

Telescope

By Sam Seabright

I thought I could take mom's astrology studies a step further and see more clearly into the future if I had a telescope.

So I wanted dad to buy a telescope. As a teen interested in astronomy, I read the glitzy ads in *Sky* and *Telescope* magazine and imagined how nice it would be to own one like that. Perhaps dad could afford one, but he had another suggestion: Build one! I always loved a challenge, and that certainly was.



Seabright with telescope, 1970

What I had in mind was daunting at the time: Build a large reflecting telescope, and build a sturdy tripod to hold it. The more I studied the project, the more it became a really interesting series of technical problems: How to hold the large mirror, a prism and eyepiece lenses; how to construct the tripod so it would follow the stars across the sky (they follow an arc with the Pole Star as the center); how to make it portable, so we could use it on a hilltop overlooking Boggs Run; and so on.

So dad bought a six-inch mirror kit and eyepiece lenses, from Edmund Scientific. We then set up the mirror-grinding operation. And "grinding" it was; I spent months carefully rubbing the two optical-glass blanks together in a precise pattern, every few days flushing the glass with water and replacing the abrasive "sand" with a finer grade. We built an optical checking device, to measure the focal length and parabolic curvature of the mirror. Final figuring and polishing were done with jeweler's rouge.

(Part of my career was with Ford Glass Division at the Dearborn Rouge Plant. Do you know why it's called the Rouge Plant? It's on the Rouge [French for "red"] River, which was red with waste jeweler's rouge from Ford's glass polishing operations. That was long ago cleaned up, but the name stuck.)

Dad made a thick wood base for the mirror, to fit inside a sheet metal tube he brought home. But the "tripod" was still a puzzle. Dad brought home a lazy susan base, and I constructed a sturdy four-legged stand around it. It would fold up so we could put it in the trunk of the '50 Chevy. The lazy susan could tilt so the axis would point to the North Star: not so easy when using it in the valley! The 'scope was mounted to an axle and counterweighted by a couple of sledge hammer heads. It looked weird, but many friends and neighbors certainly enjoyed the stargazing sessions.

During my college days, the Wheeling, W. Va. Astronomy Club had a sale, and I bought a larger (10-inch diameter) finished mirror. All the technical problems greatly increased in scale, especially the tripod design. The main innovation was a much larger, sturdier but still portable tripod.

I later brought the finished 10-inch to Detroit and used it for public demonstrations, most famously for the total solar eclipse of March 7, 1970, when a friend and I set it up at Hudson's Northland mall. A crowd of onlookers then saw the eclipse projected onto a three-foot square screen mounted to the scope. The projected image was about two feet in diameter and the sunspots, flares and eclipse were all clearly visible as I explained features to the crowd. The event was covered by the Detroit News, Detroit Free Press and several suburban newspapers.

Amateur astronomers can perform a valuable service by scanning the night skies for new comets. Most comets are discovered by amateurs, not by the professionals who are interested mainly in distant galaxies. I never made such discoveries, but the experience led me to learn a little Greek and Latin (names of stars and constellations), understand the earth's movements, and understand principles of optics.

Looking out to distant stars and galaxies certainly gave me a view of the past: Light years, in terms of distance and time. But it also provided a basis for future studies and activities, such as photography, working with glass, and writing about it now. ▼