



The Long Road to Entertainment Radio Broadcasting in Germany

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Received: 27 March 2024 – Accepted: 7 August 2024 – Published: 11 September 2024

Abstract. In 2023, the 100th birthday of “Unterhaltungs-Rundfunk” (Entertainment Radio Broadcasting) in Germany was celebrated with numerous special exhibitions and contributions in the press, radio and television. In this context, details on the historical development of this communication medium were also presented. It was not uncommon for references to be made to statements by Hans Bredow, the so-called “Vater des Rundfunks” (Father of Rundfunk), who as State Secretary in the Postal Ministry was responsible for organizing wireless technology in Germany after the First World War. In this article we examine the question of why broadcasting was introduced relatively late in Germany compared to other technically highly developed countries such as the United States, England and France. In order to get closer to a coherent answer based on the current state of entertainment broadcasting history in Germany, it is also necessary to draw on historical sources that do not assume a Bredow-centered perspective. In particular, Bredow’s use of the term “Rundfunk” for different communication systems that were developed in Germany during and after the First World War contributed to understanding the road to “Unterhaltungs-Rundfunk” as a linear historical development, which was not the case.

for the First World War (Mathis, 2023), but after the war began, these private activities were banned in the warring countries. However, while the war in Europe began in August 1914, the United States entered on 6 April 1917 and therefore private activities by radio amateurs could continue in the United States until that time (Bartlett, 2007, p. 49). In particular, the advent of electron tubes, which were only available in usable quality from 1914, no longer had any influence on the private use of wireless telephony in Europe until the end of the First World War.

With the end of the First World War, radio amateurs had a new opportunity to pursue their hobby of wireless telegraphy and telephony, but legal regulations were very different between European countries and the United States. While on 1 October 1919 in the United States “all restrictions on amateurs and amateur radio stations are removed” (Bartlett, 2007, p. 62) in Europe, particularly in Great Britain (Crisell, 1997, p. 16), France (Ulmann-Mauriat, 2004, p. 113) and Germany, the restrictions imposed by military authorities, as in the First World War, were replaced by legal restrictions on postal authorities. Nevertheless, different organizational forms of broadcasting developed in Great Britain, France and Germany, which also had to do with the different possibilities of influence of the postal authorities on the development of broadcasting. In Britain, wireless technology companies such as the Marconi Company, Western Electric, and Metropolitan Wickers received temporary licenses and began broadcasting radio shows. Since the available frequency bandwidth was too small for many other companies, a company consortium “British Broadcasting Corporation (BBC)” was founded to organize broadcasting operations (Crisell, 1997, 1–18 pp.). The postal authorities in France viewed wireless broadcasting critically, particularly because of its potential to cross national borders (Ulmann-Mauriat, 2004, p. 113). Therefore, the postal authorities wanted to build a state radio network and only issued temporary licenses. But

1 Introduction

When radio broadcasting in Germany was officially opened on 29 October 1923, it was quite late compared to other countries that had a leading position in the field of wireless telephony. The first radio stations were licensed in the Netherlands in 1919 (de Boer, 1969), in the United States in 1920 (Kintner, 1932; Douglas, 1987) and in Great Britain (Crisell, 1997) and France (Ulmann-Mauriat, 2004) in 1922 and thus opened the way to a new communication system. The first steps towards wireless telephony for private use existed be-



Figure 1. Hans Bredow around 1922 (Photo: Nicola Perscheid, Berlin).

the radio companies did not respond to this plan and set up radio stations with or without licenses (Ulmann-Mauriat, 2004, 112–114 pp.).

Below we will go into detail about the emergence of broadcasting in Germany, as it differs from the development of this communication medium in the countries mentioned. The main aim of our discussion is to work out in detail the reasons that make it understandable why radio broadcasting in Germany was opened so late.

2 The Idea of Radio Broadcasting

A fundamental human characteristic is the ability to communicate using acoustic speech generators and detectors (mouth and ear), allowing both one-to-one and one-to-many communication between people. In particular, one-to-many communication can not only be used to communicate messages to larger groups of people, but can also serve to entertain this group. This describes the basic modes of human communication, where information is encoded using languages that may need to be translated.

Since the spatial range of acoustic transmission is limited, technical aids have been developed to enable communication

over longer distances. With the development of efficient electrical voltage sources at the beginning of the 19th century, various powerful electrical devices were constructed to expand the transmission range of acoustic signals. First, wired electromagnetic telegraphy could be used to transmit binary coded signals over long distances, and later the wired electric telephone was capable of transmitting human speech. The transmission of signals was technically limited to the telegraph or telephone cable network. Furthermore, electrical telegraphy was suitable only for the one-to-one operation mode. However, electrical telephony, originally designed for one-to-one operation, was also used for one-to-many operation. In 1881 “Scientific American” reported that “one of the most popular attractions at the Paris Electrical Exhibition is the nightly demonstration of the marvelous powers of the Ader telephone, by its transmission of the singing on the stage and the music in the orchestra of the Grand Opera in Paris” (Scientific American, 1881, p. 422). It was not until 1889 that two engineers, Belisaire Marinovitch and Geza Szarvady, opened a telephone transmission service “Théâtrophone” (Van Drie, 2015; Hieber and Mathis, 2024), which was successful in France and Belgium for several decades and was intermittently available in other countries (e.g. Germany). This service was offered to users at public venues and private subscribers and was quite expensive, so “Théâtrophone” never became a mass media. Nevertheless, it was a kind of precursor of later radio broadcasting.

