

Culture, Technology, Britannia: The BBC Handbooks

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ABSTRACT

The BBC Handbook was a remarkable annual publication of the British Broadcasting Corporation during its formative early decades-- its "golden age." The Handbook is of interest to collectors of books germane to radio history, to students of British broadcasting, to researchers of radio's technical past and to historians of the UK of the 20's, the depression, the war and post-war years. Handsomely designed, the volumes provide a description of how the BBC wished to present itself to the public and are remarkable not only for the technical sophistication assumed in its readers but for their record of the rich world of music, literature and theatre to which British wireless listeners were exposed. The Handbooks reflect the philosophy of the BBC founding director, Sir John Reith, a disciple of Mathew Arnold and his conception of culture.

HANDBOOK & YEARBOOK

In the 1920's the new medium of radio broadcasting had a surprisingly beneficial effect on the much older medium of print. Many readers of this journal doubtless collect magazines for radio hobbyists that were generated by the "radio craze" of that decade. If you are shopping in a secondhand bookshop, perhaps looking for old copies of Gernsbach's *Radio News*, see if the store has back issues of a publication that appeared annually, The BBC Handbook. The Handbook was a substantial publication--initially hardbound-- sometimes running over 450 pages which began in 1928 and last appeared in 1973.¹ The BBC inexplicably elected to change the name of their book to either The Yearbook or The Annual on various occasions although the content and style of the publications remained mostly unchanged.²

Bibliophiles will want to give their attention to books of the period 1928-1946 and try to obtain copies with dust jackets. The BBC commissioned serious artists for these designs who often favored the then fashionable Art-Deco style. Figure 1 shows the cover for the 1929 issue.³ By the 1950's the covers were-- to put it baldly--dull.

What can be discovered from reading these books? You can learn the story of the British Broadcasting Corporation as it wished to present itself to the world. Such history has limitations and the serious student of the BBC will scale the highly readable Mount Everest of the subject: Asa Briggs's 5 volume *History of Broadcasting in the United Kingdom*, while someone of more modest ambition might try Andrew Crisell's *An Introductory History of British Broadcasting* whose 2nd edition was published in 2002.⁴

COMPANY & CORPORATION

The letters BBC once stood for the British Broadcasting Company, the forbear of the pres-



Figure 1. Handbook cover for 1929.

ent Corporation. The Company, a monopoly created by statute of the British government, was the only entity permitted in the UK to broadcast to the public, and was owned by British companies manufacturing receiving sets, e.g., Marconi, and Metropolitan-Vickers. These members were required to pay to the BBC a 10 percent royalty on radios they sold. An additional source of revenue would be an annual 10 shilling licensing fee required of all households with radio sets—this money to be collected by the British Post Office which initially gave half of it to the Company.⁵ Licenses were to be granted to those set owners whose receivers were made by the member companies—which meant British companies.⁶ The first Company broadcasts began on November 14, 1922 from London. From its very start, advertising on the new BBC was forbidden and the number and placement of new transmitting sites carefully regulated—a decision based in no small part on how negatively the founders viewed American broadcasting in the twenties.⁷ By 1925, about 80% of the population of the British Isles could receive the BBC.⁸ The directors of the new Company appointed as its first General Manager John C. W. Reith, (1889-1971), whose name we will encounter throughout this essay.

The British Broadcasting Company was a profit-making institution. Public, nonprofit broadcasting in the UK began on January 1, 1927 when the British Broadcasting *Corporation* went on the air, replacing the Company. Although the reasons for this regime change are complex, much of the impetus came from Reith, who had a vision of the BBC as a vast educational and cultural public service—one that would be compromised by its connection to a

profit-making company. Adding to the pressure for change was Reith's resentment of the power held by the Post Office to restrict broadcasting of politically controversial material.⁹

The Crawford Committee, created by the Government to steer the future of broadcasting in Britain, issued its report in 1926, and the result was the formation of the Corporation—a *nonprofit* institution to be financed by license fees and enjoying a monopoly in radio. Because the new Corporation was authorized by a Royal Charter (which would periodically have to be renewed by the Government) and not by Parliamentary statute, it would have the appearance of being immune to political pressure. The Director-General of the Corporation was John Reith, (who was now Sir John); he held this title until June of 1938 when he resigned.¹⁰ Some refer to his stewardship as The Golden Age of Wireless, and indeed this is the title of volume 2 of Briggs's vast history.

Each Handbook/Yearbook was devoted in considerable part to a discussion of the content of the previous year's programs.¹¹ Just a cursory glance shows that this material might, in today's discourse, be described with the pejorative "elitist." Even now, mention of the Reith era BBC can stir up passions deriving from class resentment. To understand this BBC culture one must know something of the man at the top.¹²

My colleague at the University of Massachusetts Lowell, Todd Avery, has written a fine account of the Reithian BBC years, *Radio, Modernism: Literature, Ethics, and the BBC 1922-1938*. Some of the book deals with the profound influence that the writing of the English poet and essayist, Matthew Arnold (1822-1888), had on the

BBC head. Readers may be familiar with his poem “Dover Beach” but more germane to our discussion is Arnold’s much quoted 1869 essay *Culture and Anarchy* – a defense of what is now called highbrow culture. Arnold recommends “culture as the great help out of our present difficulties; culture being a pursuit of our total perfection by means of getting to know, on all the matters which most concern us, *the best that has been thought and said in the world...*” [italics added]. Avery sees this as Reith’s “cultural agenda” for the BBC. For Arnold (and doubtless for Reith) anarchy was “doing as one likes.”

Arnold and Reith part ways in the matter of religion. Raised in a liberal Protestant household, Arnold was to become an agnostic—a fact evident in *Dover Beach* where the balm proposed for the loneliness and misery of man in an indifferent Godless world is: “Ah, love, let us be true/ To one another... .” Reith, the son of a minister of Church of Scotland, practiced a strict Calvinism, and could be hard on his employees, e.g., firing the BBC’s Chief Engineer after his being named as a co-respondent in a divorce proceeding.

THE NEW BOOKS

The first two Handbooks, dated 1928 and 1929, deserve some scrutiny as they set the tone for these publications up to the outbreak of the Second World War. The BBC broadcast no commercials but there was no such ban in their print publications. Looking through the advertising in these early books one sees how rapidly technological change was affecting radio design. Although the crystal set was nearly obsolete, page 370 of the 1929 book carries an advertisement (Figure 2) for an improved crystal detector, the Excel, which

brags of requiring no cat’s whisker. In advertisements for complete receivers we find quite a choice: crystal sets, and receivers of two or three valves (as the British called tubes) powered by batteries or the power mains. For accessories, we find ads for headphones as well as loudspeakers including the relatively new moving coil speaker, and a cornucopia of ads for batteries and battery eliminators as well as individual components (for the home set builder) e.g., coils, condensers, tube sockets, valves. For this reader what is striking about the advertisements for receivers is the number of sets being promoted that had only two or three valves at a time when American magazines promoted a plethora of radios with 5 or more tubes. Figure 3 shows an advertisement from page 389 of the 1930 Yearbook for a 2 valve radio. This American-British disparity doubtless arose from the crowded air waves in the US which

CRYSTAL SET USERS!
 HAVE YOU TRIED THE
“EXCEL”
 CRYSTAL DETECTOR?



