

# Partners in Empire: Indigenous business, imperial technology, and the Indian Radio Telegraph Company

**Danish Khan**

University of Oxford, UK

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*This article examines the introduction of the beam wireless system to India as part of the Imperial Wireless Chain, which enhanced communication links between Britain and India. It attributes the pioneering role in establishing the beam wireless service and laying the foundation for commercial radio broadcasting to a Bombay-based Ismaili Khoja family—the Chinoys—who secured necessary patents from Marconi and established the Indian Radio & Telegraph Company (IRTC). Departing from prevailing scholarship that frames Gujarati Muslim trading communities of Khojas, Bohras, Memons and groups such as Sindhis and Chettiars primarily as migrant transnational merchants (unlike Marwaris and Jains), this study foregrounds their role in a strategic, technology-driven infrastructure sector. It traces how the IRTC, born from colonial Bombay, created an unprecedented alliance of Parsi, Hindu and Muslim capital, exemplifying the city's distinctive model of cosmopolitan capitalism.*

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**Keywords:** Bombay, beam wireless, Khoja, Marconi, Imperial Wireless Chain

## Introduction

In colonial India, Bombay was an important centre of trade and finance. Unlike the other two Presidency towns of Calcutta and Madras, where Europeans dominated, members of various Indian trading communities occupied a crucial position in Bombay's commercial world. Foremost among these groups were the Parsis, who were considered pioneers of the cotton industry and enjoyed good relations with the British. The other communities who were present in Bombay and were active in various lines of trade were the Arabs, Baniyas, Bhatias, Bohras, Khojas, Jains and Memons.<sup>1</sup> While the majority of the members of these communities were small traders, the involvement in the China trade had enabled the transformation of some of them to big capitalists.

By the mid-nineteenth century, these capitalists started investing in cotton mills, facilitating the development of a vibrant cotton industry in Bombay. Several of them had also prospered due to obtaining military and government contracts, which allowed them to move to different sectors. The existing scholarship on business communities such as Parsis and Marwaris and business groups such as the Tatas, Wadias, Birlas, Bajajes and Godrejes identifies them closely with the internal economy

<sup>1</sup> Desai, 'The origins of Parsi Enterprise'; Dobbin, *Urban Leadership in Western India*.

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of colonial India. On the other hand, the Gujarati Muslim business communities of Khojas, Bohras and Memons, along with Sindhis and Chettiars, have been examined as migrant groups involved heavily in external trade.<sup>2</sup>

The article begins with a discussion of the Chinoy family and provides the background to their rise and importance. I use archival records and family history to narrate how beam wireless service came to India and started operations in order to demonstrate that a Khoja family firm became a source not only for introducing new technology but also for facilitating a joint venture cutting across communities. This article thus advocates an approach which goes beyond Parsi and Hindu trading groups in narrating the development and growth of capitalism in colonial India.

As far as family firms are concerned, the general trend has been that Muslim groups find a place in works pertaining to Indian Ocean trade, but in the context of inland trade and industry, the focus has remained on Hindu groups.<sup>3</sup> This article studies the introduction of the beam wireless service in India to illuminate the dynamics of a successful Khoja Ismaili family firm of the Chinoys.<sup>4</sup> Operating the beam wireless service in India was a prestigious and crucial project and showed the confidence and reliance the government placed upon this family. A factor behind the success of this endeavour was the involvement of other prominent capitalists engineered by the Chinoys. However, they could not replicate the success of beam wireless service in their other venture, radio broadcast, which required bigger investment and a larger setup.

The scholarship on radio communication and the British Empire has revolved around the role of the pioneer Guglielmo Marconi and his company, the various twists and turns in the development of the Imperial Wireless Chain,<sup>5</sup> technological improvements and the competition for dominance among the European colonial powers.<sup>6</sup> Much less is known of the companies that were established to construct and manage stations in the colonies and dominions to establish wireless radio communication with London. Reciprocal stations were required to complete the Imperial Wireless Chain. In the case of India, as this article recounts, a private enterprise was the most favoured option to establish and manage the wireless stations.<sup>7</sup>

<sup>2</sup> Oonk, *Global Indian Diasporas*; O'Sullivan, *No Birds of Passage*; Markovits, *Merchants, Traders, Entrepreneurs*.

