

SCIENCE

FRIDAY, DECEMBER 10, 1915

CONTENTS

<i>The Aerial Transmission Problems</i> : PROFESSOR M. I. PUPIN	809
<i>The Calorimeter as the Interpreter of the Life Processes</i> : PROFESSOR GRAHAM LUSK	816
<i>Obstacles to Research</i> : PROFESSOR C. M. JACKSON	819
<i>Dr. Charles Frederick Holder</i> : DR. GEORGE F. KUNZ	823
<i>Scientific Notes and News</i>	825
<i>University and Educational News</i>	829
<i>Discussion and Correspondence</i> :—	
<i>A Remarkable Eclipse</i> : DR. JOHN N. STOCKWELL. <i>The Degree of Exactness of the Gamma Function necessary in Curve Fitting</i> : DR. RAYMOND PEARL. <i>The Origin of Lost River and its Giant Potholes</i> : J. W. GOLDTHWAITT	830
<i>Scientific Books</i> :—	
<i>Goddard on Feeble-mindedness</i> : DR. C. B. DAVENPORT. <i>Korschelt's Handwörterbuch der Naturwissenschaften</i> : DR. ROY L. MOODIE	837
<i>Proceedings of the National Academy of Sciences</i> : PROFESSOR EDWIN BIDWELL WILSON	840
<i>Special Articles</i> :—	
<i>Interferences with Two Gratings</i> : CARL BARUS. <i>Effect of X-Ray on the Resistance to Cancer in Mice</i> : JAMES B. MURPHY, JOHN J. NORTON	841
<i>Societies and Academies</i> :—	
<i>The Biological Society of Washington</i> : M. W. LYONS, JR. <i>The American Mathematical Society</i> : PROFESSOR F. N. COLE	843

THE AERIAL TRANSMISSION PROBLEMS¹

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.

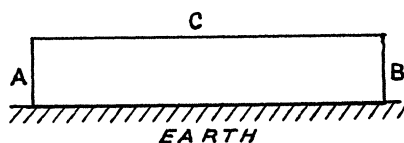


FIG. 1.

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

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