It will give additional power to your Crystal Set with Longer Range and is also utely permanent. Enjoy a loud and uninterrupted Programme.

Mr. R. B. Mark of Small Heath, Birmingham, writes:—“For the first time since 1924, I can understand Capt. Eckersley’s advice to all listeners, ‘Look to your Sets, make them more selective.’ The effect of your Detector was fourfold: reception improved, clarity perfect, no Catswhisker, Daventry’s separated, tuning-in perfect. The XL has solved our troubles.”

Price 2s. Obtainable from all leading Radio Dealers. If any difficulty in obtaining one send us name and address of your nearest Retailer.

EXCEL Wireless Components, Ltd.
 53, Abington Street, Northampton.

Figure 2. Crystal detector advertisement, 1929 Handbook

would have demanded receivers having high selectivity in contrast to the UK where typically one could hear only one to three BBC stations; to be sure, British listeners often received broadcasts emanating from the European continent. In the 1931 Yearbook (page 131) there is an article “The American Listener – A British Impression” in which the visitor from the UK is struck that “two out of every three receiving sets are five or six valve sets... The American Listener expects to be able to tune in easily to a dozen or more stations...”

The introduction to the first Handbook was written by Reith himself and he states his manifesto: the BBC is to be “of public service.” He is motivated by “the state of things in America,” i.e., the world of radio commercials and, even worse, interference among radio stations, not to mention program material that he regarded as vulgar and unworthy of broadcast.



Figure 3. Two valve receiver advertisement, 1930 Yearbook

Part of public service in Reith’s view is the purely technical: setting up transmitters such that the whole British population would be in “crystal range.” He extols a “common sense” censorship and as to news broadcasting, it must be “accurate brief and impartial.” For music, “good music is preferred to bad” and he intends to broadcast “music that is addressed to the finer and quieter sources of emotion in a small audience” but he does not shrink from his intention to broadcast “challenging new work.” As for religious content, he’s equally straightforward: the BBC has and will continue to broadcast “a nonsectarian Christianity—confined in respect of doctrine, to those simple essentials to which all Christians of the west can adhere.”

The 1928 book notes that “The BBC observes Sunday in a religious non-sectarian way. Religious services are broadcast regularly from all stations, and no entertainment alternative is recognised.” Reith’s Calvinism is evident—you cannot avoid hearing a religious broadcast by switching to another BBC station. For nonbelievers, the temptation to listen to a secular broadcast in English from France or, later, Luxemburg was strong.¹³

The BBC Handbook of 1928 was 384 pages in length while for 1929—a depression year—it was 100 pages longer. One purpose of each volume was to give a summary of the previous year’s activities of the Corporation. Since advertising made up 5-10 percent of the pages of the book, one might wonder what filled these hundreds of pages, and here it becomes evident how broadly conceived these volumes were.

First, the books contain much material on the rapidly advancing technical achievements of the BBC—improvements to broadcast-

ing from the London site as well as regional broadcasting from such places as Wales, Scotland, & Northern Ireland. Listeners in the London area are told in the 1929 book that soon they will be able to hear two different BBC stations (one national and the other regional) and are warned that they will need receivers of sufficient selectivity to separate the two signals, which will be broadcast from identical locations in North London but on different wavelengths. We're informed of progress in Empire Broadcasting, meaning short wave service directed at the colonies and commonwealth countries.

Americans might be surprised to learn that, while much of BBC broadcasting in its first few decades took place within a spectrum of medium wave frequencies (comparable to the U.S. AM band), in 1925 the BBC opened a popular long wave station, 5XX, at 200kHz (1,500 meters) radiating 25,000 watts. The station was situated in Daventry, near the center of England, and a picture of its antenna can be found on page 56 of the 1928 Handbook. Because of the long wavelength, the antenna had to be enormous and was supported by masts 500 feet high set 800 feet apart.¹⁴ The low frequency was chosen because of the resulting low attenuation of the ground wave; in this respect they were following in the footsteps of Marconi and his early wireless telegraphy work. Page 39 of the same book asserts that this step allowed 80 percent of the British population to receive the BBC without interruption via a mere crystal set. It was the first long wavelength station in the world to give regular programming.

On page 92 of the 1928 Handbook we are reminded of the *bete noir* of the BBC: the unlicensed

receiver. Readers are advised: "It is illegal to operate a receiving set without first taking out a licensing costing 10 s [shillings] a year, from the Post Office. Some people do manage to listen without a license, but it costs much more in the end. It costs a lot more in self respect." Note the allusion to one's honor.

This was already an old problem. A Profile of the BBC written for the 1973 Handbook remarks that when an amnesty was offered in 1923 to "license dodgers," the number of licenses issued doubled in 10 days. How much was 10 shillings worth? It wasn't trivial. The average weekly pay of a coal miner in Britain in 1927 was 53 shillings for a 5.5 day work week.¹⁵ A radio license could represent a day's pay for a manual worker. The temptation to assemble a set from parts and not license it must have been enormous, particularly since there was no shortage of hobbyist magazines with instructions on this very subject.¹⁶ Incidentally, the Yearbook/Handbook cost from 2 to 2.5 shillings from the 1920's through most of the 1940's.

THE THIRTIES

Much of each annual describes the content of the previous year's programs, and we suspect that were Mathew Arnold present to hear the wireless, in the Reith era, he would have been pleased. In the Panorama of Music for the 1930 Yearbook we learn that it is BBC policy to present as many works as possible by such composers as Haydn, Schubert, Bach, Handel and Mozart, and that these are the "bread and butter" of the daily fare of the lover of music. The BBC's panorama consisted of live concerts of chamber, symphonic and operatic works not to mention—in 1929—a regular weekly series of Bach Cantatas as well as 13 weeks

of music devoted to Schubert's Centenary. Although all the composers were white and male, not all were dead; Stravinsky and Delius, still in the land of the living, had their work conducted by Sir Thomas Beecham. The 1930 book contains a touching photograph of the aging Delius, then blind and living in France, while the previous year's volume has a full page photo of Arnold Schoenberg (the father of twelve tone serial music) and his fur clad wife. This often difficult composer had come from Germany to rehearse and conduct the British National Orchestra in his work "Gurrelieder."

