

Cape of Good Hope, the Island of St. Helena, some point on the Eastern Coast of South America, and Quebec. In order, he observes, to advance rapidly the theory of the phenomena of terrestrial magnetism, or at least to establish with more precision empirical laws, we ought to extend and, at the same time, to vary the lines of corresponding observations; to distinguish, in the observations of the horary variations, what is due to the influence of the seasons, to a clear or a cloudy atmosphere, to abundant rains, to the hour of the day or night solar time, that is, to the influence of the sun, and what is isochronous under different meridians: we ought, in addition to these observations of the horary variation, to observe the annual course of the absolute variation, of the inclination of the needle and of the intensity of the magnetic forces, of which the increase from the magnetic equator to the poles is unequal in the American or Western, and in the Asiatic or Eastern hemisphere. All these data, the indispensable basis of a future theory, can acquire certainty and importance only by means of fixed establishments, which are permanent for a great number of years, observatories in which are repeated, at settled intervals and with similar instruments, observations for the determination of numerical elements.

Travellers, remarks M. de Humboldt, who traverse a country in a single direction and at a single epoch, furnish only the first preparations for labours which ought to embrace the complete course of the lines of no variation; the progressive displacement of the nodes of the magnetic and terrestrial equators; the changes in the forms of the isogonal and isodynamic lines; and the influence which, unquestionably, the configuration and articulation of the continents exert upon the slow or rapid march of these curves. He will, he considers, be fortunate if the isolated attempts of travellers, whose cause he has to plead, have contributed to vivify a species of research which must be the work of centuries, and which requires at once the cooperation of many observers, distributed in accordance with a well-digested plan, and a direction emanating from many great scientific centres of Europe. This direction, however, not being for ever restricted by the same instructions, but varying them according to the progressive state of physical knowledge and the improvements which may have been made in instruments and the methods of observation.

In begging His Royal Highness the President to communicate this letter to the Royal Society, the Baron de Humboldt disclaims any intention of examining which are the magnetic stations that at the present time deserve the preference, and which local circumstances may admit of being established. It is sufficient that he has solicited the cooperation of the Royal Society to give new life to a useful undertaking in which he has for many years been engaged. Should the proposition meet with their concurrence, he begs that the Royal Society will enter into direct communication with the Royal Society of Gottingen, the Royal Institute of France, and the Imperial Academy of Russia, to adopt the most proper measures to combine what is proposed to be established with what already exists; and