<sup>3</sup> Timberg, *The Marwaris*; Birla, *Stages of Capital*; Subramanian, *Three Merchants of Bombay*.

<sup>4</sup> Khojas belong to the Ismaili Shi'i sect and follow the Aga Khan, their hereditary leader. In the nineteenth century, the community split in Bombay with some Khojas following Sunni or Ithna Ashari tenets, but the Ismaili Khojas are the most numerous of the three principal Khoja sects.

<sup>5</sup> 'Imperial Wireless Chain' refers to the resolve of the British Empire to connect the United Kingdom with other parts of the Empire. The term came to be used in the first decade of the twentieth century and was subject to various committees and inquiries on how to roll it out.

<sup>6</sup> Winseck and Pike, *Communication and Empire*; Raboy, *Marconi*; Winkler, *Nexus*.

<sup>7</sup> The scholarship on the growth of telecommunications and broadcasting in colonial and independent India barely mentions the pioneering role of the Chinoys and other Bombay capitalists. On the wider theme of wireless and radio in India, see Thomas, *Empire and Post-Empire Telecommunications*; Gupta, *Power, Politics and the People*; Kaul, *Communications, Media and the Imperial Experience*.

The credit for the introduction of the beam wireless service in India goes to two brothers, Sir Rahimtoola Chinoy (1882–1957) and Sir Sultan Chinoy (1885–1968). Their father, Meherally Chinoy (1829–1907), had started as an apprentice in the firm of Jairazbhoy Peerbhoy, a famous Khoja merchant prince, in the mid-nineteenth century. Meherally Chinoy made several trips to China and Japan, making substantial money for his employer and for himself as commission.<sup>8</sup> He rose to become a partner in the firm and, in time, married his employer's cousin. Though not involved in local politics, Meherally Chinoy had become a well-known name in Bombay's trading world by the time of his death in 1907.<sup>9</sup>

As was the norm, Meherally's eldest son, Fazalbhoy (1870–1915), became the head of the family and ran an extensive business in wheat flour, pearls, kerosene oil, liquid fuel and paraffin wax, with a huge quantity being exported to the Persian Gulf and Red Sea. Fazalbhoy Chinoy was an invitee to Westminster Abbey during the coronation of King George and Queen Mary on 22 June 1911, and took part in the luncheon in the Royal enclosure at Ascot.<sup>10</sup> He laid the foundations of the family firm, Fazalbhoy Meherally (F. M.) Chinoy & Co., which expanded to include a flourishing petrol agency, postal contract, film exhibition and taxi services. However, it was the agency for (General Motors) cars, named 'Bombay Garage', which became the jewel in the family's business.<sup>11</sup> The family epitomised the model of trading firms in colonial Bombay, which entailed involvement in various lines of trade. In this case the family had diversified from trading in agricultural produce to film exhibition and motor cars. The Chinoys dabbled in various trades and were guarantee broker to Messrs Graham & Co., one of the oldest and most successful expatriate firms in Bombay.<sup>12</sup>

Fazalbhoy Chinoy was the first Khoja (and Muslim) to organise a cosmopolitan dinner in a family wedding in Bombay.<sup>13</sup> This meant that arrangements were made for those comfortable with inter-communal dining. At that time, inter-communal dining was not the norm, so clearly the Chinoys were far ahead of their times. During the 1899 plague in Bombay, Fazalbhoy took the inoculation to counter the substantial prejudice against modern medicine and built the Khoja hospital. It must be qualified, however, that the Chinoys were not scholar-administrators like the Tyabjis, nor were they Khoja reformers.<sup>14</sup> The family was also

<sup>8</sup> The surname 'Chinoy' was taken by Meherally to denote his involvement in the China trade.

