SCIENCE

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MSS. intended for publication and books, etc., intended for review should be sent to Professor J. McKeen Cattell, Garrison-on-Hudson, N. Y.

THE AERIAL TRANSMISSION PROBLEMS[1]

THE title of my address suggests that I propose to discuss the problems connected with wireless telegraphy and telephony. It should be observed, however, that ordinary telegraphy and telephony and electrical transmission of large amounts of power is aerial transmission and faces some of the problems which confront us to-day in wireless transmission. But, of course, the problems of aerial transmission in their relation to wireless telegraphy and telephony present their most interesting aspect and I shall, therefore, devote most of my time this evening to this particular aspect, of the problem of aerial transmission.

Permit me now to differentiate, briefly, wireless transmission from ordinary electrical transmission.

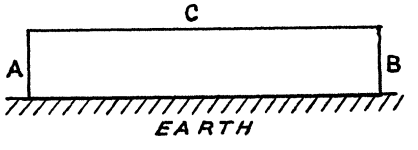

FIG. 1.

Fig. 1 represents the simplest form of ordinary electrical transmission. A wire, *ACB*, is connected to the earth at each end. A generator station at *A* sends electrical energy to receiving apparatus stationed at *B*. The motion of electricity started at *A* is transmitted along the wire *C* to the station *B* and then is completed through the conducting ground between *B* and *A*.

[1] An address delivered before the National Academy of Science, at its meeting in New York, November 15, 1915.