ANNUAL CHANGE IN THE VARIATION.

Norman appears to have been the first philosopher who observed with accuracy the variation of the needle in London, but the time of his observation is not known. It was then 11° 15′ east. Mr. Christie, speaking of this subject, says, "No date is given for this observation; but, from the circumstance of Burough referring to Norman's book in the preface to his '*Discourse of the Variation of the Compass*,' dated 1581, it would appear that there must have been an earlier edition of Norman's book than that of 1596, and that his observations must have been made before 1581." This writer, however, was not aware of the fact, that the variation of the needle is constantly changing, though he did know that the variation itself depends upon the position of the place in which the observation is made. "Although," he says, "this variation of the needle be found in travel to be divers and changeable, yet at any land or fixed place assigned, it remaineth always one, still permanent and abiding." We do not pretend to decide upon the claims of individuals to the honour of discovering the important philosophical fact, the annual change of the variation. Some writers give credit to Gunter, and others to Gellibrand; and as they both have claims which cannot be disputed, there is little hope of deciding between them.

In 1660, the line of no variation passed through London, and at that time the needle must have pointed directly north and south. From this period the line of no variation moved westward till 1818, when the variation in London was 24° 30′, and it has since been retrograding, so that, in the course of years, the needle will again point to the north and south poles of the earth, and then take an easterly direction. Paris was on the line of no variation in the year 1664; and in 1824 the variation was 22° 44′ west; at this time, or shortly afterward, it came to its maximum, for M. Arago found that in October, 1829, it was 22° 12′ 5″.

This constant change in the variation of the magnetic needle is a subject of great interest; for, until the rate of change is accurately determined, there must be some degree of uncertainty in the use of the compass. Should the point of direction vary only half a degree, it might be of serious consequence to the navigator Some years must elapse be-