

the King of Oude, at Lucknow. At all these distant stations the same plan was followed out, by observations strictly simultaneous, made according to the same methods, with the same instrumental means. Such a scheme, combining world-wide extent with the singleness of action of an individual mind, is hitherto without parallel.

At first, the British stations were established for three years only; but it was thought advisable to extend this period three years longer, to end in 1845. And when the termination of that period arrived, a discussion was held among the magneticians themselves, whether it was better to continue the observations still, or to examine and compare the vast mass of observations already collected, so as to see to what results and improvements of methods they pointed. This question was argued at the meeting of the British Association at Cambridge in that year; and the conference ended in the magneticians requesting to have the observations continued, at some of the observatories for an indefinite period, at others, till the year 1848. In the mean time the Antarctic expedition had brought back a rich store of observations, fitted to disclose the magnetic condition of those regions which it had explored. These were *discussed*, and their results exhibited, in the *Philosophical Transactions* for 1843, by Col. Sabine, who had himself, at various periods, made magnetic observations in the Arctic regions, and in several remote parts of the globe, and had always been a zealous laborer in this fruitful field. The general mass of the observations was placed under the management of Professor Lloyd, of Dublin, who has enriched the science of magnetism with several valuable instruments and methods, and who, along with Col. Sabine, made a magnetic survey of the British Isles in 1835 and 1836.

I do not dwell upon magnetic surveys of various countries made by many excellent observers; as MM. Quetelet, Forbes, Fox, Bache and others.

The facts observed at each station were, the *intensity* of the magnetic force; the *declination* of the needle from the meridian, sometimes called *the variation*; and its *inclination* to the horizon, *the dip*;—or at least, some elements equivalent to these. The values of these elements at any given time, if known, can be expressed by charts of the earth's surface, on which are drawn the *isodynamic*, *isogonal*, and *isoclinical* curves. The second of these kinds of charts contain the "Halleian lines" spoken of in a previous page. Moreover the magnetic elements at each place are to be observed in such a