

McKim Observatory by Joseph Corbett

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In 1968, the Smithsonian Institution published bulletin number 274, in its United States National Museum series, with the undramatic title, *Alvan Clark and Sons, Artists in Optics*. The modest title, however, was given to an unusual book.

The first part of this small volume contains a biographical sketch of Alvan Clark, a nineteenth century portrait painter, with a studio in Boston, Mass., who, when in his middle forties, almost as a hobby, began making telescope lenses. These lenses, produced with his sons, who later joined him in the business, and by others trained by them still later, eventually came to be regarded as among the finest telescope lenses ever made.

The second part of the book has descriptive lists of astronomical instruments made by the Clark company. McKim Observatory of DePauw University is included. Its main telescope, a refractor (a telescope operating on the same principle as the old mariner's spy glass) has an objective lens of 9.53 inches clear aperture made by the Clarks in 1885. Along with the telescope in McKim Observatory, the list includes descriptions of such well known instruments as the thirty-six-inch refractor at Lick Observatory, Mt. Hamilton, California, and the forty-inch refractor at Yerkes Observatory, Williams Bay, Wisconsin. The Yerkes instrument is the largest refractor in the world.

There can be no doubt that, as originally designed and built, McKim Observatory was intended to be the best of its size that money could buy. The building is solid masonry, brick on stone foundation, with exterior walls about one foot thick; the handsome floors are oak; the cast iron pier, directly supporting the telescope, is mounted on a solid masonry pier, which in turn rests on a specially installed layer of clay that has the purpose of damping the vibrations resulting from nearby stone quarries. The vibrations are transmitted through the bed rock on which it rests.

Attached to the masonry pier was a little room with double doors and a controllable atmosphere in which were installed highly accurate pendulum clocks that were keyed to electricity operated repeater clocks in the dome. The power for the repeater clocks and small illuminating lamps was produced by batteries in the basement.

In a separate room, on the east side of the observatory, mounted on a masonry pier similar to that on which the telescope is mounted, is an astronomical transit -- a device which is relatively rare and becoming rarer in present day observatories. A large factor in the rarity of such instruments today is that the precision engraving and machining necessary in their manufacture have made them prohibitively expensive and difficult to build. In fact some of the scales on the instrument are read through small microscopes mounted on it. Such an instrument can be used to determine latitude to about ten feet, and can be used to detect the slowing down on the earth's rotation, and the wandering of the geographic poles.

With disuse, the building and instruments had deteriorated, at least in appearance, over the years. Indeed, a representative of one of the larger companies manufacturing optical equipment recommended in 1959 that it be scrapped. This recommendation was not taken.

In October, 1970, the Wilmot Fleming Company of Philadelphia undertook to clean the telescope, repaint it and install an electrical driving mechanism. It was then discovered that although it appeared to have deteriorated, the telescope was basically sound. The fittings and gearing are brass and it was noted under grime and old paint, that the finder telescope, a small telescope mounted on the main telescope to assist in setting it on faint objects when using high magnification, is also brass. The brass on the instrument has now been protected by a thin plastic coating so that it shines as if freshly polished and the other metal parts have been covered with black crackle paint -- an appropriate color scheme.

No restoration work has been undertaken yet on the transit although it is hoped to begin in the near future.

The observatory is interesting, not only historically, for which reason alone it would be worthwhile probably to restore and maintain it, but it is also a valuable tool for teaching and research in astronomy.

Although the air around Greencastle is normally unstable and very humid, the refurbished telescope has shown evidence of developing nearly its maximum resolution (it should be capable of a magnification of about 475); it has provided excellent views of such standard sights as galaxies, the rings of Saturn and the banding on that planet, the moons and red spot of Jupiter, sunspots and granulation on the sun's surface.

The current astronomy program at DePauw is still in the beginning stages, but we have an excellent instrument to aid in further development.