

**WIRELESS TELEPHONY,
IN THEORY
AND PRACTICE**

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Wireless telephony, in theory and practice by Ernst Walter Ruhmer & James Erskine- Murray

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ERNST WALTER RUHMER & JAMES ERSKINE- MURRAY

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AND PRACTICE**

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WIRELESS TELEPHONY

In Theory and Practice

BY

ERNST RUHMER

TRANSLATED FROM THE GERMAN

BY

JAMES ERSKINE-MURRAY, D.Sc.

FELLOW OF THE ROYAL SOCIETY OF EDINBURGH
MEMBER OF THE INSTITUTION OF ELECTRICAL ENGINEERS

With an Appendix by the Translator

AND NUMEROUS ILLUSTRATIONS



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AUTHOR'S PREFACE.

THE friendly reception given by both the home and foreign technical press to my little book, "On Selenium and its Importance in Electro-technics," which appeared in the end of 1902, has encouraged me to make known to wider circles the researches and experiments which have been made in Wireless Telephony up to the present.

In order to render the presentation of the subject complete, notice has been taken of Light-Telephony, and of the fundamental physical phenomena on which it is based, especially in regard to its bearing on more recent work.

The greater part of the second section is devoted to a description of Electric Wave Telephony, the recent advances of which are of the greatest promise, and will on this account be of far-reaching interest.

In accordance with the frequently expressed wishes of my friends, a large number of references

to the literature of the subject have been given throughout the text, and in the name and subject index at the end of the book.

May this latest little book receive on its publication the same reception as has been accorded to my earlier ones.

ERNST RUHMER.

BERLIN, S.W., 48,
15th February 1907.



TRANSLATOR'S PREFACE.

WIRELESS Telephony is now as far advanced in practice as wireless telegraphy was ten years ago; indeed, further, for in 1897 the greatest distance to which a message had been transmitted was under ten miles, while the latest record in wireless telephony is two hundred. Its theory also is much more complete than was that of the elder branch at that date. We may therefore look for a much more rapid development than has taken place in telegraphy, great as this is, and though telephony without wires presents its own peculiar difficulties, one would hardly be astonished if, within the next decade, it should provide a means of transmitting articulate speech to any quarter of the globe.

The present work is the first published attempt to give a complete and connected account of the subject. In view of this the author has avoided technicalities as far as possible, so that his book may be readable by all who take an interest in this remarkable development of electrical engineering, and in this the translator has closely followed the original. Indeed, with the exception of the division of the book into chapters and sections, and the inclusion of a few new illustrations and references, no

alteration has been made in the text. The translator is therefore only responsible for the matter contained in the Appendix, and not for any statements or opinions occurring in the body of the work.

Among other questions of immediate interest, the theory and practice of the production of persistent alternating currents of high frequency by means of the electric arc are thoroughly discussed. The exceedingly puzzling and apparently contradictory theories, of which so many have been published, are given their proper places in a general scheme, which accounts for and explains every type of discharge intermediate between the spark and the steady arc. Owing to this alone the book should be of value not only to amateurs and theorists, but to those who have charge of the design and operation of wireless telegraph and telephone stations.

The book is well up to date; the author describing experiments as late as February 1907, and the translator in the Appendix to November 1907. No apology is made for the inclusion in the latter of extracts from a memorandum by Professor Fessenden, one of the very foremost workers on the subject, and from the report of an independent telephone engineer on tests of his system, as the writer believes that to those for whom this book is chiefly intended, such matter is of more interest and value at first hand than in any form to which he might reduce it.

In conclusion, it is hoped that readers will recognise that the occasional omission of the actual dimensions of apparatus is, as a rule, due to the fact

that in consideration of the present chaotic situation as regards wireless patents, it would in many cases be unfair to inventors to publish numerical details which might prove essential to the proper operation of their instruments, but which are in no way necessary to an explanation of their principles and action.

J. ERSKINE-MURRAY.

34 NORFOLK STREET, LONDON, W.C.,
5th December 1907.