

A SIX-INCH GIANT OF GLASS AND BRASS

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Abstract

The story of the recovery and refurbishing of an Alvan Clark refractor.

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On a cold February night in 1974, Charles Scovil asked me, during our conversation about the appearance of comet Bradfield, "How would you like to have a six-inch Alvan Clark refractor out there in Missouri?". As most of you may realize, this was like asking me if I would want the original of the Mona Lisa!

The telescope had been on loan from the AAVSO to Victor H. Blunck, then living in the small town of Grand Mound, Iowa. Chuck told me that if I would go to Grand Mound I could transport the telescope back to St. Joseph and borrow it for a small observatory at the planetarium. I phoned the Bluncks. Yes, they were pleased that I would come to pick up the telescope, and the next weekend saw me on the road to Grand Mound. Meeting Victor and Izella Blunck was a real treat.

Victor had retired, following more than 50 years as principal flutist with the Minneapolis Symphony Orchestra. After showing me their music manuscript collection, they ushered me to a small tool shed. Mrs. Blunck, a petite, highly energetic, and delightfully fast talking woman, was almost like a child at a birthday party when she said to me, "Take hold of that ring on the end of this box." By this time, I was beginning to feel like a child opening a birthday present, too! Pulling the heavy, eight-foot red cedar box to the door, we carefully lifted it across the threshold into the sunlight. Inside, the long, tarnished brass tube rested securely on wooden blocks lined with faded purple velvet. On the back plate, at the eyepiece end, I saw the engraving: "Alvan Clark & Sons, Cambridgeport, Mass. 1889".

Mrs. Blunck said, "We have spent many an hour and many nights looking at the wonders of the universe -- and especially those exploding stars."

I loaded the telescope and returned home, stopping on the way to phone Bob Cox, of O'Fallon, Missouri, who had cleaned the lenses of many vintage telescopes. He shared with me his recipe, and he cautioned me about the lens spacers, which a cleaning process would probably destroy. More about them later. Arriving home, I "jerry-rigged" the instrument onto a small equatorial mounting head to make a quick check of its optical performance. The moon was about two days past first quarter, and the view was outstanding. The moon's image was the finest I believe I have ever seen. Next was the Orion Nebula, first with low power, then high. It was simply breath-taking, in spite of the moonlight. The stars of the Trapezium were sharp, and the resolving power was superb. The next test was a view of Saturn --- a splendid sight, with details on the planet, more distinct than I had ever seen, and six satellites.

During the next few days, I cleaned the brass tube and other parts of the instrument. First, I removed the objective from its cell and rested it on pads of cotton to soak in a mild solution of laundry detergent. The recipe was two heaping tablespoonfuls of Tide to a gallon of warm water in a plastic tub. The lenses were left to soak for about an hour with no agitation or rubbing. They were then rinsed thoroughly in running tap water and placed into another plastic tub containing Calgon, used in automatic dishwashers. The Calgon recipe was five grams of powder to a gallon of water. After a half-hour's soaking, the lenses were placed in a second Calgon solution, identical to the first. Each lens was gently

rubbed with tufts of sterile cotton and was then removed and thoroughly rinsed in warm tap water. Wearing surgical gloves, I held each lens by its edge and angled it slightly off-vertical under the running tap. The bottom of the sink had been covered with a towel, just in case a lens might accidentally drop. (They do become rather slippery, especially when removed from the Calgon solution.) The lenses were then rinsed in water-free ethyl alcohol, and they were then dried in a compressed-air jet. This process left the lenses extremely clean and spot-free. No traces of film or residue could be seen, even in bright sunlight. Also, a hand magnifier showed no pits or sleeks on the surfaces.

The original spacers between the crown and flint elements were probably made of silver leaf. An inquiry to the A. Jaegers Company, Lynbrook, New York, who make excellent refractor lenses, told me to carefully remove some of the aluminum-alloy foil from a cigarette pack and to cut it into small strips. These were then placed, without gluing, at 120° intervals around the periphery of the forward edge of the flint lens. The crown lens was then carefully positioned over this, and the assembly was replaced in the cell, which had been cleaned and spray-painted a flat black inside.

Tests on many celestial objects under various observing conditions have proven the telescope to perform as it was intended to.

The brass and other metal parts retained some of their original lacquer, and I used six 8-oz. cans of Brasso to remove most of it. The metal was further cleaned with powdered pumice stone, made into a paste with 6-normal hydrochloric acid. The paste was applied sparingly with a cloth which had been moistened with a very dilute solution of ammonium hydroxide. Wearing rubber surgical gloves, I rubbed this mixture over all the metal surfaces. The acid/alkaline compounds react chemically to produce ammonium chloride, which rises in smoke, so one wants to do this type of activity outdoors! This procedure removed all remaining particles of oxide and lacquer, and after being washed thoroughly in water and air-jet dried, the brass was left in a beautiful, polished state. To retard further oxidation of the brass, all surfaces were sprayed with a coat of acrylic clear lacquer, such as is used in decoupage. Several coatings of this were applied, each having been lightly sanded, using 00 sandpaper. This produced a very hard and durable finish. All interior surfaces of the tube, cell, eyepiece butt-plate, and focusing mechanism were sprayed a flat black.

The equatorial head and wooden tripod which I obtained from the Bluncks was in a very deplorable state of repair, and it was evidently not the original mounting. But I had acquired an old refractor mounting which had been used by the United States Geological Survey near the turn of the century, when the mid-western land surveys were being made. (The telescope, reportedly a 7.5-inch has not been located.) Although the mounting is in the style of the usual Warner and Swasey mounts widely used with Clark refractors in the late 1800's and early 1900's, inquiries revealed that this mounting pre-dates the Warner and Swasey vintage! On the side is a brass plate with the inscription "Lohmann Brothers, Greenfield, Ohio". Mr. H. W. Spreitzer, who has been with Warner and Swasey for more than 50 years, wrote me that, indeed, the Lohmann brothers were making telescope mountings in a small home-style operation in Greenfield long before the existence of the Warner and Swasey Company. After the establishment of Warner and Swasey, the Lohmann brothers were induced to sell their business and join forces with Warner and Swasey, who had marvelled at their fine workmanship.

Mr. Louie Hees, a Master Mechanic, and like myself a member of the Midland Empire Astronomy Club, Inc., restored the old mounting. Every part was disassembled and cleaned, buffed, polished or painted. He built a new governor drive from scratch, and he replaced a few essential gears, the brass weights, and their drive chain.

I am looking forward to using this very fine vintage telescope and mounting for the teaching of astronomy, and to introduce students to the fascinating art and science of variable star determinations.