With the discovery of electromagnetic waves by Heinrich Hertz (Mathis, 2023), electrical telegraphy and telephony were expanded to new one-to-one applications, although Hertz initially rejected this in a reply to a German engineer in 1889. From 1890 onwards, Edouard Branly, Alexander Popow and Oliver Lodge, among others, carried out various preparatory work, but ultimately it was the self-taught Guglielmo Marconi who used electromagnetic waves to transmit Morse signals. Following the example of the well-known wired electrical telegraphy, Marconi used a one-to-one mode of operation, although the physical properties of electromagnetic waves enabled a one-to-many mode of operation (Zacharias and Heinicke, 1908). As wireless telegraphy was used in military applications, this mode was interpreted as disrupting the desired one-to-one mode of operation and coding methods were developed to make one-to-many mode impossible. For the same reason, the use of wireless telephony, which was available from 1908 (Zacharias and Heinicke, 1908), was rejected, at least by the Imperial Navy (Nesper, 1950, p. 58).

While the one-to-many mode was found to be disruptive in military use of wireless telephony, civilian users were very interested in this mode of communication. This is particularly true for the American radio amateurs, who existed in large numbers in the United States from 1912 onwards. While the first wireless telephony transmitters such as Poulsen arc transmitters or electrical machines were hardly feasible for amateurs (however: Gernsback, 1910; Nielsen,

1914), the use of vacuum tubes leads to more compact transmitters and efficient receivers. So American radio amateurs were informed on about these new devices such as deForest's so-called Audion through the American amateur magazines "Modern Electrics" (Stone, 1914) and Hugo Gernsback's "The Electrical Experimenter" (Electrical Experimenter, 1915). Crystal detector receivers were already standard equipment for radio amateurs but also tube receivers with de Forest's Audion tubes were also discussed ("The Electrical Experimenter" (Secor, 1913) and available for purchase (e.g. (Electrical Experimenter, 1917, June 1917). These magazines mainly discussed military applications of wireless telephony, but the first articles also discussed civilian applications of this communication technology (Electrical Experimenter, 1915, p. 369), thus anticipating the later "broadcast" as a new communication system. One of these articles "Wireless Music With Your Meals" by Albert Marple from June 1916 (Marple, 1916) is very interesting published in Hugo Gernsback's "The Electrical Experimenter". Marple described that "this 'music by wireless' idea is one of the most recent electrical inventions of Earl C. Hanson, a young California radio expert" (Marple, 1916). Marple introduced his article: "There is a new 'fad' in Southern California, the place where novelties grow over night like the proverbial mushroom. The time the 'something new' comes in the form of phonograph concerts... being transmitting by wireless from the home of the inventor to the dwellings of a number of friends and neighbors residing within a mile or so of the Hanson residence. This music is sent to all of the homes simultaneously". A description of Hanson's equipment followed, illustrated with some photos. Obviously, it represented the technical idea of broadcasting, but cannot be interpreted as a new communication system that must have the potential as a mass medium. At 6 April 1917 the US president Woodrow Wilson declared in a executive order "that all radio stations not necessary to the Government of the United States for Naval Communications may be closed for radio communication" (Gernsback, 1917). It lasted until July 1919 where Gernsback could open his new journal "Radio Amateur News" with the following words "But now that the war is won, now that the amateurs have won their war, by defeating a proposed new law which would have destroyed American Radio Amateurism – we will witness the most wonderful expansion of the radio arts ever dreamed of. The amateur is here to stay and so is radio in general" (Gernsback, 1919). It was the starting point of wireless activities in the United States which ended with the new communication mass media "radio broadcasting".

The question of who first came up with the idea for the communication medium of radio broadcasting for everyone is ultimately rather difficult to answer. Lee de Forest will certainly be one of those who expressed such an application of wireless telephony very early on. In 1907 he carried out his first experiments with the transmission of speech and music. At 5 March 1907 de Forest wrote in his diary: "March

5, 1907: My present task (happy one) is to distribute sweet melody broadcast over the city and sea, so that in time even the mariner far out across the silent waves may hear the music of his homeland, sung from unseen sources" (de Forest, 1950, pp. 225–226). He was probably the first to choose the term "broadcast" for this new wireless service, which originated in agriculture and referred to the hand-scattering of seeds, but it remained unpublished. Several attempts made at public broadcasting by de Forest, "but his equipment was not sufficiently perfected to give satisfactory results" (MacLaurin, 1949, p. 111). In the following years, several engineers transmitted music from a gramophone, but only for experimental purposes. During the First World War, the new possibility of transmitting information to other countries was also used for political purposes. The Russian revolutionary Vladimir Ilyich Lenin in particular apparently recognized the importance of wireless information dissemination early on. In the summer of 1917, he broadcast radio messages "To the Socialists of All Countries" to gain support for his revolutionary movement to eliminate the bourgeois government that had previously toppled the Russian Tsar from power (Lerg, 1970, p. 46). After Lenin came to power on 28 November 1917, he sent a message "To all peoples of the warring states" calling for an end to the war, especially with Russia. These events in Russia received a lot of attention and led, at least in European countries, to a fundamental mistrust regarding the complete release of wireless telegraphy and telephony. However, it was not until the end of World War I, that civil applications of wireless telegraphy and telephony were discussed.

On 20 November 1918, Alan Campbell Swinton discussed the importance of science for future industrial development in his address "Science and the Future" to the Royal Society of Arts in London (UK) (Campbell Swinton, 1920, p. 14). He explained "Indeed, wireless telegraphy appears to be developing at last in what has always appeared to me to be its proper field, which is not so much to communicate between one individual and another, but rather for the communication of intelligence broadcast over the ear" and continued "the use of wireless as a voice that can speak simultaneously to points on every portion of the earth is in some ways a more novel proposition". Three months later, Edward Craft and Edwin Colpitts of Bell Laboratories presented a survey of radiotelephony at a meeting of the American Institute of Electrical Engineers where they emphasized "A third class of service is that which is concerned, not with single individuals, but with groups; such service as the broadcasting of news, time and weather signals, and warnings" (Craft and Colpitts, 1919, p. 375). The term "broadcast" is used in both presentations. Nevertheless, it took almost two years before a larger number of radio stations began operating, first in the United States and gradually in Europe, and "radio broadcasting" became a popular new wireless communications service.

