

THE TRANSMISSION OF POWER BY ELECTRICITY BETWEEN CREIL AND PARIS.

The splendid experiments on the transmission of power to a great distance, undertaken by Mr. Marcel Deprez, backed by the Messrs. Rothschild, have just been passed upon officially.

After some previous attempts by the learned physicist, at the exhibitions at Paris (1881) and Munich (1882), at the Station of the North (1883) and at Grenoble (1883), the Messrs. Rothschild confided to a few engineers the business of preparing a programme and of carrying the same out.

The problem that Mr. Deprez had to solve was the following: To take a motive power of a hundred horses at the Creil station and transmit it electrically to the La Chapelle station, say to a distance of 33½ miles, with a performance of 50 per cent.

In order to carry out this project, Mr. Deprez worked for two years, and, after a few accidents, such as are unavoidable in an enterprise of this magnitude, now sees his efforts crowned with success. The machines began operating as long ago as the month of October, 1885, and the first examining committee began its labors at that time.

The Creil and La Chapelle plants and the line joining them were arranged as follows:

Creil Station.—The motive power was furnished by two locomotives, and was transmitted to a single machine, called a generator, through the intermedium of a dynamometric pulley that registered the electromotive force absorbed by the electric machine and the excitation of its magnetic field (Fig. 2).

La Chapelle Station.—The La Chapelle dynamo machine, called a receiver, was of smaller dimensions than the generator, since it received but half of the force expended at Creil (Fig. 1).

Line.—As the distance of the transfer was 33½ miles, the transmitting wire, going and coming, had a length of 67 miles. It was of silicious bronze, and was one-fifth inch in diameter. The effective duty furnished by the receiver was measured on a Prony brake.

Practically (and it was under practical circumstances that the receiver operated for six months), the power received at La Chapelle was employed for actuating the pumps of the Armstrong accumulators of the station (28 horses), and in addition, a second, doubly wound electric machine that distributed power to various apparatus (12 horses), as follows: 1. A 176 pound steam hammer of 2½ foot fall. 2. An electric brake. 3. An electric windlass. 4. A small motor that

In the month of May last, the Messrs. Rothschild asked a number of scientific and industrial notables to please follow the experiments and examine the value of the results. A committee of 38 was appointed, presided over by Messrs. Freycinet and Bertrand, and consisting, among others, of Messrs. F. De Lesseps, Alphand, Daubrée, Laussedat, Cornu, Mascart, Becquerel, Sartraux, Aron, and Levy. This body at once appointed a sub-committee, under the

presidency of Mr. Bertrand, and charged Mr. Maurice Levy with the duty of getting up a general report upon Mr. Deprez's experiments. The results obtained were specially called upon to examine the results of the examining committee. After a few preliminary examinations, Mr. Levy proceeded, on the 24th of May, to verify the work. He had the generator run at angular velocities fluctuating between 170 and 220 revolutions, and ascertained that the receiver furnished an effective work that varied between 27 horse power with the lowest velocity and 52 with a maximum. The corresponding motive powers absorbed by the generator were of 66 and 116 horses; whence the performance of 41 and 45 per cent.

In the report which he has just made, and which has been unanimously adopted, Mr. Levy states that the results found by the committee

are identical with those which had been daily observed by the engineers in charge of the experiments.

We join our appreciation of the matter to that of Mr. Levy, who concludes his report as follows:

"The committee, in the name of science and the industries, addresses its warm felicitations to Mr. Marcel Deprez for the admirable results that he has obtained, and expresses to the Messrs. Rothschild its deep gratitude for the inexhaustible generosity that they have displayed in this gigantic enterprise."—*La Nature*.

KEEP the roadsides free from stones and rubbish, and neatly mown. Don't let them be a nursery of weed seeds.