<sup>9</sup> Chinoy, *Pioneering in Indian Business*, p. 2; 'Death of a Khoja Merchant', *Times of India* (henceforth *TOI*), 17 August 1907, p. 7.

<sup>10</sup> 'New Sheriff of Bombay', *TOI*, 18 November 1913, p. 6.

<sup>11</sup> 'Growth of a Motor Car Company', *TOI*, 2 September 1926, p. 15.

<sup>12</sup> Guarantee Brokers became popular in Bombay as they provided guarantee (for a fee) to foreign/expatriate sellers that local merchants would pay for the goods bought. Essentially this meant that the guarantee brokers knew the credit-worthiness of local traders and had a good understanding of the market forces. Chinoy, *Pioneering in Indian Business*, p. 49; 'New Sheriff of Bombay,' *TOI*, 18 November 1913, p. 6.

<sup>13</sup> 'Khoja Weddings in Bombay', *TOI*, 24 October 1916, p. 5.

<sup>14</sup> The famous Tyabji brothers—Camruddin and Badruddin—were the first Muslims to travel to

unlike the Chotanis and Sobhanis, who were closely associated with the Khilafat movement and Congress, or Sir Suleman Mitha, who derived importance from the enormous clout he exercised in the *mohallas*.<sup>15</sup> Nevertheless, the Chinoys, like the Currimbhoys, took part in politics, and were primarily interested in trade and business. By the beginning of the twentieth century, they had come to feature as one of the prominent families of Bombay in terms of wealth and influence.

Fazalbhoy had a very successful stint in politics and was a popular member of the Bombay Municipal Corporation, the bastion of the city's elites, where he became chairman of its influential Standing Committee. He was also appointed the Sheriff of Bombay, and in 1912 won the election to take a seat on the Bombay Legislative Council. After his death in 1915, the mantle fell on the remaining three brothers: Rahimtoola, Sultan and the youngest, Nurmohamed (1888–1948). Rahimtoola and Sultan followed in the footsteps of their brother and, along with successfully expanding the business, made their mark in politics.<sup>16</sup>

The Chinoys seemed to stay away from formal education and did not follow the usual route taken by wealthy merchant families, who were qualifying as lawyers or gaining a degree from England. Instead, they acquired skills and qualifications that would directly help them to contribute to the family business. Lack of a formal degree did not prevent the Chinoy brothers from being part of consultative or trade bodies; their next generation, too, undertook technical education and apprenticeships with foreign manufacturers.<sup>17</sup> The family enjoyed an excellent relationship with merchants and family firms of various communities in Bombay. They also benefited from community, family and social ties that connected them to other prominent Khoja families of Bombay.<sup>18</sup> Many members of these families had received knighthoods and were involved in different trades. Some, like Sir Ibrahim Rahimtoola (1862–1942), were sought after as members of important government committees due to their knowledge and wider acceptance as business leaders.<sup>19</sup>

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England to qualify in law from Bombay. Badruddin rose to become a judge of the Bombay High Court and was also the first Muslim president of the Indian National Congress. For more on the family see Tyabji, *Badruddin Tyabji: A Biography*. By Khoja reformers, I refer to the group of Khoja merchants who went to courts in Bombay to challenge the authority of the Aga Khan, their hereditary religious leader, which split the community. See Masselos, 'The Khojas of Bombay'.

<sup>15</sup> For the involvement of Bombay's Muslim merchants in the Khilafat movement, see Brown, *Gandhi's Rise to Power*. On the *mohallas* of Bombay, see Masselos, 'Power in the Bombay "Moholla"'.  
<sup>16</sup> Wright, *The Bombay Presidency*, pp. 148–50.

<sup>17</sup> Rahimtoola Chinoy's eldest son Mohamed Hussain and Nurmohamed's two sons Habib and Yusuf qualified as wireless engineers at Faraday House, Chelmsford. At least five other youngsters from the family went to General Motors Institute of Technology, USA, for training. See Chinoy, *Pioneering in Indian Business*, p. 92.

