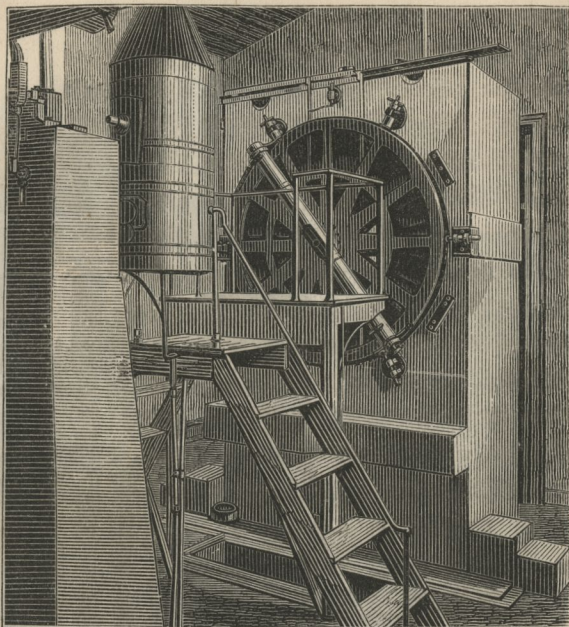


tution, has promptly appreciated its claims, and does not withhold the liberal though economical appropriations asked for it as due to astronomy and to this branch of naval efficiency. Happily what Mr. Seward affirmed in his life of Adams is no longer true of our government, that "while so large a portion of its resources have been wasted in promoting party measures, little or nothing is devoted to the encouragement of the arts and sciences which exalt and refine a people."

III.—WEST POINT OBSERVATORY.

This was erected in 1839 for astronomical purposes and the accommodation of the library of the academy and its philosophical apparatus. The institution of an observatory is to be credited to Professor W. H. C. Bartlett, LL.D., so well known for more than thirty years as its director. In 1840, Professor Bartlett visited Europe for the government, inspected and reported upon its chief observatories, submitting also a plan for an observatory at Washington, and purchasing for West Point while abroad its three large instruments, the equatorial, the transit, and the mural circle.

The transit instrument in the east tower was made by Ertel and Son, and its object-glass by Merz and Mähler, at Munich, the whole cost being about \$1130. It was mounted in 1843, the memorable year for observatories in the United States. Its object-glass has a clear aperture of 4.62 inches, and a

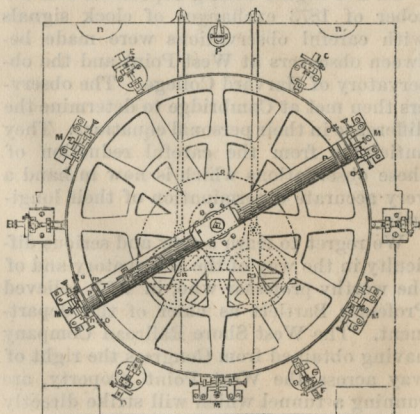


MURAL CIRCLE AND SMALLER TRANSIT INSTRUMENT—UNITED STATES NAVAL OBSERVATORY.

focal length of 76.75 inches. It is provided with four eye-pieces and one dark glass, and has an illuminating apparatus, giving either a bright field with dark lines, or a dark field with bright lines, which can be modified at will by means of a colored wedge. The reticule has seven vertical and two horizontal lines. An extra vertical wire is driven in a horizontal direction by means of a micrometer screw, each division of which corresponds to 0.334". It has a striding level, each small division being $1.23'' = 0.082s$. The steel pivots have not sensibly changed their equality of dimensions since the instrument was mounted.

The west tower has the mural circle, by Troughton and Simms, of London. This was cast in one entire piece of brass. Its diameter is five feet, and its graduations are on two bands, one of gold, the other of palladium. The telescope has a clear aperture of four inches, with a focal length of sixty inches.

The central main tower has a revolving dome of twenty-seven feet in diameter, which rests on six 24-pound cannon-balls, turning between cast iron annular grooves. The equatorial, made by Mr. Henry Fitz, of New York, has a focal length of fourteen feet, and a clear aperture of nine and three-quarter inches. It has thirteen eye-pieces. The hour circle reads to two seconds of time, and the declination circle to twenty seconds of an arc, each circle being twenty inches in diameter. This instrument cost \$5000.



PLAN OF MURAL CIRCLE—U. S. NAVAL OBSERVATORY.