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A Summary of the Results of the Recent Magnetic Survey of Great Britain and Ireland Conducted by Professors Rücker and Thorpe: By A. W. RÜCKER.

The writer divides his article into three parts.

Part I: *On the Accuracy of the Delineation of the Terrestrial Isomagnetic Lines.* Complete observations were made at 882 places in the British Isles, thus averaging one station to every 139 square miles of land area. With the exception of the recent magnetic survey of Holland by Dr. Rijckevorsel, where the stations averaged one to about every 39 square miles, this survey of Rücker's and Thorpe's is the most detailed one thus far made. A first survey embracing 205 stations was made for the mean epoch 1886, and a second one covering 667 stations for the epoch 1891. In no previous case have *two* such detailed surveys for the same region been made within so short an interval of time. They they therefore present a good opportunity for testing the accuracy with which the positions of the terrestrial isomagnetics can be inferred from the observations. The conclusion is reached that the accuracy of the calculated values is about equal to the probable error of an observation (declination $\pm 0.'6$, dip $\pm 0.'4$, horizontal intensity in C. G. S. units ± 0.00006).

Part II: *On the Accuracy of the Determination of the Local Disturbing Magnetic Forces.* The main object of so elaborate a survey was to study local magnetic disturbances. For this purpose the northerly, the westerly and the vertical components of the earth's magnetic force were determined from the observed elements, declination, dip and horizontal intensity. The differences between these quantities and those calculated from the formulæ for the isomagnetics gave the corresponding components of the disturbing force. When these were plotted, and lines called respectively *ridge* and *valley* lines were drawn through the loci of maximum and minimum vertical disturbing force, it was found that, with few exceptions, the horizontal disturbing forces were directed to the ridge lines. Eight such regions were detected in the 1886 survey and again revealed in the later survey. The range of the magnitude of the vertical disturbing force at places where the surface is comprised of sedimentory rocks is about 0.00600 C. G. S. units. On granite and gneiss the range is doubled, and in the neighborhood of basalt it may be enormously increased. One of the ridge lines could be traced without difficulty for 170 miles and more. Disturbances of a secondary order were also revealed.

Part III: *On the Relation between the Magnetic and the Geological Constitution of Great Britain and Ireland.* The most probable causes of the disturbing forces are electrical earth currents and magnetic rocks, or both of these combined. Rücker is led to the belief that the presence of magnetic rocks is the more potent cause. The article is illustrated by maps and concludes with a summary of the results with regard to the relationship between geological and magnetic features.

Die magnetischen Störungen der Yahre 1890–5, nach den Aufzeichnungen des Magnetographen in Potsdam: By G. LÜDELING.

This is an investigation of the magnetic perturbations for the interval 1890–95, as revealed by the self-registering instruments at the Royal Magnetic Observatory, Potsdam. According to the tabular and cartographic presentation, there is a characteristic increase in the number of disturbances towards evening and decided decrease at noon. The equinoctial months are the most disturbed, and in these the diurnal distribution of disturbances is most pronounced, a double maximum showing itself most decidedly. The annual distribution as determined from this six-year series shows as yet no pronounced parallelism with the distribution of sun spots over the same period. There is, however, a nearly perfect concordance in both the diurnal and in the annual period of magnetic disturbance and of polar lights.

A letter to the editor by Prof. Hellmann of Berlin, with regard to an old work containing magnetic declinations, notes by the editor and reviews of Paulsen's papers 'On the Nature and the Origin of the Aurora Borealis,' of Carlheim-Gyllensköld's 'Determination of the Magnetic Elements in Sweden and of Weyer's Researches,' 'On the Magnetic Declination and its Secular Variation,' conclude the number.