

periodical character; which together with those "*secular changes*," which with slow but systematic progression alter the whole aspect of the magnetic phenomena on the surface of the globe, from one century to the next, and which in their nature are not improbably intimately connected with the causes of the magnetism of the globe itself," were deemed subjects of inquiry of the highest importance by "those who, by the inductive process, would seek to ascend to general laws and to the discovery of physical causes."

It is beyond my province, and still more beyond my power, to attempt to trace and define the progress of these observations, and the results which, so far, have been attained. But I am justified in remarking, that the observations recorded here in Toronto, occupy a very high place in the estimation of those scientific men whose attention is devoted to this interesting branch of science. Major General Sabine, himself a member of the Committee of the British Association for the Advancement of Science, by which the attention of Her Majesty's Government was solicited to the expediency of establishing fixed Observatories in the British Colonies, has remarked that the observations at the station at Toronto considerably exceeded 100,000 in number: that "Toronto is the first and, as yet, the only station at which the numerical values at every lunar hour of the lunar-diurnal variations of the three elements," viz.: the horizontal direction, the dip, and the intensity of the magnetic force, "have been published." And he pays this handsome tribute to those who have had charge of this Observatory: "It is with much satisfaction, and with a well-deserved recognition of the pains which have been bestowed by the successive Directors of the Toronto Observatory and their assistants, that I am able to refer to the determinations of the absolute values and secular changes of the three elements contained in the third volume of the Toronto Observatory, in evidence that the instrumental means that were devised, and the methods which have been adopted, have proved, under all the disadvantages of a first essay, sufficient to determine the data with a precision which is greatly in advance of preceding experience, and, as far as may be judged, equal to the present requirements of theoretical investigation. This is the more deserving of notice, because Toronto is a station where the casual and periodical variations, which it was apprehended would seriously interfere with the determination of absolute values, are unusually large. We may derive, therefore, from the results thus attained, the greatest encouragement to persevere in a line of research which is