

THE DEVELOPMENT AND PURPOSES OF MAGNETIC SURVEYS.

THE MAGNETIC DECLINATION.

“True as the needle to the pole” is an old and familiar saying. How *untrue* it is even within the borders of our own country may be judged from the fact that in the extreme northeastern part of Maine the compass needle points twenty-one degrees to the *west* of north, while in the extreme northwestern part of the state of Washington it points twenty-three degrees to the *east* of north; hence a change of forty-four degrees from one end of our country to the other! And even over so comparatively small a territory as that of Maryland the pointing of the needle varies from six degrees west to three and one-half degrees west.

There are portions of the earth's surface where the needle points due *east* and *west* and still others where the north end actually points *south*. We are thus made acquainted with one element involved in a magnetic survey, viz., the *magnetic declination*, or “variation,” as the mariner and the surveyor are accustomed to say. Scientifically defined, *the magnetic declination is the angle between the true north and south line and the magnetic north and south line as pointed out by a compass needle, i. e., a magnetized needle so mounted as to swing freely about a vertical axis or pivot.*

It was several centuries after the introduction of the compass in Europe before this deviation of the magnetic meridian from the true meridian was discovered, and the discoverer was no less a man than Christopher Columbus. We all doubtless remember reading of the consternation caused on board ship when it was observed that the compass had shifted its direction from *east* of north to *west* of north. Columbus had, in fact, crossed the line, on September 13th, 1492, along which the needle pointed true north, *i. e.*, the line of no magnetic declination or variation, or the so-called *agonic* line. To the east of this line the needle pointed east, and to the west the needle bore west.