. The sacred Dobsonian ritual of the ladder dance was not for us, not at all.

The 38.5-inch, affectionately called "the 40-inch" or "the one-meter" by souls tormented by aperture envy, has neither the panache nor the history of the Great Refractor, but it also does not have that latter instrument's spectacular chromatic aberration, in honor of which we dubbed the 36-inch "The Jimi Hendrix Telescope". It is also much more efficiently controlled, and though we missed the sight of low-flying night staff, whooping Tarzan-like as they dangled from the eyepiece end of the flailing 57-foot tube of the 36-inch, we were willing to forego that regular entertainment for a chance to look at many more objects than hand slewing of its lumbering Warner and Swasey mount could have provided. Hostess and guide Elinor Gates, a staff astronomer at Lick, sat in the control room of the Nickel telescope, and from time to time interrupted her casual reading to enter coordinates for the next object into the control program, and monitor the slewing and setting of the instrument. Actually, Ellie is as enthusiastic a visual observer as any of us, and more experienced than most, and would regularly dash from the control room into the dome to take her own turn observing each object. I didn't ask if she missed the lianas on the back end of the 36-inch.

Our first target of the evening was M57. It was refreshing to see the Ring Nebula at 486x (35 mm Panoptic -- the only magnification we used that evening) with plenty of surface brightness, crisply focused, and with no purple haze to blur the view. Seeing was at that time poor, unfortunately -- it got better later -- so we could not see the

central star, or much detail in the nebulosity. Next we looked at the two planetary targets that were well placed in early evening (Mars was too low), Uranus and Neptune. Triton was obvious, as were several moons of Uranus. With a handy ephemeris, I confirmed Umbriel, Titania and Oberon, and could probably have gotten Ariel as well, but for the large number of other folks who for some reason wanted a turn at the eyepiece.

Other planetary nebulae figured prominently among the night's targets. First was NGC 6572, sometimes known as "The Emerald Nebula". This rich green planetary, seen through the Nickel telescope, resembled the bipolar stubby-cigar-with-band shape that M27 takes under extremely good conditions with less aperture. NGC 7662, commonly "The Blue Snowball", had a rather different appearance with so many photons available. It looked like a nest of two blue elongated rings, one within the other, or perhaps a helix structure, I could not quite tell. The apparition reminded me of a "double" rose blossom -- one with two rows of petals, so in a fanciful mood, I renamed NGC 7662 "The Blue Rose Nebula". NGC 7008 was as an interrupted elongated ring -- perhaps a link of chain -- close by two stars. Someone -- it couldn't have been me -- suggested that it's chain-like aspect deserved the name "The Bondage Nebula". Well, maybe it was me. NGC 7009, the familiar "Saturn Nebula", took on an entirely unfamiliar appearance in the big reflector. The ansae were clearly visible, and the brighter, elongated central portion showed as an irregular oval, and we did see the central star, but all these features were embedded within a softer, larger glow of nebulosity, that I have rarely seen with smaller telescopes. NGC 246 showed as an irregular ring, rather large for our eyepiece field of view. This object is sometimes called "The Skull Nebula", and although images show why, I did not clearly see the overall skull shape at the eyepiece. NGC 6826, "The Blinking Planetary", was too bright to blink for us. Its central star all but glared, and the surrounding nebulosity had a softly curdled character, suggesting -- continuing my floral motif -- the blossom of a hydrangea or a marigold.

We found one more planetary, Pease 1, on the outskirts of M15. The view of M15 was as fine as I have ever seen, bright and well resolved even to the core of the globular, but no one had thought to bring either a finder chart for Pease 1 or any filter with which we might blink. Thus it took some patient staring, and a little memory work from those of us who had seen it before, to track down the small blur of gas, but find it we did.

Our other cluster of the night was h Persei, rather an anticlimax with so narrow a field. Its spectacular strew of relatively bright

stars showed no variation in density to suggest that we were looking at a cluster, and we certainly saw no sign of neighboring chi Persei.

Did someone mention galaxies? We tried NGC 6822 first. This object, "Barnard's Galaxy" was way too large for the eyepiece field, but there were patches of glow that might have been HII regions, and a general granularity to parts of the field that appeared to be incipient resolution into stars. Excepting the occasional far off supernova, I had never seen any sign of individual stars in an external galaxy before.

Next we looked at NGC 7331. It was an excellent object for the Nickel Telescope, filling the eyepiece field and spilling out beyond on its long axis, showing central lens and star-like nucleus, with a hint of darkening on one side to illustrate the spiral arms of the galaxy. One of its familiar NGC companions was also visible; the others were out of the field.

Then came Stephan's Quintet, and we were rewarded with a beautiful view of this galaxy grouping, as fine as I have ever seen, and much better than last year, when we looked at the Quintet with the 36-inch refractor, with much poorer seeing and purple haze to boot. All of the galaxies showed individual structure. I did not have eyepiece time to take detailed notes, but there were nuclei, traces of spiral arms or discs, and hints of the vast clouds of stars and material that the interaction between at least four of this group has thrown into the void between them. My turn at the eyepiece came early, and I was providing a running narrative of where the galaxies lay in the field, and what their individual NGC numbers were. Someone suggested I should write an article for Sky & Telescope about the Quintet. I could not disagree. The hour was past midnight, and dome conditions were getting even weirder than before.. I ended my description with the facetious remark that if you looked close, you could see the shapes of a horsie and a duckie in the group. I said it was weird in there -- subsequent observers agreed. Later we decided that the four galaxies in a line should be Flopsy, Mopsy, Cottontail, and Peter (respectively for NGC 7318A, 7318B, 7317 -- the nearby star is the tail -- and 7319). NGC 7320 would be Mrs. Rabbit, of course.

The next galaxy was NGC 7479, a nice barred spiral that showed the bar itself as well as its trailing spiral arms, well enough to show to astronomy classes who tour Lick Observatory. There was talk that this object looked like a baby donkey, but some were skeptical. We tried NGC 404, usually a challenge because of nearby beta Andromedae, but no problem with the narrow field in use. It was centrally concentrated, and appeared to have a partial dark lane, running circumferentially

through some 60 degrees on the side of the galaxy toward beta.

Our last galaxy was M31, or strictly, its innermost regions, for the radius of our field of view did not even nearly span the distance out to M32. We had a good view of the central lens, which showed hints of varying brightness that might have been star clouds or obscuring matter. The nucleus of the galaxy appeared stellar, prompting someone to ask if it contained a black hole. I remarked "We don't know what it is, therefore it must be a black hole," whereupon Elinor Gates, who had come into the dome for a look, very nearly collapsed laughing.

The last object of the evening was Saturn, too far off the zenith for a truly good view -- no spokes or Keeler Gap -- but nevertheless easily showing the broad A-ring minimum -- it looked kind of like a luge run -- as well as such more commonly seen features as the Crepe Ring, the Cassini Division, brownish hues on the disc, and lots and lots of moons.

Never have I stayed so late at a session at Lick, and never have I looked at so many objects in one night through a telescope nearly so large, particularly one without gross excesses of chromatic aberration. Thank you, Lick Observatory, thank you, Elinor Gates, thank you, the horsie and the duckie, and will somebody remind me to leave carrots out for Stephan's Quintet.