<sup>18</sup> The Chinoys were closely related to other rich and powerful families such as the Rahimtoolas, Jairazbhoys, Currimbhoys and Allanas through marriage and business links.

<sup>19</sup> Sir Ibrahim Rahimtoola was unanimously chosen to be the president of the fifth session of Indian Industrial and Commercial Commerce in Madras in 1927. For more on his life and career, see 'Sir I. Rahimtoola's Career', *TOI*, 2 June 1942, p. 5.

### The Chinoy and Beam Wireless

In 1921, Sultan Chinoy sailed to England to negotiate with the Marconi Company to be their representative in India. This was certainly not the first time that a Chinoy had travelled across the sea for business purposes. Meherally Chinoy, the patriarch, laid the foundation for the family enterprise from the vast sums he made from his trips to China. And it was Fazalbhoy who understood the immense potential in selling motor cars in India after he met a self-exiled member of a Khoja family in Paris who was exporting vehicles to India.<sup>20</sup> Sultan Chinoy's visit to England, however, was designed to make the most of Britain's Imperial Wireless Chain.

The advent of radio communication by the turn of the twentieth century challenged Britain's supremacy in the communication sphere. Although Britain had invested heavily in the submarine cable network known as the 'nervous system' of the Empire, it was proving to be inadequate to meet the growing demands of the traffic.<sup>21</sup> It was in March 1910 that the Marconi Wireless Telegraph Company (henceforth Marconi Company) proposed to link the dominions and colonies with Britain at a cheaper rate than the cost of the cable telegraph. The Marconi Company applied for licences to erect 18 radio stations within the British Empire as part of the Imperial Wireless Chain. Although it would be of immense benefit to the British Empire, London was not in favour of allowing a single private company to manage the communication network.<sup>22</sup> The post office regulated the use of radio through the postmaster general, and the government was reluctant to grant a monopoly to a private company. Nevertheless, in July 1913, a contract was signed between Marconi and the British post office to provide six longwave radio stations to be built in England, Egypt, East Africa, South Africa, India and Singapore.<sup>23</sup>

The First World War (1914–18) led to the termination of the contract, although deliveries were made for the construction of the station in India. The Marconi Company filed and won a suit against the British government for the cancellation of the contract. At the end of the First World War, work resumed on the Imperial Wireless Chain as Britain authorised the completion of the nearly finished stations in England and Egypt. However, in the next few years, the Imperial Wireless Chain was subject to the scrutiny of government-appointed commissions and committees. The interests of cable companies and the British post office contributed to confusion and policy paralysis relating to the actual working of the Imperial Wireless Chain. Commercial interests in London did not relish the likelihood of

<sup>20</sup> Chinoy, *Pioneering in Indian Business*, p. 21.

<sup>21</sup> Aitor, *Geophysics, Realism, and Industry*, p. 56.

<sup>22</sup> Shoup, *Wireless Communication*, p. 1.

<sup>23</sup> *Report of the Postmaster General 1913–14*, p. 19.

Marconi's monopoly, while the governments in India and other colonies were in favour of private enterprise.<sup>24</sup>

Sultan Chinoy's journey to England in 1921 was informed by the need to gain the first-mover advantage. Although Sultan Chinoy writes that his journey must have looked like a 'fool's errand' to some of his contemporaries, considering he was going to negotiate with the giant Marconi, he must likely have had confabulations with senior government officials before he set out for England.<sup>25</sup> The conditions laid down by the Marconi Company were indeed tough. The company put a price of ₹5 million for their patent with the condition that they would appoint F. M. Chinoy & Co. as their agent and enter further negotiations only if the Chinoy's could get 50% of the capital from India.<sup>26</sup>

It was clear from the outset that they would need to involve other big names from the commercial world, both to provide capital and to push the government for necessary permissions. When Sultan Chinoy visited England, the British Empire had not yet allowed private enterprise in wireless communication. After getting the nod from the Marconi Company, the Chinoy's worked hard to create a 'favourable atmosphere' for the establishment of an Indian company consisting of Indian capitalists on the Board of Directors.<sup>27</sup> The visit to England was thus a preliminary step to understand the requirements and challenges.