3 How Radio Broadcasting became a Mass Medium

Although American radio amateurs were very active in wireless telephony after the end of the First World War and the first ideas for a new communication medium were circulating, the first station to broadcast entertainment was licensed in The Netherlands. The Dutch engineer Hanso Schotanus à Steringa Idzerda, trained at the German “Rheinisches Technikum in Bingen a Rh” (Wiegers, 2015), constructed his first transmitter using vacuum tubes from the “Philips Gloeilampen” Company. A first presentation took place at an exhibition on 24 February 1919 in Utrecht, which was initiated by Idzerda (de Boer, 1969, p. 24ff). Idzerda received a license for radio experiments for his wireless station in The Hague on 14 August 1919 and announced periodic broadcasts on 5 November 1919.

Shortly after the release of amateur radio activities in the United States, on 17 October 1919, Frank Conrad, a research engineer for the Westinghouse Electric and Manufacturing Company in Wilkensburg, near Pittsburgh, began testing his homemade vacuum tube radiotelephone equipment. For this purpose he used his pre-war call sign 8XK. The *Gazette Times of Pittsburgh* wrote the following in an article “Wireless Telephony Here” on 26 October 1919: “On the evening referred to Mr. Conrad gave a wireless concert which lasted about two hours, and was greatly enjoyed by a large number auf the local amateurs who were listening in. A phonograph was used to produce the music and between records Mr. Conrad would announce their titles” (Urban, 1919). This was the starting point for Westinghouse’s involvement in wireless broadcasting, as on 27 October 1920 they received a license under the later famous call name KDKA (Salamon, 2010) and its first remote broadcast on 2 January 1921. KDKA’s success sparked an explosion of broadcasting stations in the United States. Dudley Siddall, in an article in “Radio Broadcast” magazine in February 1925, stated that the number of radio stations in the United States increased from 28 in January 1922 to 539 on 1 October of the same year (Siddall, 1925, p. 708). Within a year, broadcasting in the United States had developed from a hobby of radio amateurs to a daily activity for millions of people and that is to say, a mass medium.

Apparently there was a delay between the first appearance of radio broadcasting in the United States in 1919 and the boom of 1921. This was also noted by the German radio pioneer Siegmund Loewe (Runge, 1983), who wrote in a letter from the United States in September 1920: “It occurred to me that there is a completely incredible technical possibility that no one seems to have seen yet. This option means: using ‘wired wireless’ not to conduct several telephone conversations along the same line [carrier frequency technology], but to transmit different types of messages at the same time”. In the following, Loewe developed in very details the concept of radio broadcasting where music can be transmitted but “after pressing a button on the device, the music disappears and you

can hear political news from all over the world. Another button gives the latest stock market prices, another reads from the best books, fairy tales for children, advertisements, advertising, ...” (Nesper, 1923, 3–4 pp.). Then, Loewe pointed out that there were 20 000 000 families and radio broadcasting would develop into a mass medium and therefore a huge business. It was realized in the United States, but nobody in Germany was interested in it at the time.

To understand why the broadcast boom in the United States was possible, we must consider the conditions for the development of wireless communications. We must pay particular attention to two aspects that have made a difference with regard to other countries: Legal restrictions on wireless communication in the United States and the patent law situation regarding radio receivers, the mass production of which is an important prerequisite for the boom in radio broadcasting. After the invention of wireless technology the US congress formulated in 1912 the so-called Radio Act (Anonymous, 1912). As wireless technology became essential, the US Congress passed the Radio Act in 1912, which lasted until 1927. This law regulated the restrictions that technical installations and operating personnel must meet in order to obtain a license from the Minister of Commerce and Labor. In particular, the permissible frequency range for radio amateurs was set at frequencies above 1500 kHz, which is understandable given the technical status of the time. However, the Radio Act did not introduce effective control of its limitations (e.g. frequency range) and therefore radio amateurs also used frequencies in the frequency range for commercial services (Douglas, 1987, p. 292). The Act therefore contributed to promoting the activity of radio amateurs and so in 1917, in addition to the 13 581 licensed amateurs, there were well over 150 000 illegal radio stations (Douglas, 1987, 292–293 pp.). Since the tightening of the Radio Act failed before the release of broadcasting technology in October 1919 – it was only implemented in 1927 – radio broadcasting was able to develop almost unrestricted by the government.

Another important aspect of radio technology was the production of radio equipment, which was based on a certain number of patents. Although there were three large companies, American Telephone and Telegraph (AT&T), General Electric (GE) and Westinghouse Electric & Manufacturing (WEM) that owned radio patents at end of First World War, the international market was dominated by the British Marconi Company (incl. its American Marconi) (MacLaurin, 1949, 88–99 pp.). As a result of the war, the leading authorities in the United States wanted to be independent of foreign companies in crucial technology (MacLaurin, 1949, p. 105). As a result, the Radio Corporation of America (RCA) was formed by AT&T and GE, who signed a cross-licensing agreement for their patents and “In its turn GE was granted wireless telegraphy and, rather secondarily, ‘an exclusive license to make, use, lease and sell all wireless telephone apparatus for amateur’. Many provisions of the agreements, however, were ambiguous, leading to subsequent disputes

among RCA's partners" (MacLaurin, 1949, p. 105). Meanwhile, WEM acquired the all-important Armstrong patents and found itself in such a strong position that it joined the RCA on 30 June 1921 (MacLaurin, 1949, p. 107). RCA now seemed to be the universal player in radio technology before the broadcast boom began in the United States. But, as Rupert MacLaurin pointed out in his monograph: "Broadcasting grew so rapidly and so unexpectedly that it created many unanticipated problems". In a revised agreement of 1926 AT&T withdrew from the wireless business and limited itself primarily to wired telephones whereas GE, WEM and RCA was given the "exclusive patent rights in the areas covered by wireless telegraphy, entertainment broadcasting and the manufacture of receiving tubes and sets for public sale" (MacLaurin, 1949, p. 115).

