

ASTRONOMY.—Stations were established and observations made in 1844-45-46-47 at the following primary points: Osborne's river (head of Bush river), Taylor (near Severn river), Marriott (near West river), S. Base (Kent island), Poole's island.

Astronomic latitudes were determined at the trigonometric stations: Marriott, 1846 and 1849; Taylor and Poole's island, 1847; Soper, Hill and Webb, 1850; Cumberland, 1864; Principio, 1866; Maryland Heights, 1870; Calvert, 1871; Sugar Loaf Mountain, 1879; Rockville, 1892.

Astronomic longitude was determined telegraphically at Cumberland, 1864. To this might be added Washington, D. C.

Astronomical azimuths were measured at Marriott, 1849; Soper, Hill and Webb, 1850; Davis, 1853; Principio, 1866; Maryland Heights, 1870; Calvert, 1871; Sugar Loaf Mountain, 1879.

HYPSOMETRY.—Elevations above half-tide or mean level of the ocean were determined by zenith distances at various times at stations Taylor, Linsted, Webb, Marriott, Agricultural College, Hill, Blair's House, Soper, Stabler, Sugar Loaf Mountain and Maryland Heights.

A line of spirit levels was carried from Washington, D. C., to Annapolis in 1875, published as Appendix No. 15, Report for 1889. The line of spirit levels from Sandy Hook, N. J., to St. Louis enters Maryland near Hagerstown and leaves it near Oakland, 1878, published as Appendix No. 11, Report for 1882. A third line of spirit levels was run from Hagerstown to the District of Columbia, 1883, published as Appendix No. 4, Report for 1896.

GRAVITY.—The stations where pendulum observations were made for relative gravity and, consequently, also roughly (at present) for absolute measure, are Baltimore, Johns Hopkins University, 1893, and Deer Park, 1894.

MAGNETICS.—Between the years 1845 and 1897 there were occupied 22 different stations for the determination of the magnetic declination, dip and total intensity of the magnetic force. Several of these stations were occupied more than once, see Appendix No. 11, Report for 1889, and Appendix No. 6, Report for 1885, the latter for dip and intensity.

The secular variation of the magnetic force, in direction and inten-