Upon his return to India, Sultan Chinoy approached Sir Victor Sassoon (1881–1961), the scion of the millionaire Sassoon family, for possible investment in the proposed company. To his surprise, Sir Victor himself travelled to England, aiming to represent the Marconi Company in India. He then offered ₹200,000 as compensation if the Chinoy's relinquished their rights to him.<sup>28</sup> While the Chinoy's were aware of the influence that Sir Victor commanded, they were not inclined to accept his offer. The Chinoy's faced trouble on other counts. Business circles were abuzz with rumours that F. M. Chinoy & Co. was facing financial troubles and was borrowing money at very high rates of interest. A senior officer from General Motors based in Calcutta visited Bombay to investigate these charges, as Bombay Garage held their agency. There was also a delay in the renewal of their postal contract.<sup>29</sup> The Chinoy brothers managed to pull out of these temporary setbacks, which seemed to be an outcome of their foray into wireless communication.

In 1922–23, Sultan Chinoy was negotiating with a Swiss firm to connect the hill station of Matheran with Bombay through a ropeway. Matheran was a popular holiday destination, and the ropeway had the potential for a huge success. Sultan Chinoy recalls:

<sup>24</sup> Shoup, *Wireless Communication*, pp. 2–4.

<sup>25</sup> Chinoy, *Pioneering in Indian Business*, p. 47.

<sup>26</sup> *Ibid.*

<sup>27</sup> F. M. Chinoy & Co., brochure published in 1926. Copy in author's possession.

<sup>28</sup> Chinoy, *Pioneering in Indian Business*, p. 48.

<sup>29</sup> *Ibid.*, p. 49.

Influences were brought to bear against this scheme, for personal and selfish reasons, into which it would be futile to enter at this stage. Suffice it to say that it was made known to me at the highest level that if I did not persist in my Matheran scheme, it was likely that I would be granted the license for wireless communication. I was then left with no alternative but to choose between the two, and I chose the latter.<sup>30</sup>

These instances offer an insight into the competitive arena of India's commercial sector. So persistent were rumours of the Chinoys facing difficulties that Sir Purshotamdas Thakurdas (1879–1961), a fellow merchant and a close friend of the family, offered a loan.<sup>31</sup> All these examples point out the unease and possible jealousy among business competitors due to F. M. Chinoy bagging a prestigious project.

In March 1923, British Prime Minister Bonar Law (1858–1923) announced that the government would allow private capital in the field of imperial communications. This was a major departure from the earlier stance of the government, although wireless stations in Britain would be owned and operated by the state through the post office. In August, the viceroy had written to the secretary of state regarding the establishment of wireless communication in India. He apprised him that a successful operation would not be possible without the right to several British patents. The Government of India was also clear that, due to reasons of efficiency, ease of working and administration and on political grounds, a bonafide 'Indian company holding necessary rights' was the most suitable form of private enterprise.<sup>32</sup> That Indian company was the one floated by the Chinoys.

In October 1923, nearly two years after Sultan Chinoy's first visit to England, the Indian Radio Telegraph Co. Ltd (IRTC) was registered in Bombay with a capital of ₹30 million. The company proposed the erection of a high-power wireless telegraph to connect India with England and other parts of the world. At the time of the registration of the IRTC, the understanding was that the wireless connection would be conducted through the high-powered longwave radio telegraphy. The draft agreement between the IRTC and the Government of India had been based on conditions enforced in South Africa, Australia and Canada which provided that the government would neither contribute capital nor guarantee interest. The company was not to be given a monopoly or any exclusive rights. The IRTC and the Government of India signed a draft agreement on 1 February 1924 for the former to erect and operate a super-station.<sup>33</sup>

The IRTC was the only private enterprise which had come forward to erect and operate high-power longwave wireless stations. The scenario changed in 1924

<sup>30</sup> *Ibid.*, p. 86.