Broadcasting in the United Kingdom (UK), as in other European countries, was under the control of the Post Office. An Act of "1904 gave the Postmaster General control of point-to-point wireless telegraphy, and when wireless telephony developed he regarded that, too, as subject to his control. This explains why the Post Office was later established as the licensor of broadcast wireless telephony" (Crisell, 1997, p. 16). With the end of the First World War, wireless manufacturers and amateur enthusiasts demanded that the British government authorize a broadcasting service. Eventually the Post Office granted the Marconi company a license to broadcast its transmitter at Writtle, near Chelmsford, in 1920. It was not until 1922 that other companies received licenses to radio stations, such as Western Electric in London and Birmingham and Metropolitan Vickers in Manchester. However, these licenses were not permanent because the Post Office only owned a small number of frequencies and therefore "The Post Office could not allow its few available frequencies to be permanently monopolized by a handful of the manufacturers ... Its solution was to invite the leading firms (six large companies and several small ones) to form a broadcasting consortium. The service they collectively provided would stimulate the sales of the receivers they made, which the government would protect from foreign competition. As a result of this scheme the manufacturers created the British Broadcasting Company [BBC] to which the Post Office granted a de facto though never a de jure monopoly. The BBC began transmissions on 14 November 1922" (Crisell, 1997, p. 18). Within a few years, radio broadcasting in UK developed into a mass medium. This can be clearly seen in the number of licenses issued by the post office, as the number of 80 000 licenses in 1923 jumped to one million licenses in 1924.

France was also one of the countries where fundamental pioneering work in wireless technology was carried out, with particular mention being made of Édouard Branly and Gustave-Auguste Ferrié. Wireless technology, which played an important military role for France during the First World War, was returned to the postal ministry after the war, just as in the UK. Since the French government was suspicious of wireless technology, the postal ministry only issued tem-

porary licenses. On 24 December 1921, Radio Tour-Eiffel began broadcasting and upon the return of Pittsburgh's radio station, Emile Girardeau proposed a private radio station, which began service on 6 November 1922 as the Radiola station (Pasler, 2015, p. 219). Even though the post office claimed a monopoly on broadcasting operations, in addition to the state broadcasting stations, private broadcasting stations were also set up that did not have a broadcasting license. The coexistence of state and private radio stations continued in the following decades. With some delay compared to other countries, radio broadcasting also became a mass medium in France, where the number of radio listeners increased from 500 000 at the end of the 1920s to several million in the 1930s (Meadel, 2007, 3–4 pp.).

4 Idea of Radio Broadcasting in Germany

Broadcasting as a new entertainment medium first developed into a mass medium in the United States, although the first radio station was licensed in the Netherlands. In European countries such as Great Britain and France, there was subsequently a public movement for the release of radio broadcasting, although their governments had technical and political reservations about radio broadcasting. In these countries, engineers and scientists were involved in the development of wireless technology from an early stage, which of course also applies to Germany. However, broadcasting in Germany was not released until 29 October 1923, even though wireless technology in Germany was already highly developed by the end of World War I. The question of why this delay occurred would change the perspective on the development of radio broadcasting in Germany, but this perspective has not yet been taken into account. Answering this question does not require new historical sources, but rather an alternative interpretation of the sources.

In contrast to the United States, but also Great Britain and France, there was no amateur radio scene in Germany, as private use of radio technology was prohibited and also sanctioned by the state. The basis was the "Law on the telegraph system of the German Empire" from 1892 which was tightened in 1908 by the paragraph "Electrical telegraph systems that transmit messages without metal connecting lines may only be built and operated with the permission of the German Government" (Nesper, 1923, 13–15 pp.). Therefore, even after the First World War, an application for approval of a wireless radio system in Germany was almost a crime (Koerner, 1963, 13–15 pp.). But there was another important aspect. While people in the Allied states tried to return to normal economic and social life after the war, things were completely different in Germany, which had to do with the political developments at the end of the war. When the military situation for the German Reich became hopeless, there was a revolutionary movement of soldiers and workers and the abdication of the German Emperor on Novem-

ber 9, 1918. Even the immediate proclamation of a German Republic with Friedrich Ebert as Chancellor could not calm the situation and the general Order began to destabilize. On the other hand, Germany was still one of the technologically leading countries, especially in radio technology, which was also known to the almost 190 000 officers and soldiers of the German signal troops (Lerg, 1970, p. 43). Around 20 000 soldiers from these troops were trained as radio operators and were also aware of the possibilities of wireless communication, but were now left with nothing at the end of the war. The historian of radio broadcasting, Winfried Lerg, expressed it in the following manner: “All in all, these were the perfect conditions for a revolutionary situation” (Lerg, 1980, p. 33).

On 3 November 1918, the so-called “November Revolution” began with the uprising of sailors, including military radio operators of the Imperial German Navy, in Kiel. A day later, the first workers’ and soldiers’ council was formed there. The German news agency “Wolff’s Telegraphisches Bureau” in Berlin was taken over by the Berlin Workers’ and Soldiers’ Council on 9 November 1918. On the same day, inspired by the aforementioned Russian telegrams, a message “To All” was sent (Lerg, 1970, 47–48 pp.). An important demand of the councils was the separation of wireless services and the state postal authorities and the continued employment of radio soldiers. In 1921, H. Neumann, who was directly involved, appeared in the “Telefunken-Zeitung” about “Revolution Days in Nauen” (Neumann, 1919).

