

to that in March is 3·25, but the ratio of the easterly excess in the same months is 1·32; the mean actual values being $-11\cdot7$ and $-38\cdot1$; $+8\cdot5$ and $+11\cdot2$.

Among the peculiarities of the disturbances at Discovery Bay are two which exhibit their semi-American semi-Asiatic character. *At Pekin and Nertschinsk "the aggregate values of the westerly deflections decidedly predominate, whilst in America the easterly deflections are no less decidedly predominant." In North America "the conical form (of the curves) and single maximum characterize the easterly deflections;" but "at Pekin and Nertschinsk the conical form (of the curves) and single maximum characterize the westerly deflections, whilst the easterly have the double maximum." Thus it will be seen that at Discovery Bay the aggregate values of the deflections have an Asiatic character, whilst the conical form of the curve of easterly deflection is American. The double maximum at this station occurs with both easterly and westerly deflections, and so presenting phenomena, one of which is peculiar to the two stations in Asia, and the other to those in America and Kew.

If it should be deemed scarcely admissible that the observations of a few months should be compared with those of as many years, it seems only necessary to point out that, as in the present instance, the period of observation includes one solstice and the following equinox, all the broad features of the disturbances have been rendered prominent. The latter portion of these remarks as to the law of disturbances at the equinoxes and solstices has been based upon the investigations of Mr. Broun (before quoted) of observations in high latitudes.

Before concluding this analysis, the question of how far the observed and assumed days of disturbance at Discovery Bay coincided with those at Kew Observatory seems worthy of examination. For this purpose Table X. has been drawn up, the days of principal disturbance at Kew having been kindly furnished by Mr. Whipple, Superintendent of the Observatory.

The period embraced by these observations was one of great disturbance, especially towards the end of February and the greater part of March, and the tabular values tend to show that the declinometers were, for the most part, affected on the same days. It was to be expected that at a station in high latitude, where disturbances are so marked, there would be an excess of days noted as disturbed over those in a middle latitude; but in January and February Kew has certain days in excess of Discovery Bay.

This may be partly accounted for by the fixed observatory at Kew having continuous photographic records to draw from,—the temporary observatory principally hourly observations, taken under circumstances of difficulty.

The two greatest disturbances or "magnetic storms," occurred on the 19th February and the 25th March, and the time limits at the two stations agree fairly in "absolute time,"† thus: the principal disturbances—

Kew.

Discovery Bay.

19th February 1875	{ Commenced at 4 to 5 p.m. Ended at 2 p.m. of 20th.	{ Commenced at 4 p.m. Ended between 1 and 2 p.m. of 20th.
25th to 26th March 1875.	{ Commenced at 11.45 a.m. Ended at 3.30 a.m. 26th.	{ About Noon. Indeterminate.

The hours of disturbance at Floeberg Beach were about the same (in February) as at Discovery Bay.

During the second storm of the 25–26th March at Discovery Bay the magnet kept continuously to the westward of the normal from the commencement to 10.20 p.m. (absolute), and at 6.50 p.m. (absolute) it had deviated $4^{\circ} 15'$ from the mean hourly position, whilst at Kew it was often to the eastward as well as to the westward, $18'$ being the greatest decrease in the declination; and at 6.50 p.m. it was $12'$ to the eastward of the normal.

Finally, it may be stated that the comparison of the disturbances at Kew and the two winter quarters observatories of the Arctic Expedition, 1875–76, appear to confirm M. Gauss's conclusion, that "the synchronous disturbances of the same element not only differ widely in amount, but occasionally appear to be even reversed in direction."

* See Phil. Trans. Roy. Soc., 1863, page 282.

† Or mean time at Greenwich.