The BBC's commitment to serious music is even more evident in the 1931 Yearbook, which reports the founding of the legendary BBC Symphony Orchestra the previous year. Starting in 1930 the new orchestra was conducted by Adrian Boult and consisted of 114 full-time players tied to a "no deputy" system- which meant that if you were a member of this august body you'd better show up for work and not appoint someone to take your place because you had another gig.¹⁷ Pages 176-77 of the book shows a two page photo spread of the orchestra together with the name of every player. What is striking is the large (for its day) number of women in the ensemble. Of the 14 first violinists, 8 are identifiable as female. Where did the money come from to pay for what was to become one of the world's great symphonies? The answer is on page 39 : BBC license fees and revenues from publications adding up to over 1 million pounds for the year ending in 1929. One might contrast this orchestra with its closest American counterpart: the NBC Symphony which, although it could boast of a very great conductor, Arturo Toscanini, wasn't founded until 1937

and was to last only 17 years. The BBC Symphony today is still one of the world's outstanding orchestras.

Reading through all of these Handbooks/ Yearbooks one should notice not only what is present but what is missing. The BBC took some risk in broadcasting the works of modern composers like Stravinsky, Bartok and Schoenberg. However, searching through these books of the twenties and thirties, one finds almost nothing about jazz. Reith is alleged to have hated the idiom.¹⁸ Instead, we find plenty of dance band music. Indeed, the BBC formed its own dance orchestra ahead of the BBC Symphony, a fact gleaned from pages 200-201 of the 1929 Handbook. Having listened to recordings of British dance orchestras of this period I can say that these were housebroken versions of American jazz, divorced from the black influence, ethnicity, and daring that you might find in some of the great U.S. jazz groups of the era led by, e.g., Fletcher Henderson, Benny Goodman, and Count Basie.¹⁹ It would be wrong to accuse the BBC of racial prejudice: The 1930 Yearbook lists a July 1928 concert by the famed American Negro contralto Marian Anderson who carried an aura of high culture and could stun audiences with arias from great operas as well as the spirituals of her race. The 1931 Yearbook features a prominent photograph on page 114 of the great American Negro singer and actor Paul Robeson, who sang on the BBC.

Robeson appears on a list of Musicians of the Year. To look through these names is to be filled with envy for what listeners could have heard: under conductors we find Sir Thomas Beecham, Malcolm Sargent, Bruno Walter, Toscanini, and Sir Edward El-

gar. Besides the two singers just mentioned we find Rosa Ponselle, Lauritz Melchior, Elizabeth Schumann and Lotte Lehmann. Pianists include the composer Bela Bartok, Myra Hess, Walter Gieseking, and Artur Schnabel. Wanda Landowska performed on the harpsichord.

Just as impressive in the 1931 book is a staggering list of BBC speakers for 1930. Drawn from seemingly every branch of intellectual endeavor we find such legendary authors as Virginia Woolf, T.S. Eliot, Andre Maurois, George Bernard Shaw and E.M. Forster.²⁰ Among scientists, we encounter Albert Einstein, Oliver Lodge, James Jeans and Julian Huxley. Additionally, we recognize the economist John Maynard Keynes, anthropologist Bronislaw Malinowski, and Arnold Toynbee the historian. Einstein spoke on October 28, 1930, and his picture appears on page 34.

"BBC English" was for generations of Britons the standard pronunciation of their language. The accent did not arise by accident as a reader of the 1929 Handbook soon learns. An essay by A. Lloyd James observes that "The BBC is concerned only with questions of pronunciation, and the standard of pronunciation of its official speakers more and more, both within these islands and abroad, as a standard of accuracy to be aimed at." He reveals that the BBC maintains an advisory committee on spoken English composed of such men of letters as The Poet Laureate of the UK, Robert Bridges, playwright George Bernard Shaw, and essayist Logan Pearsall Smith (an American!). It's fitting that Shaw, the author of a play in which pronunciation is central, *Pygmalion*, should be on board.²¹ James, writing earlier in the 1928

Handbook, asserts, in an instance of naked snobbery, that "[BBC English] seems to steer a course midway between the lapses of the uneducated and the affectations of the insufficiently educated." For 3 pence one can buy a pamphlet from the BBC on how to acquire their pronunciation.²² Radio historian Mark Pegg observes that "...the accent of the announcers alone was to mark the social distinctions between the broadcasters and most listeners."²³

Speaking of Shaw, perusing these BBC annuals one sees that radio drama was an important part of broadcast fare. The 1931 book remarks that 4 radio adaptations of plays of Shakespeare were performed the previous year. Shaw was represented with *Captain Brassbound's Conversion* and *St. Joan*. Sometimes books and short stories were converted to radio plays, e.g. Joseph Conrad's *Typhoon* and *Lord Jim*.

Andrew Crisell, a major British radio historian, convincingly defends the elitism of the BBC in the Reith years: "In pre-war Britain, universal education reached the age of about 14. Those temples of high art, the concert halls, opera houses and theatres were beyond the pockets of the great mass of people, and within the tiny minority who underwent higher education there was much more consensus than there is today about what in cultural terms was, good, significant or worthwhile." Reith's intention, he maintains, was to "...open up to all those who had been denied to them by a limited education, low social status and small income the great treasures of our culture."²⁴

TECHNICAL MATTERS

For those interested in the technical history of radio, the

early years of the annuals are a treasure. These volumes contain a segment known variously as the Engineering or Technical Section. In addition there was sometimes a reference portion that was rich in technical information. Altogether, the technical content might occupy one third of the overall volume. By the late thirties these specialized sections were gone or much reduced.

The BBC did not patronize its audience. The level of discourse of the technical material is sometimes appropriate for degree holders in electrical engineering. Basically the information provided was of several kinds: technical advances and challenges facing the BBC engineering staff, help for the amateur home builder of receivers, which might include everything from schematic diagrams for radios as simple as crystal sets up to 6 tube superhetrodynes, construction of receiving aerials, wave propagation over a conducting earth, the role of the ionosphere in radio wave transmission, and a glossary of technical terms which contains for example:

“Natural Frequency or Natural Period—The *frequency* or *period* at which a circuit containing *inductance* and *capacity* will naturally oscillate if set in electrical vibration. The natural frequency is given by the formula

$$f = \frac{1}{2\pi\sqrt{LC}} \text{ cycles per second,}$$

where L is the inductance in henries and C is the capacity in farads. At this frequency, the condition of *Resonance* occurs.” [italics in original].