In fact, it took almost until the fall of 1919 for the German Post to bring the entire wireless service back under control. A key person for the reintegration of these services was Hans Bredow (1879–1959) (Nestel, 1983). Bredow was commercial director of the Society for Wireless Telegraphy (GDT), System Telefunken (renamed to Telefunken in 1923), from 1908 to 1918, interrupted by his participation as a soldier in the First World War. In October 1917 he left the army and resumed his duties at GDT, where he became chairman of the board in autumn 1918. In January 1918 he was appointed chairman of the board of “Wireless Overseas Transmission AG” (German: Drahtlose Übersee-Verkehr AG (Transradio)), which was founded by the German companies AEG and Siemens/Halske and two German banks. The company received the order to break through the Allies’ information blockade with the help of the GDT transmitter station in Nauen near Berlin. For this purpose, some of Bredow’s ideas from June 1913 were used, in which he described “radio telegraphic world projects” (Weltfunk) (Bredow, 1920) in addition to the existing European Telefunken wireless service “Debeg” (German: “Deutsche Betriebsgesellschaft für drahtlose Telegraphie”). The radio historian Lerg interpreted this as follows: “For the first time, Bredow led a real radio company, a media company organized under private law and serving state journalism purposes to disseminate official, public news services” (Lerg, 1980, p. 32). Bredow had been fighting for the realization of his world radio idea since 1913, although he was not interested in a military, but rather a com-

mercial and civil transcontinental radio system. These organizational ideas also shaped Bredow’s ideas when, after joining the German Post in 1919, he dealt with the use of radio technology in the Weimar Republic. His economic considerations were certainly based on his many years of experience as a top manager at GDT.

After unsuccessful efforts by German Post with respect to the revolutionary situation, Bredow became appointed ministerial director and head of the Wireless Service Commission (“Reichsfunkkommission”) on 28 January 1919. With the help of a series of clever restructurings of the various wireless services commissions, Bredow managed to put an end to the “spook of wireless operators” (“Funkerspuk” according to Bredow) and bring the services back under the complete control of the German Post (Lerg, 1970, p. 92). These events during this revolutionary period in 1919 shaped Bredow’s further political actions in connection with the further development of wireless communication in Germany, which also corresponded to the conservative attitude he developed during the imperial era.

Because of his successful work in ending the radio operator rebellion, Bredow was given an almost unchallenged position at the post office and was able to pursue his plans for establishing wireless communications almost independently. He was able to count in particular on the cooperation of Hermann Thurn (1877–1932), who had developed into an excellent expert on wireless technology during his many years at German Post. Before he moved to the post office, Bredow included his ideas in a memorandum on the use of wireless telegraphy and telephony in Germany, and in January 1919 a more detailed memorandum was presented that was clearly aimed at commercial use. This document did not include any indication that also entertainment radio broadcasting for the citizens was an objective of Bredow (Lerg, 1970, 73–76 pp.). Bredow’s plans for the future of radio technology in Germany were very much in line with his world radio in 1913, although his commercial aims to exploit wireless telegraphy and telephony were soon criticized by other interest groups.

Since the Nauen transmitting station and the former military radio station in Königswusterhausen were busy maintaining radio commercial connections overseas (Transradio) and in European countries (Debeg), additional wireless transmitter options had to be acquired in order to implement Bredow’s plans for German radio technology can. The German Post initially asked C. Lorenz AG whether their transmitting station in Eberswalde could be used, but the negotiations were unsuccessful (Berger, 1998, 53–55 pp.) and the German Post took over the former military transmitting station in Königswusterhausen in September 1919. For the tests with wireless telephony in Königswusterhausen, C. Lorenz AG provided a 4 kW Poulsen arc transmitter, which was further developed by Lorenz engineers (Mehle, 1955).

On 16 November 1919, the first public presentation of Bredow’s plans for the use of wireless telegraphy and telephony took place on the occasion of an experimental lec-

ture in the “Urania” in Berlin, which was founded in 1888 to communicate scientific findings to a broad public. Hans Dominik (1872–1945), an engineer and scientific journalist, reported in an article “Spark Telegraphy and Press” (German: “Funkentelegraphie und Presse”) about Bredow’s talk (Dominik, 1923). At first Bredow considered the historical aspects of wireless telegraphy and then described future possibilities of such a communication system for transmitting news from a central transmitter station to customers which are press companies. He then described future possibilities of such a communication system for transmitting news and stock market reports from a central broadcasting station to participating press companies: “The postal administration is now considering the idea of issuing such simple wireless receiving stations on a subscription basis, similar to the telephone sets now available” (Dominik, 1923). Bredow added that it was convenient to use wireless telephony instead of telegraphy so that customers would not have to learn Morse code. But Dominik’s article did not mention the word “Rundfunk” and therefore it is not clear whether Bredow used it in this talk. But just a few weeks later, Bredow gave a lecture at the German Postal Ministry on 22 December 1919 (German: Reichspostministerium) to representatives of press publishers and journalists, where he mentioned “Rundfunk” in passing (Lerg, 1970, 20–21 pp.). This can be seen from an article in the January issue of the ETZ from 1920, in which an elaborated form of this lecture was published (Bredow, 1913). Later, Hermann Thurn also used “Rundfunk” as an equivalent term for “radio broadcast” (Thurn, 1920), who is said to be the originator of this word (Nesper, 1950, p. 101). On the other hand, in the press, a “Rundfunk” was also understood to be a message sent via a wireless communication system that could be verified by articles in newspapers (e.g. Anonymous, 1920), regardless of whether wireless telegraphy or telephony is used. Finally, it should be noted that Bredow and Thurn’s references to “Rundfunk” at this time referred to wireless telegraph systems and not telephone systems, which was later confirmed by Bredow (Bredow, 1927).

In the February issue of the journal “Telefunken-Zeitung” from 1920, two articles appeared about Bredow’s plans, which had already been described in his talks. In the article “Reichsfunknetz”, Thurn dealt with the technical and organizational details of a Germany-wide communication system for news, in which the existing wired network is to be supplemented by a wireless system (Thurn, 1920). Thurn explained that the new network is intended exclusively for commercial use, while private use is not intended. It is very interesting that the conceptual approach was the same as when the wired telephone was introduced in Germany in 1877. At that time, the Bell telephone was initially used to expand the wired telegraphy system. Private telephone users were not included until 1881 (Grosse, 1917). In another unsigned article “Funkpressedienst” (probably written by the editor Karl Solff a new service for the German press companies was described: “The task of the official bodies appointed for this

purpose is to make such a radio press service available to the general public, making full use of the technical and operational services of radiotelegraphy ... Its circularity pushes radio telegraphy to satisfy mass needs for news” (Solff, 1920, p. 10). This is also a commercial concept in which German Post offered a service for the benefit of customers and the post office, but the customers were press companies and not private individuals. Therefore, these commercial concepts for the use of wireless radio technology in 1920 made it clear that Bredow and Thurn had no interest in entertainment radio broadcasting at that time.