<sup>31</sup> *Ibid.*

<sup>32</sup> *Telegraphy—Imperial Wireless Scheme: Grant of Licences to the Indian Radio Telegraph Companies*. Viceroy to Secretary of State, 20 August 1923, Collection 159/12, India Office Records and Private Papers, IOR/L/E/9/1323, August 1923–August 1925 (IOR), Asia, Pacific and Africa Collections (APAC), British Library (BL), London, United Kingdom. This telegram is the last document in this file.

<sup>33</sup> IOR/L/E/9/1323, Viceroy to Secretary of State for India, 16 January 1925.

when Marconi announced the success of shortwave radio telegraphy, also known as the beam system. It made the longwave communication service obsolete, because the beam system was 95% cheaper and three times faster.<sup>34</sup> Britain had heavily invested in the submarine cable network and a longwave station at Rugby. The beam network was not looked upon favourably by the postmaster general, the head of the British post office, which was managing the longwave for the government. But such was the anticipated success of the shortwave that in July 1924, the post office signed a contract with Marconi, making his company responsible for constructing a chain of shortwave stations.<sup>35</sup> Thus, Marconi's beam system offered a new scheme to replace the longwave proposals. The first beam service was opened between Britain and Canada in 1927, followed by other countries.<sup>36</sup>

The choice of longwave or shortwave wireless for the Imperial Wireless Chain affected India as well. The Chinoys abandoned the plan for longwave wireless, as made clear in a telegram from the viceroy to the secretary of state for India on 16 January 1925. The secretary of state was informed that the IRTC had withdrawn its proposal to erect and operate stations and that no other private enterprise in India was willing to replace them. Seeking to reflect the concerns of the post office and the British armed services, the viceroy assured the secretary of state that the proposal for a super-station 'as the ultimate solution of Indian requirements' had not been abandoned but should 'remain in abeyance'. The IRTC had applied for a license to erect and operate beam stations, which, the viceroy indicated, he was inclined to allot them.<sup>37</sup>

In the same telegram, the viceroy sought an assurance that the 'Imperial government will arrange for the erection of a suitable reciprocating station in the United Kingdom'.<sup>38</sup> Discussions between the viceroy and the secretary of state pertaining to the Imperial Wireless Chain were substantial. In one such telegram, dated 27 March 1924, the viceroy had written that 'our company' in India will 'almost certainly be an offshoot of the Marconi company'.<sup>39</sup> The viceroy did not mention the name of the Chinoys or other possible directors in any of the correspondence, instead choosing to refer to either the IRTC or just the company. However, the reference to 'our company' reflects the government's comfort and confidence in the Chinoys helming the IRTC.

The principal agreement—dated 24 February 1925—between the secretary of state for India and the IRTC did include the provisions that the viceroy had proposed in 1923: the government will not provide any capital nor guarantee interest on capital (Clause 4.1); the company will always be an independent Indian business (Clause 2); the company shall be granted no monopoly by the government

<sup>34</sup> Aitor, *Geophysics, Realism, and Industry*, p. 56.

<sup>35</sup> *Ibid.*, p. 8.

<sup>36</sup> Headrick, *The Invisible Weapon*, p. 203.

<sup>37</sup> IOR/L/E/9/1323, Viceroy to Secretary of State for India, 16 January 1925.

<sup>38</sup> *Ibid.*

<sup>39</sup> *Ibid.*, Viceroy to Secretary of State for India, 27 March 1924.

(Clause 3), but if the government ‘decides at any time during the continuance of this agreement to extend wireless communication by means of the beam system to routes between British India and parts of the world other than the United Kingdom’ (Clause 8), the government will give the company the option of undertaking any such extension.<sup>40</sup>

The IRTC had acquired full rights to all Marconi patents in India and, in pursuance to the principal agreement, was granted a license on 7 March 1925 for a period of 10 years, to be renewed every 5 years, by the Government of India.<sup>41</sup> The government had the option to take over the services at the time of license renewal. The issuance of a license was not without its fair share of questioning and scrutiny. At every stage of the process, questions were raised in the Indian Assembly and Westminster. In the Indian Legislative Assembly, members asked for details about the company (IRTC) to be issued with the license. Concerns were raised about a private enterprise being allowed to operate the wireless system, while some wanted to ensure that the beam wireless service would create jobs for locals.<sup>42</sup>