What is interesting about the schematic diagrams is that they never supply quite enough information for one to build a wireless receiver; the BBC did not encourage home construction. If someone bought a wireless set from a

store there would be a record of her having purchased a radio. She might be less likely to avoid buying the half pound license fee than a home constructor of radios who left behind no trail. It’s possible that the Yearbook/Handbook did not encourage home construction out of fear of antagonizing their numerous advertisers of ready-made radios. In the article “Some Hints for the Novice,” in the 1928 Handbook, the homebuilder is advised “In nine cases out of ten the results will be disappointing.” He (and it is always “he” in these articles) is then advised to buy the most expensive possible components if building a home set, and to eschew for example the “cheap foreign [valves]” because ... “British valves are the best on the market.” Of course it was British valves that were advertised in these books.

Sometimes one suspects that the information provided the hobbyist is not only deliberately sketchy but intentionally misleading as in this example (Figure 4) taken from page 341 of the 1930 Year Book. The schematic is for “... a simple but efficient short-wave circuit ...and the values of the component parts should be near as possible to those given.” Not only are the values of some components not given but more striking is the value of the grid leak resistor connected to the first valve on the left. Its value of 3Ω is off by a factor of one million.²⁵ This might have been a careless error, but these books have so few typographical errors that one wonders if this wasn’t deliberate.

In a situation where the BBC is seeking to enhance the listening experience, without encouraging the building of an entire set, they could be very helpful. The 1929 Handbook contains instructions for the construction of a wave trap

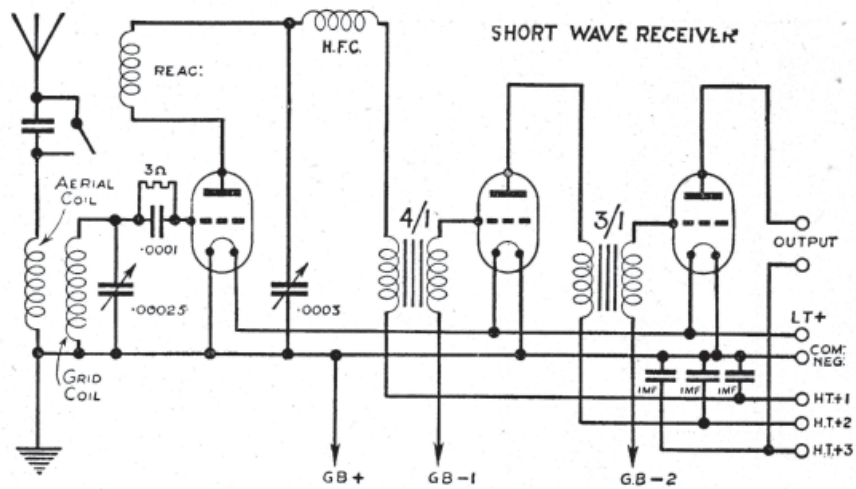


Figure 4. Short wave radio schematic: Note the grid leak resistance, 1930 Yearbook

to eliminate interfering stations. Page 343 contains a clear diagram (Figure 5) detailing construction of the inductor for the trap.

The use of a wave trap would increase the selectivity of a receiver. We are told in the same book that “the majority of ships” are using spark transmitters, a reminder that this crude technology, dating back to the early Marconi wireless telegraph era, was still in use. Wave traps were needed to block the resulting harmonics from reception.

The design of receiving antennas was of great interest to the set owner in the first decade of broadcasting, and the Handbooks/Yearbooks recognize this with construction advice. We learn from the 1928 Handbook (p.249) that using an antenna whose overall length exceeds 100 feet violates the terms of your license, while the 1931 Yearbook advises the use of the entire allowed length. Moreover they tell you, “In general it is not a good policy to make an aerial system inconspicuous; for example it is bad practice to hide

the horizontal portion of the aerial by running it close to the eaves or roof of the house. Although aerials of this type usually succeed in being inconspicuous they are seldom efficient, for their effective height is small. If the roof of the house is covered with lead, which is usually in electrical contact with the ground, the aerial in effect is only slightly higher than ground level.” The same book presents (p. 379) a possible arrangement for an aerial, given here in Figure 6.²⁶

We notice how conspicuous this arrangement is; there is little chance that someone with this aerial would have the audacity to skip paying for a wireless license. One feels that this is not an accident. In fact there is no suggestion in any of the annuals that for someone using a regenerative or superhetrodyne radio, a much smaller indoor antenna might do.²⁷ As late as the 1940 Handbook (p. 98) the listener is advised to use an outdoor aerial.

The technical discussions in the Handbooks/Yearbooks of the early 1930’s could be at a very so-

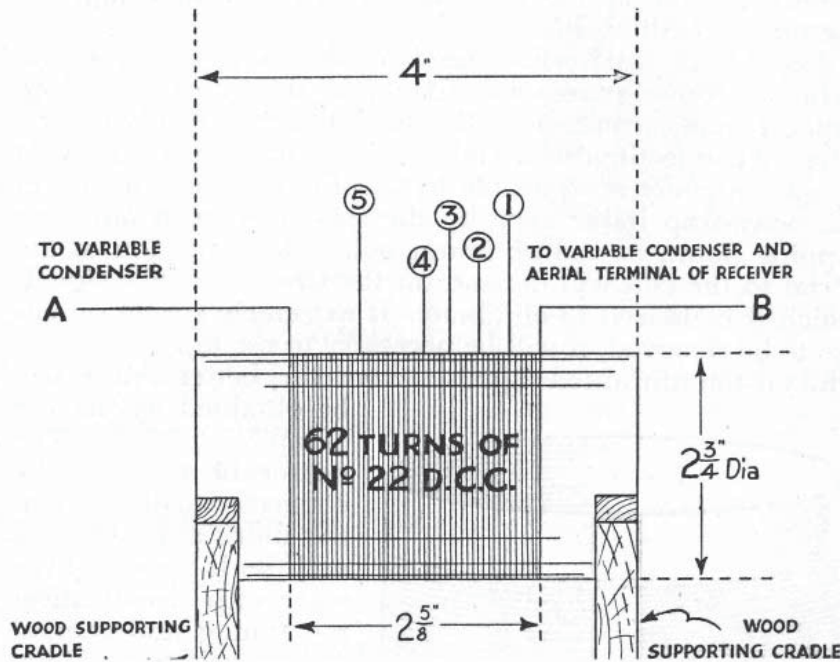


Figure 5. Inductor for a wave trap. 1929 Handbook

phisticated level and this is most apparent in the chapter "Transmission" in the 1930 volume. Here we find an analysis of the direct and indirect waves in broadcast propagation that would be of most interest to radio engineers. A series of curves, based on Arnold Sommerfeld's difficult mathematical theory of wave propagation over an imperfectly conducting spherical earth, shows the electric field strength vs. distance from the transmitter for various ground conductivities.