Commercial concepts were also not precursors to “radio broadcasting”, as Bredow later claimed (Bredow, 1927) and as the radio historian Heinz Pohle (Pohle, 1955) and others later emphasized in their Bredow-centered publications on the history of radio broadcasting in Germany. It was only through Winfried Lerg’s monograph “The Development of Broadcasting in Germany” in 1963 that the perspective changed towards a more balanced historical view (Lerg, 1970, 114–122 pp.), which, however, is still not sufficiently communicated to the public today. In particular, it is almost unknown that there were strong forces in industry and professional radio amateur associations that eventually forced Bredow to open “broadcasting” to everyone, although this did not happen until mid-1923.

5 Realization of Radio Broadcasting in Germany

After his appointment as ministerial director at the German Telegraph Administration (Reichstelegraphenverwaltung (RTV)), Bredow vigorously pursued his plans to disseminate political, social and economic news in cooperation with newspaper and industrial companies. To achieve this, these companies were supposed to rent wireless receivers that could only be used for fixed frequencies, in accordance with the rental telephone concept that had already been implemented by RTV. Bredow’s department of the RTV started successful experiments where radio transmitters from Königswusterhausen (Funk, 1927; Suckow, 2008) were used. But a series of negotiations with the newspaper companies between 1920 and 1922 ultimately failed again and again due to the different financial and organizational ideas of the post office and the company (Berger, 1998; Lerg, 1970, 92–109 pp.). From 17 February 1921, the press companies no longer used the wireless telegraphic service and their hesitant attitude did not change even after attempts with wireless telephony between May and August 1921.

Bredow’s commercial concept of a Germany-wide news trade had more success with commercial companies. As early as July 1920, the “Eildienst für amtliche und private Handelsnachrichten GmbH (Eildienst)” (Express service for official and private business messages), founded in the German Foreign Office to transmit business news via a wireless telegraph service, was ready to work with RTV and the

“Funkwirtschaftsdienst” (radio service for business news) was established (Klöcker, 1926). In a contract from July 1921, the “Eildienst” agreed to cover all costs of the German Reichspost Ministry (RPM), a consortium of companies (Telefunken, C. Lorenz AG, Dr. Erich F. Huth Signalbau AG) had to ensure the construction of 1000 radio receivers (Lerg, 1970, 112–113 pp.). On 15 August 1922, experiments with wireless telephony began in Königswusterhausen, which were so successful that the wireless telephone service “Wirtschaftsrundspruch” started on 1 September 1922, with the periodic broadcast of business news to around 400 customers at 100 locations (Thurn, 1921; Lerg, 1970, 112–113 pp.).

While Bredow was pursuing his commercial plans for wireless technology within the German Post, there were also numerous electrical engineers and radio amateurs in Germany who were familiar with broadcasting in the United States and were interested in wireless telephony for everyone (Günther, 1921, 37–46 pp.). Many of them had gained knowledge of wireless technology in the German Signal Corps, but there were also wireless-enthusiastic young people who acquired self-taught knowledge of this technology. The German Post insisted on the monopoly on the transmission of messages based on its Telegraph Act of 1892 and relentlessly pursued violations. As early as June 1919, the postal service threatened a young man who had applied for a license for a radio receiving station with a penalty if he did not immediately take it out of service (Koerner, 1963, 13–15 pp.). In August 1923, shortly before the official opening of radio in Germany, an electrical engineering student received a fine of 3 million marks – it was the time of hyperinflation – because he “set up a system for wireless telegraphy in the period of 1921 until 13 May 1923, also used to receive wireless telegraphic signals” (Koerner, 1963, 19–21 pp.). Nevertheless, there were countless radio amateurs in Germany who operated a radio reception system without permission, such as the electrical engineering students at the TH Stuttgart, Wolfram Wandel and Ulrich Goltermann, who in the summer of 1922 used their self-made radio receiver to listen in on an experimental transmission of Edward Grieg’s “Peer Gynt” from the experimental transmitter of C. Lorenz AG in Eberswalde (Mathis and Titze, 2021). Shortly afterwards they founded a company that achieved world fame in electrical measurement technology after the Second World War (<https://www.wg-foundation.de/>, last access: 6 September 2024).

Probably the most committed engineer in the radio amateur movement was the radio pioneer Eugen Nesper (1879–1961) (Goebel, 1983), chief engineer and senior employee of C. Lorenz AG until 1919 and a former colleague of Bredow. Together with his colleagues from Lorenz, he had already built a tube radio receiver in Vienna at the beginning of 1919, which was then used in March 1919 for his lecture “Telephony for Everyone” and through which pieces of music from Königswusterhausen were received (Nesper, 1950,

p. 90–91). He immediately told Bredow about his idea of introducing “telephony for everyone”, as had already been implemented in the United States, but Bredow showed no interest (Nesper, 1950, 91–92 pp.). In 1921, his two-volume manual on wireless telegraphy and telephony was published, which also became a standard work for many radio amateurs for the construction of radio receivers (Nesper, 1921). In 1922 Nesper had again a discussion with Bredow with respect to “telephony for everyone” and now Bredow brought in his colleague Thurn. Then Thurn “declared with a snooty nutcracker face: ‘Gimmick! There is no gimmick around!’ And it stayed that way until the fall of 1923” (Nesper, 1950, p. 99). In cooperation with the well-known German Springer publisher Nesper published the monograph “Radio-Amateur” in August 2023 and at the same time a new magazine with the same title, which quickly sold out.

