

CONTENTS

I	PRELUDE	<i>page</i> 1
II	FROM PROPHECY TO PROOF A mathematician's pen; radio the missing link between light and electricity; Maxwell's prophecy; characteristics of waves generally; a vibrating source necessary; alternating electric currents; Hertz the discoverer of radio; a scale relationship—ripples and sea rollers, light and radio; some properties of radio deduced; differences between long and short waves	4
III	RADIO ROUND THE WORLD Marconi; the "earthed" aerial; first practical applications; the Atlantic spanned; problem of radio's world travel; an abortive solution; a "mirror" in the sky suggested; need not be solid; discovered by Professor Appleton	25
IV	UP IN THE SKY The watch on the sky mirror; second mirror above the first; their day and night movements; changes in their "strength"; winter and summer changes; the work of the radio mirrors; short waves use the second mirror; the short wave renaissance; long delayed echoes; an unsolved mystery NOTE: for the scientifically minded— the fine structure of the sky mirrors	50 72
V	THE SUN CALLS THE TUNE Spots on the sun; the eleven-year cycle; its connection with world weather; with magnetic storms and aurorae; with radio reception; effect on different classes of wave-length; nature of the sun's influence; possible explanations; lessons of two solar eclipses; an expedition to the Arctic; the problem solved; thunderstorms and atmospheric	74

CONTENTS

VI	THE FUTURE AND ULTRA-SHORT WAVES	<i>p.</i> 103
	Limits of broadcasting progress; the B.B.C.'s Empire problems; ultra-short and micro waves arrive; the radio range extended; other kinds of "electromagnetic" waves; greater message-carrying power of the new waves; a substitute for submarine cables; some Empire possibilities	
VII	TELEVISION	128
	The television problem stated; practical development by Baird; the new television; how ultra-short waves help; an American alternative	
VIII	RADIO AND MEDICINE	145
	Cooking an egg with ultra-short waves; an internal hot poultice; trial and achievement; medical prospects; an explanation suggested	
IX	RADIO AND SAFETY AT SEA	154
	Some early benefits; a home lesson in direction-finding; radio beacons; the sky mirrors intervene; the scientists reply; collision-preventing signals; the new navigation	
X	RADIO IN WAR	168
	The secrecy problem; lessons of the Great War; a partial solution for shore-to-ship communication; possible applications of the new micro waves; the Zeebrugge raid up to date; a radio network for open warfare; frontier post communication	
XI	RADIO AND THE WEATHER FORECASTER	179
	Broadcast weather reports; an international venture; atmospheric and the forecaster; an indication of "cold front" movements; plotting the new weather map; television the final stage; up-to-the-minute information offered	
	APPENDIX ON THE RADIO VALVE	187
	INDEX	193