

[PRIVATE PRESS.]

INSTITUTION OF CIVIL ENGINEERS,

MARCH 30, 1858.

CHARLES HUTTON GREGORY, Esq.,

MEMBER OF COUNCIL,

IN THE CHAIR.

THE proceedings were commenced by the reading of the following abstract of a Paper entitled "Observations on the Electrical Qualifications requisite in long Submarine Telegraph Cables," by Mr. Alfred Varley.

The communications lately read, and so fully discussed, on the subject of submarine telegraphy, had suggested the enquiry, whether the cables, as at present constructed, did fulfil, in the best manner, the electrical portion of the problem. It was remarked, that there appeared to be some uncertainty, in the minds of those engaged in applying electricity telegraphically, regarding the laws of conduction and induction, and consequently of the nature of the conductor to be employed in long submarine circuits. The conclusions arrived at by the projectors of the Atlantic Cable were referred to, as it was believed that some errors had been inadvertently introduced into their calculations; but it was trusted that these criticisms would be received in a friendly spirit, as the only desire was to arrive at the truth.

The laws of conduction, as ascertained by the Author, as the result of direct experiments, were—1st., That a wire one mile long offered half the resistance of one two miles long. 2nd. That two wires, each two miles long, when placed side by side, which was

SESSION 1857-58.—No. 16.