Of course engineers were also interested in the behavior of the indirect ray—the wave from the transmitter reflected back to earth by the ionosphere. The same chapter summarizes a paper delivered to the IEE by two members of the BBC staff, Peter Eckersley and a Mr. Howe, on this very subject.²⁸ Using a mixture of theory and experimental results, the pair

conclude that the strength of the signal returned to earth will be ".1 mv per meter for 1 kw radiated" at distances of from 300 to 1000 km. The preceding assumes a single reflection from what they call "the Heaviside layer." Evidently credit was not to be given to Arthur Kennelly, who postulated such a layer independently and in the same year, 1902, as the Englishman Oliver Heaviside. Kennelly was an Irishman who was born in India and who settled in the United States, worked for Edison, and taught electrical engineering for decades at Harvard. It is not until the Yearbook for 1932 that we find the "Heaviside-Kennelly" layer and by 1934 the modern word ionosphere is used, perhaps reflecting the fact that it was by then known that there were several layers involved in the refraction of radio waves.

The British led the world, in pro-

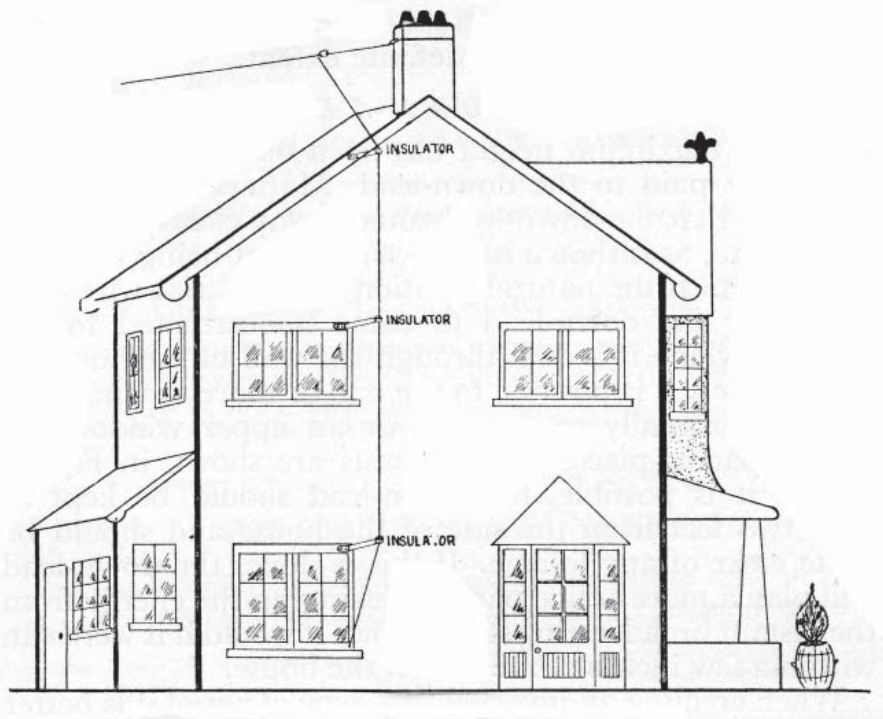


Figure 6. A suggested aerial. 1931 Yearbook

viding regularly scheduled “high definition” broadcast television. From the 1937 Annual we learn that experimental t.v. was begun from Alexandra Place in London the previous year; one of its goals was to evaluate and compare the utility of two competing systems—the Baird and the Marconi-EMI. Both are discussed in some detail. The Baird would now be regarded in modern jargon as a “kluge;” it required a mechanical scanning disc, and worse, a photographic film as an intervening process in the transmission of the t.v. image. The book reports that in February of 1937 the Marconi-EMI system, which was all electronic, was adopted for permanent use, while the 1938 Handbook asserts that in 1937 the BBC was broadcasting 150 minutes of television per day with an estimated 10,000 people seeing the coronation of King George VI

on their sets. By contrast, in the U.S. it wasn’t until 1939 that NBC began providing two hours of programs a week. The 1939 Handbook reports that, at the 1938 Radiolympia Exhibition in London, 22 firms exhibited televisions.

If one were to read just one annual because of its technical content, it would be the 1930 Yearbook. Here we find four articles, written for the lay person, on science and engineering by acknowledged experts in their field. For example, Sir William Bragg, Nobel Laureate and Fellow of the Royal Society (FRS), addresses what physicists now refer to as the “wave-particle duality,” i.e. the fact that some physical phenomena can be explained only by treating the transmission of electromagnetic energy by means of a wave model, while others are explicable only by using a particle model. Bragg calls

the particles “minute corpuscles proceeding from the luminous source.” In some respects the article is old fashioned—he avoids the modern term “photon” for the corpuscles in a stream of light. More curious is his use of the term “ether” to describe the medium in which both particles and waves propagate. The ether as a medium for electromagnetic radiation was discredited 25 years before with the publication of Einstein’s special theory of relativity and it is astonishing to find it still alive here.

Even more surprising is an article preceding Bragg’s titled simply The Ether and written by Arthur Eddington, FRS, one of the great British astrophysicists of the 20th century. His purpose is to proclaim his belief in the ether but he writes like a man on the defensive, acknowledging that we cannot ask what the ether weighs, is it a fluid or rigid, how fast does the earth move through it? He does concede that “A few distinguished physicists maintain that modern theories no longer require an ether—that the ether is abolished. I think that all they mean is that since we never have to do with space and ether separately, we can make one word serve for both together; the word they choose is ‘space.’” Since physicists speak of the properties of space (e.g., the speed of light in space), Eddington would have us assign these properties to something called the ether—a throwback to the 19th century era of Maxwell’s modeling of the medium containing electromagnetic fields.

Although in Eddington’s day he might speak of a “a few distinguished physicists,” no reputable physicist would, post World War Two, speak of the ether. Its demise was sealed by the eventual universal acceptance of Einstein’s work.

What is especially puzzling about Eddington’s case is that he was the author of a very popular book explaining relativity: *The Mathematical Theory of Relativity* (1923). *The Encyclopedia Britannica* (15th edition) describes him as “the first expositor of relativity in the English language.” Eddington has also written about his philosophy of science, which includes the concept of “unobservables” and the reader curious about his defense of the ether should read his work.²⁹

Of more practical interest to the radio listener than the essays just mentioned is an article by Sir Edward Appleton, also an FRS. Appleton was to win the Nobel Prize in physics in 1947 for his research on the ionosphere and for his discovery in the 1920’s of what was for a time known as the Appleton Layer but which is now called the F layer of the upper atmosphere. He proposes to explain to the lay person the role of what he calls the Heaviside layer in radio wave propagation and why, as most listeners would have noticed, that certain stations are heard only at night and that the quality of their reception is highly variable. He also ties this variability to the sunspot cycle although what this connection is he does not explain—a reminder that the science of the upper atmosphere was still in its early years.