But also the oldest manufacturers of wireless telegraphy and telephony devices (GDT, C. Lorenz AG, Huth Comp.) also became active and submitted a license application to RTV on 16 May 1922 to set up and operate transmitting and receiving systems. Following the American model, they wanted to build and operate transmitters in several places in Germany as well as build and sell radio receivers. Radio reception should be free for customers (Lerg, 1970, 123–124 pp.). Another application was submitted to the RTV from “Eildienst” Dr. Ernst Ludwig Voss, where the German coffee merchant and founder of the company Kaffee HAG Ludwig Roselius should be a financial supporter of radio service. The programs should be broadcast in cinemas, theaters and schools and those interested in broadcasting should pay a fee (concept of “Hall radio” or “Saalfunk” in German) (Lerg, 1970, 125–126 pp.). To establish this wireless service, the “Deutsche Stunde AG” was founded, of which Voss was a board member and whose task was to provide citizens with wireless education and entertainment (Dussel, 2022, p. 44). Both applications were discussed in the so-called “Reichsfunkkommission” and entertainment radio broadcasting was therefore a topic for the first time in this important control commission of the RPM. Another topic was a report by Professor Karl Willy Wagner, director of the “Telegraph Experimental Office” (German: “Telegraphen-Versuchsamtes”) of the German Post, about his visit to the United States, where he discussed the progress of radio broadcasting. It now became clear to Bredow: “The development of this new branch of radio telephony is undesirable in some respects, but given its rapid spread throughout the world, it cannot be completely prevented in Germany either”, as he expressed in an internal communication on 29 June 1922. He then followed up with “One will therefore have to ensure from the outset that the matter is kept in hand so that stark forms like those in the United States are avoided” (Lerg, 1970, p. 130). The two applications were discussed by the RPM until the end of 1922 and draft contracts were even drawn up, with the RPM asking the consortium of companies to also include the Huth company. This was also accepted, but the company consortium’s

application was still viewed increasingly critically, as the transmitter systems should also be owned by them. In contrast, the program of the “Deutsche Stunde” was supposed to be broadcast via the postal wireless station in Königswusterhausen, which, however, was not sufficient for the entire German national territory (Lerg, 1970, p. 132).

At the opening of the “Wirtschaftsrundspruch” on 2 September 1922, a wireless telephone service, Bredow also held out the prospect of setting up an entertainment radio broadcasting service, whereby, following the plan of the “Deutsche Stunde AG”, he imagined a “hall radio”. In order to solve the technical problem of transmission range and at the same time take into account the German regional structure in Germany, a division of Germany into transmitter districts was developed. With this regional structure, the RPM also took up an idea from the consortium of companies and their organization “Rundfunk-Gesellschaft mbH”, which had proposed eight radio transmitters to supply Germany, but these radio transmitters remained in the ownership of the RPM. (Lerg, 1970, p. 138).

In November 1922, in his article “The Modern Development of Wireless Telegraphy and Telephony in Germany” (German: “Die neuzeitliche Entwicklung der drahtlosen Telegraphie und Telephonie in Deutschland”) (Thurn, 1922), Thurn described in detail how the German Post, under the leadership of Bredow, would like to use wireless technology in the near future. Thurn, who had already published several articles on the use of wireless technology since 1919, which were certainly not published without Bredow’s consent, pointed out that wireless telegraphic connections were needed overseas and in Europe, but also within Germany (“Reichsfunknetz”). In addition, Thurn explained that the use of wireless telephony was also interesting “as there are no special requirements for the operator” (Thurn, 1922, p. 356). Thurn noted the advantages of wireless telephony in commercial applications, but added to this paragraph that “another type of wireless telephone communication has been developed in the United States”. In the sense of his derogatory to Nesper he proceeded “For the purposes of their sales business, manufacturers of wireless receivers broadcast music, lectures, sermons, etc. wireless from a large number of broadcasting stations every day and make it possible for all owners of receivers to listen in” and then claimed “This wild development, which was encouraged by the lack of government regulation, has become a serious danger due to the many transmitters” – of without any proof. Obviously, in connection with broadcasting in Germany, for Thurn and of course Bredow, “the lack of government regulation” was the critical point. Thurn then briefly discussed the state of the art in wireless telephony and its application in Germany at the end of 1922.

However, it became increasingly clear to Bredow that he could no longer decide on the further use of radio technology alone and without the involvement of the RPM and the Interior Ministry. A final impetus for the opening of entertain-

ment radio broadcasting in Germany may have been a meeting of high-ranking politicians in March 1923 that Nesper attended together with the radio pioneers Siegmund Loewe (1885–1962) and Otto Kappelmayer (1894–1971) as well as the young Manfred von Ardenne (1907–1997). It took place in the Ministry of Agriculture of Hugo Wendorff, Nesper’s brother-in-law, in the presence of Reichspräsident Friedrich Ebert, the Prime Minister of Prussia, and some ministers of the German government. Wireless telephony and the idea of radio were also shown with the help of experimental demonstrations, which were applauded by the participants. In this way, higher representatives of Germany also learned something about the new communication medium. Bredow was not informed of the meeting and subsequently came under additional pressure regarding entertainment broadcasting. However, there were also critical statements such as those from the Prussian Interior Minister Carl Severing, who also took part in the demonstration and asked whether this service could one day also proclaim a monarchy (Nesper, 1950, 103–104 pp.). After a solution to the organizational form of entertainment radio broadcasting in Germany, the RPM and especially the German Ministry of the Interior (RMI) turned to controlling the content of broadcasting. After a solution to the organizational form of entertainment broadcasting in Germany, the RPM and especially the German Ministry of the Interior turned to controlling the content of broadcasting, although at least apparently freedom of the press should not be restricted. On 16 May 1923, the “Book and Press” (German: “Buch und Presse”) was founded, which took over the production and distribution of “daily news and presentation of political topics” and was renamed Dradag on 16 October 1923 (Lerg, 1970, p. 154).

