

cording to the latter, the contrary is the case, and the extent is only 0.05 of an inch.

Lastly, the author endeavours to ascertain how far the barometer is affected by the direction of the wind, and gives in the form of tables the mean results of observations bearing upon this point. The fluctuation, he observes, due to this, is much greater than that due to any other cause. The barometer is lowest, as might be expected, when the wind is in the rainy quarters of S.W. and W.S.W. There are not yet sufficient data for any general conclusions with regard to the influence of electrical phenomena on the weather.

April 21.

SIR ASTLEY COOPER, Bart. V.P., in the Chair.

Sir Martin Archer Shee, Knt., P.R.A., was elected a Fellow of the Society.

The following Presents were received, and thanks ordered for them :—

The Utility of the Knowledge of Nature considered, with reference to the introduction of Instruction in the Physical Sciences into the general Education of Youth. By E. W. Brayley, Jun., Esq. 8vo.—*Presented by the Author.*

On the Occurrence of the Remains of Elephants, and other Quadrupeds, in the Cliffs of Frozen Mud, in Eschscholtz Bay, within Beering's Strait, and in other distant parts of the Shores of the Arctic Seas. By the Rev. W. Buckland, D.D. F.R.S. 4to.—*The Author.*

Bulletin de la Société Française de Statistique Universelle. 2me Livraison. 4to.—*The Society.*

Extrait du Bulletin de la Société Française de Statistique Universelle. Rapport de la Commission à laquelle a été renvoyé l'examen du projet de Souscription proposée par M. J. S. Buckingham pour un Voyage de Circumnavigation et de Découvertes. 4to.—*The Society.*

Journal de l'Académie de l'Industrie Agricole, Manufacturière et Commerciale. No. 1—2. 4to.—*The Academy.*

A paper was read, "On the Errors in the Course of Vessels occasioned by local attraction, with some remarks on the recent loss of His Majesty's ship *Thetis*." By Peter Barlow, Esq. F.R.S., &c.

The author observes that the errors arising from the deviation of the compass produced by the attraction of ships, were formerly much less considerable than at present, from the comparatively small quantity of iron existing in the vessel. The increase of this disturbing force in a modern ship of war is easily accounted for by the immense proportion of iron now employed in its construction,

by the use of iron ballast and iron tanks, of iron knees, iron cables, and above all, of iron capstans, besides various other articles made of the same material, forming altogether a very large and powerful magnetic mass.

The direction and intensity of the deflecting forces thus produced, vary in different latitudes and on different sides of the equator; being greatest in the highest latitudes, where the dip is considerable, and when the ship's course is east or west: and in high southern latitudes, being the reverse of what it is in high northern latitudes. In His Majesty's ship Gloucester, which may be taken as an example, the deviation of the compass in the east and west points was found to be, in the British Channel, $9^{\circ} 30'$: so that after running ten miles, the vessel would be more than a mile and a half to the southward of her reckoning, and so on in proportion as the distances increased. An error of this magnitude, occurring in a narrow channel and in a dark night, were it unknown or disregarded, might lead to the most fatal consequences; and the disaster might perhaps be erroneously ascribed to the prevalence of a powerful current, the existence of which was before unknown.

The Thetis sailed from Rio Janeiro, in December last, with a million of dollars on board, in the finest weather, directing her course to the S.E. The next day, thinking they were clear of land, they tacked, and were sailing at the rate of nine knots, when the first intimation they had of being near land, was the striking of the jib-boom against a high perpendicular cliff, which broke the bowsprit short off, and sent all three masts over the side; thus in a moment bringing utter destruction on this fine vessel and her valuable cargo. The author shows that the deviation of the compass arising from the attraction of the vessel, was exactly of the kind which was likely to occasion this great mistake in the ship's reckoning: for the distance run by the Thetis being about eighty miles, if the local attraction of the vessel had been equal to that of the Gloucester, she would have passed five miles nearer to Cape Frio than her reckoning,—an error quite sufficient to account for the fatal catastrophe. The author hence infers the importance of bestowing more attention than has hitherto been given to the influence of the local attraction of vessels, and to the application of the proper means of correction.

April 28.

HIS ROYAL HIGHNESS THE DUKE OF SUSSEX, K.G.,

President, in the Chair.

James Henderson, Esq., His Britannic Majesty's Consul at Bogotá, was elected a Fellow of the Society.

The following Presents were received, and thanks ordered for them:—