R. L. Smith-Rose was less well known than the three authors mentioned but his article, the fourth, on lightning and atmospheric is worth reading. Radio listeners were well aware of lightning, knowing it to be responsible for the clicks they might hear in their loudspeakers and headsets, especially in the summer. He explains the mechanism of lightning, the various kinds of lightning strikes, and the wavelengths of radio waves

most apt to suffer from lightning generated noise. The article is accompanied by advice on how to “earth” [ground] your set to reduce the likelihood of lightning damage.

HISTORY BOOKS

The annuals for the period 1928 to 1940, with their summary of the previous year’s events in broadcasting, can be read as a history of Britain during a difficult, indeed terrible, period. As in the case of the technical content, what is sometimes most interesting is the excluded or partially presented material. The most salient example is to be found in the 1937 Annual. On December 11, 1936 King Edward the Eighth abdicated the British throne in order to marry his twice divorced love, the American, Wallis Simpson. The following day Edward broadcast a farewell using radio. His message was broadcast not only by the BBC domestic service but by BBC short wave to the entire world where in some countries, including the US, it was rebroadcast on medium wave. In the age of Empire, he had been monarch to over 500 million people. H.L. Mencken, the American critic, waggishly observed that this was “the greatest story since the Crucifixion.”³⁰ The Annual has a one-line reference to the broadcast on page 47 while page 88 has an entry, inexplicably placed in a reduced font, about the farewell, and remarking that his valedictory “... was probably listened to by the largest broadcast audience on record.” The abdication was surely not Britain’s finest hour, but an event of this magnitude in the history of broadcasting cries out for more coverage.

To read the Handbooks/Yearbooks in the period 1934 through 1940 can be a dismal business because one knows what is going

to happen: Britain and much of the world is headed inexorably for World War Two. The 1934 Yearbook has a photograph of the newly elected Chancellor of Germany; Adolf Hitler assumed office in January, 1933. We are told that with his election in Germany “the rebuilding of the bases of broadcasting has begun.” We learn that all employees of German radio who were Jewish or alleged to be “criminally suspect” were fired. The new head of German radio under the Nazis, Herr Hadamovksy is quoted: “My task... is to make broadcasting a sharp and reliable weapon for the government...” and furthermore “I have always ridiculed ... the old idea that there is such a thing as objectivity and neutrality per se.”

In the 1939 Handbook one of the larger sections is devoted to BBC coverage of “The Crisis [of 1938]”. It contains a photograph of a triumphant Neville Chamberlain at the Hester Aerodrome on September 30. He has just returned from Munich after meeting with Hitler. Mobile television units were at the airport, and the event was not only heard on the wireless but widely witnessed on British television. The Handbook proudly affirms that “[television] viewers were among the first to see him holding aloft that fluttering piece of paper (the writing was visible) bearing his own signature and that of Herr Hitler.” The Sudetenland of Czechoslovakia had just been handed over to Hitler in return for what Chamberlain would call “Peace in our time.”

Germany invaded Poland on September 1, 1939 and two days later Britain declared war on the aggressor. The 1940 Handbook, owing to wartime austerity, has shrunk to a mere 128 pages, less than a third of its size in its best

days. The BBC knew that war was coming and followed advanced planning in which it was recognized that “peace time methods of transmission would endanger the national safety by giving guidance to enemy aircraft.” The Handbook explains that on the day of the invasion all stations shifted to a common programming material which became known as the Home Service and which initially used only two wavelengths, 449.1 meters and 391.1 meters. The long wave transmitter and various regional services were shut down as was all television; however short wave services to the rest of the world did continue and the long wave service resumed before the war’s end. Page 33 carries the text of Prime Minister Neville Chamberlain’s speech, which the BBC broadcast from 10 Downing Street on September 3, 1939. He states, “You can imagine what a bitter blow it is to me that all my long struggle to win peace has failed.” There is a touching photograph, opposite this page, captioned “Keep them happy, keep them safe” of children being evacuated from London. .

One can in some respects trace the history of the war through the annuals. The 1941 Handbook has a photograph of the teenage Princess Elizabeth (the present day Monarch), accompanied by her sister Margaret, broadcasting a message to the children of the Empire. The same volume displays a picture of the results of a German air attack on the BBC headquarters at Broadcasting House in London. Again, this is one of those strange instances of partial reporting. On the 15th of October 1940 a 500 pound bomb landed in the BBC Music Library, killing 7 people, but the deaths are not mentioned. □

Short wave and even medium wave services, especially to over-

run countries, are discussed at length in the 1941 volume. We learn that “In Poland the Germans have made the possession of wireless sets illegal,” while in Czechoslovakia “anything broadcast by the BBC is known throughout the country in a few hours.” The same book has an essay by Harold Nicolson, Parliamentary Secretary to the newly formed Ministry of Information. He begins with a powerful summary of Hitler’s propaganda: “His avowed method is to appeal to the lowest instincts in human nature, namely to envy, malice, greed, fear, and conceit.” Nicolson is at pains to explain that his new ministry will not be imitating the German propaganda chief, Joseph Goebbels, but will indulge in “liberal propaganda,” which is based on “...true facts and common principles” and the belief “that there does exist a difference between right and wrong and that this difference is readily appreciated by the vast majority of mankind.” Facing the final page of the essay is a photograph of Winston Churchill, making his first broadcast as Prime Minister, on 14 July 1940. The 1946 Year Book, the first to appear after the war was over, remarks (p. 28) that, thanks to the BBC, Churchill’s words in the “darkest days” of the war were heard by 70% of the British population.

New in the 1940 Handbook is information about a wartime broadcasting service of the BBC which was to have consequences far beyond the hostilities. On the 19th of February 1940 broadcasting of the Programme for the Forces commenced. This went out on short wave as well as the medium wave 373.1 meters, later changed to 342.1 meters, and consisted of material designed for the men and women in uniform: news, popular music, dance music, swing,

crooners, comedy. The content is described in the story “Listening with the Forces” by Major Richard Longland, BBC Liaison Officer with the Army.

Many Britons on the home front listened to and enjoyed what became known as the General Forces Programme, a fact not lost on the BBC. In the 1946 Yearbook we find that the successor to the General Forces is the BBC Light Programme which went on the air in July 1945 essentially in competition in the UK with the still present traditional Home Service. There is a certain defensiveness in the description of the new service in the annual (pp. 53-54): “The title Light Programme does not mean that everything broadcast on it must necessarily be frothy or frivolous,” although the unnamed author concedes that it does contain “a higher portion of sheer entertainment.” This same Yearbook has auguries of a new service in the annual for 1947: the birth of the BBC Third Programme.