There were further negotiations between the RPM and the RMI, but they were not completed when German Chancellor Wilhelm Cuno asked about the status of entertainment broadcasting on 10 July 1923 and expressed his greatest interest in this new service (Lerg, 1970, p. 160). On 19 July 1923, State Secretary Bredow responded for the RPM and after a few telephone calls both sides agreed that broadcasting of the entertainment radio should begin as soon as possible (Lerg, 1970, p. 160).

On 15 October 1923, the “Berliner Tageblatt” reported in an article “Wireless Broadcast Concerts” (German: “Drahtlose Rundspruchkonzerte”) about an event in the RPM lecture hall at which wireless transmission of music from the station in Königswusterhausen was demonstrated (Mehle, 1955). The post minister Anton Höfle announced that entertainment radio broadcasting in Germany should begin operations shortly. Concerts, lectures and stories will be broadcast from the broadcasting station in Königswusterhausen, which citizens can listen to for a license fee (Berliner Tageblatt, 15 Oktober 1923). The next day, this newspaper published a more detailed article “Subscriptions to entertainment broadcasting” (German: “Abonnements auf den Unterhaltungsrundfunk”), which also mentioned that a broadcast-

ing station was planned for Berlin citizens in the Vox-Haus on Potsdamer Platz, where the recording studio is also located. In addition, it was noted that Bredow gave a lecture on the new communications service (Bredow, 1950). Similar reports could also be found in other daily newspapers.

As early as mid-September 1923, Bredow gave the order to develop a tube transmitter for the Vox-Haus station (Weichart, 1930, 1997), which was designed and built within 14 d by the postal engineer Friedrich Weichart (1893–1979) (Goebel, 1983a). The radio station, broadcasting on medium wave at 749.5 MHz, was set up in the Vox-Haus in Berlin on the top floor of the central building of a German record company. Announcing “Achtung, Achtung, hier ist die Sendestelle Berlin im Vox-Haus auf Welle 400 m” (Lerg, 1970, p. 213). This marked the first step towards entertainment radio broadcasting in Germany (“Rundfunk”), but it still took nearly year before all of the regional stations began operations (Giesecke, 1929, p. 35). Bredow was intensively involved in the organizational work, and it was important to him to keep the new communication medium in hand, which he had previously announced. Even though the regional companies use private capital, the state remained the 51 % majority owner. With the Broadcasting Act of 1926, state control of broadcasting was also secured institutionally through monitoring committees and cultural advisory boards and Bredow retained key positions for himself (Giesecke, 1929).

Almost four years after the first entertainment radio broadcasting in the United States, this new medium was opened in Germany and called “Unterhaltungs-Rundfunk” to establish a connection to the commercial wireless “broadcasting” services in Germany introduced in 1919. Already at the beginning of 1926, the new service reached a million listeners and thus became a mass medium, as in the United States only after a delay of years. In contrast, German Post was unable to achieve sustained success with commercial services later on Lerg (1970, 279–286 pp.). Bredow possibly suspected this and in the following years wrote a series of essays (Bredow, 1927, 1949, 1954, 1956) in which he also interpreted the history of “Unterhaltungs-Rundfunk”, which was soon just called “Rundfunk”, in such a way that this medium was a consequence of its commercial activities. In doing so, he developed a Bredow-centered broadcasting history that is still alive today, at least in the media.

Bredow claimed in Bredow (1949, p. 3), that twenty years ago he had been called the “Father of Rundfunk” by some colleagues, which he liked quite well, certainly did not reject and now decorates his gravestone in northern Germany Rendsburg. This denotation was surely an obstacle to criticize Bredow’s point of view and therefore Lerg (Lerg, 1970, p. 13) became the first who discussed the history of radio broadcasting and entertainment radio broadcasting in Germany from a rather neutral point of view and he had several followers, e.g. Ross (1966), Halefeldt (1980), and Lerg (1980).

6 Conclusions

This article discusses the history of entertainment radio broadcasting or “(Unterhaltungs-) Rundfunk”, with a particular focus on the question of why, after the First World War, this new medium was only opened in Germany after a delay of almost four years. Based on the literary sources of authors who do not follow the Bredow-centered history of entertainment radio broadcasting in Germany and additional sources, it is clear that the way wireless technology was used in Germany was different than in other countries that were highly developed in this field. German Post and its main wireless technology officer, Hans Bredow, a former manager of Telefunken, a world-renowned wireless technology company at the time, were interested in developing commercial wireless networks to broadcast news to the press and commercial companies. Only when the pressure from groups in Germany who were interested in introducing entertainment radio broadcasting, which was already widespread in the United States, became too strong did Bredow finally get involved in entertainment radio broadcasting. The realization of an “Unterhaltungs-Rundfunk” was then further delayed because effective controls on radio programs had to be introduced under state influence – particularly from the German Ministry of the Interior (Giesecke, 1929). On Bredow’s instructions, the first radio station was technically implemented from mid-September 1923 using the postal service’s own resources, as no further resources were available at the time of hyperinflation in Germany and for the same reason the leading wireless companies did not want to get involved.

Data availability. No data sets were used in this article.

Competing interests. The author has declared that there are no competing interests.

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Special issue statement. This article is part of the special issue “Kleinheubacher Berichte 2023”. It is a result of the Kleinheubacher Tagung 2023, Miltenberg, Germany, 26–28 September 2023.

Acknowledgements. The author thanks Konrad Dussel (University of Mannheim, Germany) as well as Dieter Daniels (Hochschule für Grafik und Buchkunst Leipzig, Germany) and his team for value-

able discussions about the history of radio broadcasting (“Rundfunk”) in Germany.

Financial support. The publication of this article was funded by the open-access fund of Leibniz Universität Hannover.

Review statement. This paper was edited by André Buchau and reviewed by two anonymous referees.

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