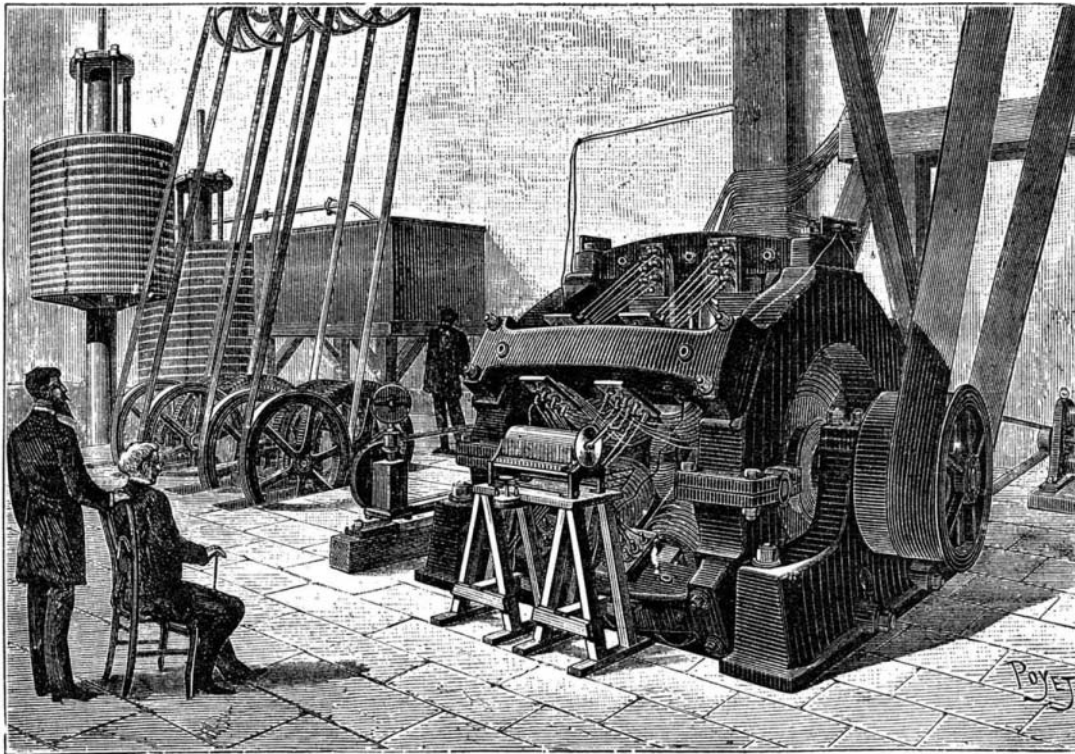


Fig. 1.—TRANSMISSION OF POWER BETWEEN CREIL AND PARIS.—THE RECEIVER.

actuated a lathe. And 5. An apparatus for shifting switches; say, as a whole, an effective power of 40 horses, while at Creil one of 88 horses was expended, whence a performance of 45 per cent.

The examining committee, presided over by Mr. Collignon from October until now, held numerous meetings, and made notes of several hundred points, on which it had made observations. It was found that, according to the velocities given the generator (which were very slight, since, at the periphery of the ring of the machine, the linear velocity did not exceed 25 feet), the effective work furnished by the receiver varied between 30 and 50 horse power, with a mean performance of 44 per cent.

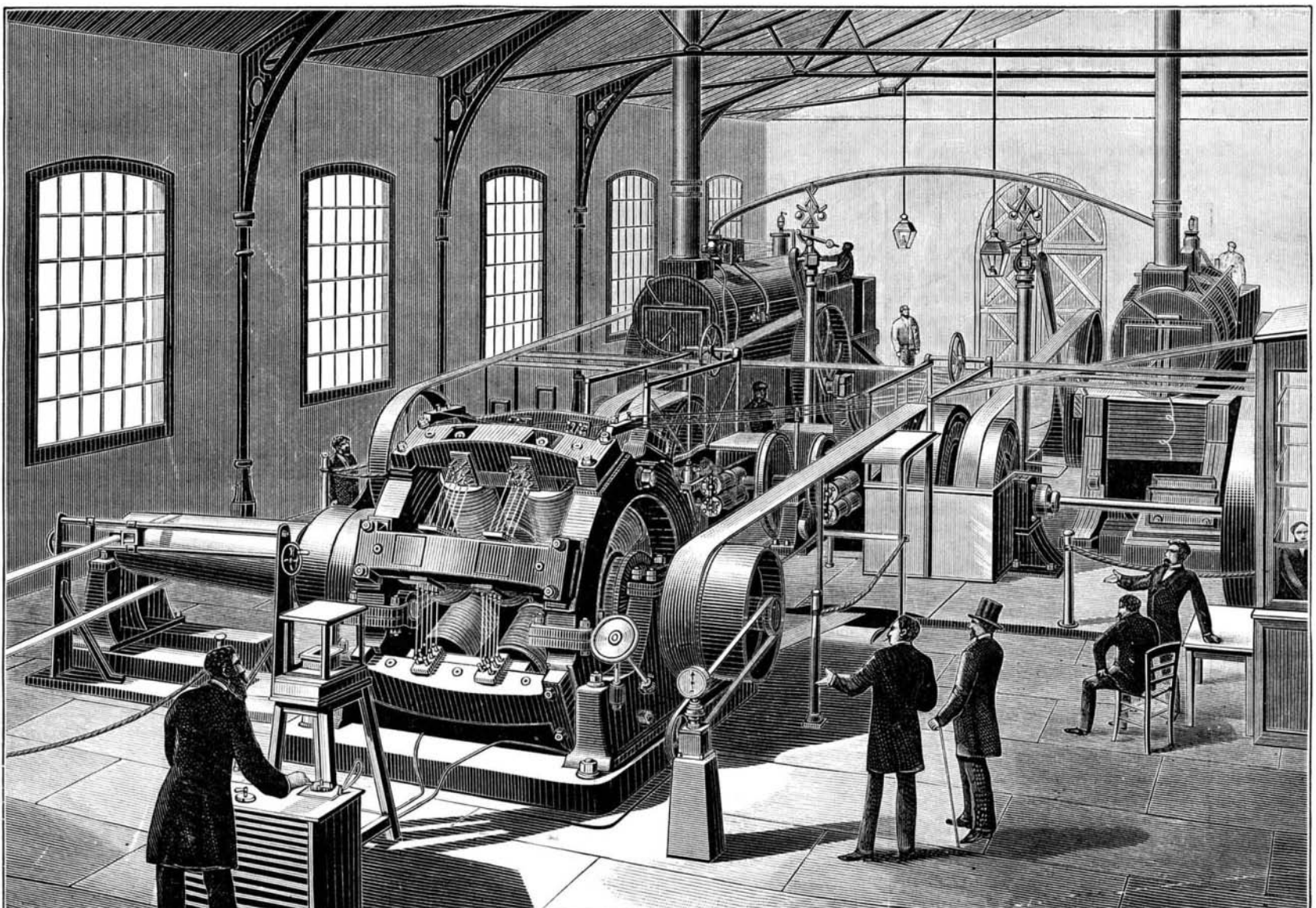


Fig. 2.—GENERAL VIEW OF THE STATION AT CREIL, SHOWING THE GENERATOR.