The Third Programme was born on September 29, 1946, broadcasting from 6 p.m. to midnight and was devoted to the high culture championed by Reith and his muse Arnold. There were no newscasts. An article by the novelist and travel writer Rose Macaulay on page 20 of the 1947 Year Book, “If I Were Head of the Third Programme,” gives some idea of what was broadcast, much of it serious music. She proclaims that the offerings were “proving more than all one hoped” with a week full of Beethoven’s String Quartets, and another of Byrd and Bach, and a performance of *The Magic Flute*. Modern music is not lacking – she speaks of Bax, Schoenberg and Webern. As for drama there were “good performances of the familiar great--Shakespeare, Ibsen, Strind-

berg, Shaw, Euripides.” The 1955 Handbook describes the Third Programme as intended for “Listeners of Cultivated Tastes and Interests.”

Thus, a year after the war ended the BBC had become revolutionized in ways that Reith had never wanted nor perhaps envisioned. His Corporation was now a cake of three layers, with the Third Programme, Home Service, and Light Programme providing entertainment for high, middle and lowbrows. This was anathema to Reith who felt that the strength of the old, heterogeneous system was that the public was forced—if only by chance—to be exposed to some high culture. Indeed, Reith wrote in his diary that the new arrangement was “an absolute abandonment of everything I stood for.”³²

Of course this restructuring and growing egalitarianism at the BBC was a manifestation of large social changes taking place in the UK. Even before the war ended the ruling Conservative party was voted out of control and Prime Minister Churchill was replaced by the Labour Party’s Clement Attlee on July 26, 1945. The frontispiece of the 1946 Yearbook is a photograph of the new Prime Minister. Railroads and coal mines were nationalized under the Labour Party and the National Health Service begun.

The cover of the 1946 Yearbook (Figure 7) shows the dove of peace launched from a hand shrouded by bombed ruins.³³ Alas, peace was short lived. In four years Britain and the United States would have troops in Korea.

In the decades following the publication of this hopeful cover the Yearbook/Handbook would, like the BBC itself, become increasingly devoted to television. No book was published in 1953 or 1954 but the 1955 Handbook dwells on the banner broadcasting

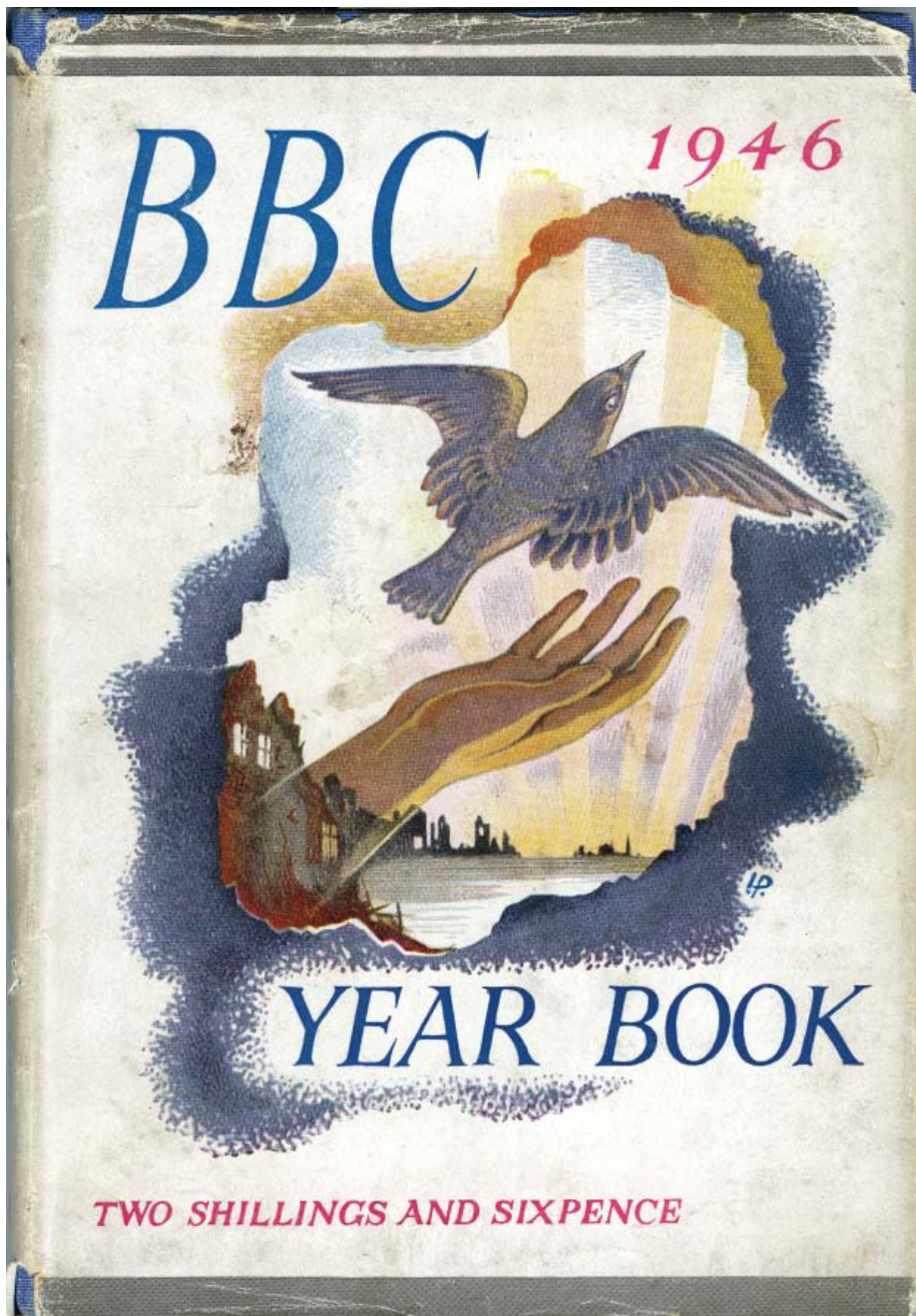


Figure 7. Launch of the peace dove. Cover 1946 Yearbook

year of 1953—the coronation year of Queen Elizabeth II. In the UK alone, 12 million listened to the coronation on the radio but 20 million saw it on television (this out of a population of 41 million). This, reports the BBC, was the first time that the t.v. audience exceeded that of the wireless. Perhaps it is appropriate to end our examination of the books here.

Finally, one wonders what would be the reaction of Sir John Reith if he could now see his BBC in the age of the Internet. The three layer cake that was BBC wireless in 1946 has today evolved into BBC services numbered one through seven. All go out as broadcast radio as well as Internet stations.³⁴ Although some services are restricted to popular music and news, BBC radio 3, 4 and 7 have an abundance of serious music, lectures, and drama --Arnold's "best that has been thought and said," with some leavening from light entertainment. Of course, if you spend the day listening to one of the other services you'll miss "the best", and this would not please Reith.

