of $\frac{1}{4000}$th of the magnetic intensity is measured, and, at certain epochs, observations are made at intervals of $2\frac{1}{2}$ minutes, and continued for twenty-four hours consecutively. A great English astronomer and physicist has calculated* that the mass of observations which are in progress will accumulate in the course of three years to 1,958,000. Never before has so noble and cheerful a spirit presided over the inquiry into the *quantitative* relations of the laws of the phenomena of nature. We are, therefore, justified in hoping that these laws, when compared with those which govern the atmosphere and the remoter regions of space, may, by degrees, lead us to a more intimate acquaintance with the genetic conditions of magnetic phenomena. As yet we can only boast of having opened a greater number of paths which may possibly lead to an explanation of this subject. In the physical science of terres-

bd. xxxiii., s. 426.) In the magnetic association that was now formed with Göttingen for its center, simultaneous observations have been undertaken four times a year since 1836, and continued uninterruptedly for twenty-four hours. The periods, however, do not coincide with those of the equinoxes and solstices, which I had proposed and followed out in 1830. Up to this period, Great Britain, in possession of the most extensive commerce and the largest navy in the world, had taken no part in the movement which since 1828 had begun to yield important results for the more fixed ground-work of terrestrial magnetism. I had the good fortune, by a public appeal from Berlin, which I sent in April, 1836, to the Duke of Sussex, at that time President of the Royal Society (Lettre de M. de Humboldt à S.A.R. le Duc de Sussex, sur les moyens propres à perfectionner la connaissance du magnétisme terrestre par l'établissement des stations magnétiques et d'observations correspondantes), to excite a friendly interest in the undertaking which it had so long been the chief object of my wish to carry out. In my letter to the Duke of Sussex I urged the establishment of permanent stations in Canada, St. Helena, the Cape of Good Hope, the Isle of France, Ceylon, and New Holland, which five years previously I had advanced as good positions. The Royal Society appointed a joint physical and meteorological committee, which not only proposed to the government the establishment of fixed magnetic observatories in both hemispheres, but also the equipment of a naval expedition for magnetic observations in the Antarctic Seas. It is needless to proclaim the obligations of science in this matter to the great activity of Sir John Herschel, Sabine, Airy, and Lloyd, as well as the powerful support that was afforded by the British Association for the Advancement of Science at their meeting held at Newcastle in 1838. In June, 1839, the Antarctic magnetic expedition, under the command of Captain James Clark Ross, was fully arranged; and now, since its successful return, we reap the double fruits of highly important geographical discoveries around the south pole, and a series of simultaneous observations at eight or ten magnetic stations.

* See the article on *Terrestrial Magnetism*, in the *Quarterly Review* 1840, vol. lxvi., p. 271–312.