PROCEEDINGS

OF

THE ROYAL SOCIETY.

1832–1833. No. 12.

February 21, 1833.

FRANCIS BAILY, Esq., Vice-President, in the Chair.

A paper was read, entitled, "On the Influence of the Sun's Rays on the Oscillations of the Magnetic Needle." By William Snow Harris, Esq. F.R.S. In a letter addressed to Samuel Hunter Christie, Esq. M.A. F.R.S.

The apparatus employed by the author in the inquiries of which he gives the results in the present paper, is very similar to that he has already described in his former communications to the Royal Society. It allowed of his carrying on a long series of experiments with freely suspended magnets, oscillating in a medium either rare or dense, and either in the sunshine or in the shade. The source of error incident to experiments in sunshine, made under an air-tight receiver, arise from the increased temperature, producing, both in the rare and in the dense medium, an irregular expansion, and a constant circulation of currents of air, which interfere with the equable movements of the bar—a condensation of vapour on the interior of the receiver—an expansion of the bar itself, by which its length, as a pendulum, becomes changed—and, lastly, a derangement of the original magnetic state of the bar. These disturbing causes he endeavoured to avoid by observing the oscillations, first in the shade, under a close receiver, and next when a beam of sunshine was thrown into the receiver by means of a plane mirror; in which case the heat was inconsiderable. When the bar had been allowed to return to its former temperature, similar experiments were repeated, after exhausting the receiver. The results of a series of experiments conducted in this manner are given in several tables: and the author concludes from them that the influence of the solar rays on a magnetic bar, oscillating in air, is to increase its apparent rate of oscillation; while in vacuo, that rate is diminished.

The author seeks for an explanation of these phenomena in certain changes effected in the surrounding medium. Comparative experiments were instituted on a bar of copper of the same dimensions as the magnetic bar employed in the former series. The author concludes from these inquiries, that the phenomena in question are independent both of the magnetic state of the bar, and also of the influence of solar light. He tried the effect of exposure of the bar to the intense light evolved by lime, acted upon by the influence of the oxy-hydrogen blowpipe; but with the same negative result.

An Appendix to the preceding paper was also read, entitled, "Remarks on Mr. Snow Harris's Communication," by S. H. Christie, Esq. M.A. F.R.S.; in which the latter gentleman, although he admits that Mr. Harris's experiments may explain some of the phenomena observed by Mr. Christie, yet he does not consider them as conclusive against the existence of the magnetic influence of the solar rays, and points out several circumstances in support of that opinion.

February 28, 1833.

MARK ISAMBARD BRUNEL, Esq., Vice-President, in the Chair.

A paper was read, entitled, "A Relation of the case of Thomas Hardy Kirman, with remarks on Corpulence." By Thomas Joseph Pettigrew, Esq. F.R.S.

The subject of this communication, T. H. Kirman, was born at Barrow Mill, near Barton-upon-Humber, in Lincolnshire, on the 18th of April 1821. His father, who is a miller, is of middle stature, but inclined to corpulency; his mother tall and stout; and both perfectly healthy. Their son Thomas was not remarkable at the time of his birth for any peculiarity either in size or strength. He has enjoyed uniform health, excepting that when six years old he fractured his thigh, and was in consequence confined for five weeks to his bed; on rising from which, by an imprudent exertion, he injured his knee, and was obliged to lie upon a couch for five or six weeks longer. It was during this period of inactivity that he was first observed to increase much, both in bulk and height. This increase has since been progressive; and especially rapid during the last twelve months. At the present time, at which he is within two months of being twelve years old, he measures five feet one inch in height, and weighs one hundred and ninety-eight pounds. He measures round the chest 45½ inches, round the abdomen 44 inches, round the pelvis 48½ inches, round the thigh 27 inches, round the calf of the leg 18½ inches, round the upper arm 13 inches, round the fore arm 11½ inches, round the wrist 7 inches, and across the shoulders 19 inches.

The fat deposited is of firm consistence, and the muscular frame is strongly developed. His size occasions him at present but little inconvenience; his appetite and sleep are moderate; his habits and sports perfectly juvenile; and there is no appearance of puberty. He has a brother and two sisters, who are all of the ordinary height and size.

This account is followed by remarks on the subject of corpulency. The author observes, that this habit of body is most frequently met with in marshy districts, and has an apparent relation with the humidity of the climate. It is much more prevalent in England than in France or the South of Europe. It may often be traced to hereditary predisposition, and is promoted by tranquillity and cheerfulness of mind, and equability of temper, by full living, the use of fermented liquors, and of certain articles of diet containing much nutritious