SOURCES

The entire run of Handbooks/Yearbooks/Annual Reports is available on Microfilm from Microform Academic Publishers.

<http://www.microform.co.uk/archival-publishing.php>

This Microfilm edition is accompanied by a brief and useful discussion of their contents by British radio historian Hugh Chignell.

The business branch of the New York Public Library has a complete set of the actual books. Lamont Library at Harvard University has them on microfilm as do doubtless many other university libraries.

ACKNOWLEDGEMENT

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ENDNOTES

- 1 The Handbook was replaced by "The Handbook, Incorporating the Annual Report and Accounts" in 1974 and continued with that title until it ended in 1987. During the Great Depression, The Handbook diminished rapidly in size and was a mere 129 pages by 1938. In postwar years it grew but never achieved the heft of its early days.
- 2 The Yearbook was the title used in 1930-3, 1943- 1952. The title Annual was used in 1935-7. There is no consistency in spelling from year to year and one can find Year Book and Hand Book.
- 3 The artist is given simply as E. McK.Kauffer . This is E. McKnight Kauffer, a distinguished American illustrator from Montana, who was better known in Europe than at home. See the website <http://www.aiga.org/content.cfm/medalist-emcknightkauffer>
- 4 Asa Briggs, **The History of Broadcasting in the United Kingdom**, vols 1-5, Oxford 1995
Andrew Crisell **An Introductory History of British Broadcasting**, Routledge, 1997
- 5 Paddy Scannell and David Cardiff **A Social History of British Broadcasting**, volume 1, 1922-1939, Blackwell, 1991, p.5
- 6 An "experimenter's license" was available for those choosing to construct their own sets.
- 7 An interesting comparison of British and American radio can be found in the essay *British Quality, American Chaos: Historical Dualisms and What They Leave Out*, Michele Hilmes, in **Radio (vol2)**, Andrew Crisell editor, Routledge, 2009 pp. 62-85,

- 8 Crisell,(note 4) , page 15
- 9 Scannell and Cardiff,(note 5) pp. 24-32
- 10 It is unclear whether Reith resigned voluntarily or if he was encouraged to leave. See for example **The BBC-The First Fifty Years**, by Asa Briggs, Oxford, 1985, pp. 145-6.
- 11 The term “previous year” is only approximate, e.g., the Yearbook of 1930 covers Oct. 1928 thru Sept 1929.
- 12 Reith has written his autobiography **Into the Wind**, and there is a biography **Only the Wind Will Listen** by A. Boyle. Reith has published his own **Diaries**, which, Briggs warns us “Aren’t always what they seem.”
- 13 See Briggs(note 10), pp. 46-7 on foreign English language broadcasts directed to the UK from Europe. See Scannell and Cardiff (note 5) pp. 230-4 on Radio Luxembourg as well as a schedule for a typical BBC Sunday in the early thirties, which would have included a period of silence lasting nearly 2 hours.
- 14 See Briggs (note 4), volume 1, pp. 221-225. The BBC still maintains a long wave service but its transmitters are not at Daventry. For more information see http://www.bbc.co.uk/reception/transmitters/radio/medium_long_wave.shtml
- 15 Wages: Statistics of United Kingdom, **Encyclopedia Britannica**, 14th ed. 1939 (vol 23, page 273)
- 16 Among these was the famed **Wireless World**, still published today but under the name **Electronics World**. In an effort to thwart the efforts of the home builder, **The Radio Times** –a BBC publication–would not accept advertising for certain radio components until 1926, a fact reported on page 12 of the 1933 Yearbook.
- 17 The first conductor, briefly, was Arthur Catterall . By 1930 Boult was the leader, and he remained in this position until 1950. The 1932 Yearbook lists Boult as the music director of the orchestra.
- 18 See Briggs(note 10), page 126. It would be overly simplistic to argue that the absence of jazz on the BBC derives entirely from Reith. The situation is more complicated than we can discuss here. See Simon Firth, *The Pleasures of the Hearth: The Making of BBC Light Entertainment, Radio (vol2)*, Andrew Crisell editor, Routledge, 2009 pp, 47-67 which makes a strong argument for the public’s preference for British style dance orchestras .
- 19 The reader should make up his / her own mind in this matter. One can hear a recording (1931) of the BBC Dance Band conducted by Jack Payne at this web site <http://www.youtube.com/watch?v=BAP3Il2MUP4>
- 20 Forster was to discuss literature on the BBC on a regular basis as recently as 1960. A selection of his lectures has recently been published: **The BBC Talks of E.M. Forster 1929-1960**, edited by M. Lago, L. Hughes and E. Walls, University of MO, 2008 A photograph of Forster appears following page 96 in the Handbook for 1940.
- 21 In the 1936 Annual one finds that the Committee contains Alistair Cooke, a name many Americans will recognize from his hosting of *Masterpiece Theatre* on television. Shaw’s play became the basis of the musical show My Fair Lady.
- 22 The 1940 Handbook advertises a BBC pamphlet on how to pronounce 2000 British family names, e.g., Cachemaille.
- 23 Mark Pegg, **Broadcasting and Society 1918-1939**, Croom Helm, 1983, p. 98
- 24 Crisell (note 4), page 29.
- 25 Page 413 of the same book states that Ω is the symbol for resistance in ohms.
- 26 The books use the term “aerial,” not antenna. In the glossary aerial is defined while under “antenna” you find a reference to aerial. In general the British public preferred

the term “aerial” in this era. See for example the British publication *The Practical Wireless Encyclopedia* by F.J. Camm which went through 7 editions in the 1930’s. He asserts that “antenna” is an “obsolete” term for the preferred “aerial.”

- 27 The Handbook from two years before carries an advertisement for the Ormond 5 Valve Portable Set, which boasts that no outside aerial is needed.
- 28 Eckersley was the chief engineer, mentioned earlier, who was fired by Reith. The IEE is the British Institution of Electrical Engineers
- 29 For example, Arthur Eddington. **The Philosophy of Physical Science**, University of Michigan Press 1958. He does concede (the book was completed in 1939) “... the aether has few friends nowadays.” p. 38
- 30 As quoted in the Baltimore Sun, December 15, 1996, Fred Rasmussen
- 31 Briggs, Asa, (note 10) page 194
- 32 As quoted in Crisell, page 63.
- 33 I have been unable to determine the artist who created this cover. The initials LP appear in one corner. According to my correspondent at the BBC, this was likely to have been Leonard Potter who did other artwork for them.
- 34 Some are broadcast on a free satellite radio service.

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