Before the license was issued to IRTC, the office of the postmaster general confirmed that Britain had identified sites for corresponding stations in England to connect the beam wireless communication with India. Accordingly, the Marconi Company was expected to complete the construction of a receiving station at Winthorpe near Skegness and a transmitting station near Grimsby by May 1926.<sup>43</sup> Thus, in England, the transmissions were to be operated from the Central Telegraph Office, London, from where messages were sent out by landline to the beam transmitters. In India, the outgoing signals were to leave the IRTC office at Bombay via Kirkee, and the signals from England were to be received at Dhond.<sup>44</sup> Kirkee and Dhond were on the outskirts of Pune city, around 150 km from Bombay.

### Template for Cosmopolitan Capitalism

Once the license was issued, the IRTC promptly came out with the prospectus. As per the advertisement, the company was to issue 27,000 ordinary shares of ₹100 each. The directors and their friends held 9,200 shares and the Marconi Company 10,800 shares, thereby leaving 7,000 shares available for subscription by the public (60% of the capital—16,200 shares—had to be Indian).<sup>45</sup>

<sup>40</sup> *Ibid.*, Agreement Between the Secretary of State for India and IRTC, 24 February 1925. The agreement runs into 18 pages and has 71 clauses.

<sup>41</sup> *Ibid.*, License dated 7 March 1925. The condition of the renewal is mentioned in the agreement between secretary of state and IRTC; see Clauses 19 and 20.

<sup>42</sup> *Telegraphy—Imperial Wireless Scheme: Government of India Agreements with Indian Radio and Cable Communications Company Ltd.* IOR/L/E/9/1324, Collection 159/13, January 1925–September 1928.

<sup>43</sup> IOR/L/E/9/1323, General Post Office to India Office, 13 August 1925.

<sup>44</sup> Shoup, *Wireless Communication*, p. 20.

<sup>45</sup> ‘Trade and Finance: Indian Radio Company’, *TOI*, 18 March 1925, p. 6.

The Marconi Company gave all their patent rights to the IRTC without any cash consideration. Instead of cash payments, the IRTC offered the Marconi Company deferred shares credited as fully paid to be entitled to dividends until the original capital subscribed by Indians secured a 7% dividend. Sultan Chinoy recollects:

Since the company could not pay the price demanded by Marconi for the use of their patent rights, I argued with good reason on my second visit to England in 1925 that if these rights were worth so much, the return to the Indian company would be enormous. My suggestion therefore was that instead of cash payment for the rights, our company should give Marconi or their nominees, deferred shares, credited as fully paid up .... Marconi's share of the profits would, in short, be half the net surplus in excess of seven per cent, irrespective of whether Marconi received, for the patent rights, deferred shares of one rupee or a crore.<sup>46</sup>

The prospectus noted that F. M. Chinoy & Co. were appointed secretaries and treasurers of the company for five years from 1 January 1925. The annual remuneration was equivalent to 5% of the net divisible profits of the company, with a guaranteed minimum remuneration of ₹18,000 per annum. They were also to be reimbursed by the IRTC for all disbursements for staff and rent of premises undertaken in respect of the company. A member of their firm (Sultan Chinoy) would be on the Board of Directors. The elder brother, Rahimtoola Chinoy, along with two others (A. K. Graham and F. E. Rosher) were nominated by the Marconi Company.<sup>47</sup>

The other directors, in addition to those named above, were Sir Cusrow Wadia (chairman), Sir Ness Wadia and Sir Purshottamdas Thakurdas. However, the response from the public was not good. The issued capital was ₹45 lakh, consisting of ₹27 lakh worth of ordinary shares and ₹18 lakh worth of deferred shares, which was being credited as fully paid up to the Marconi Company for their patent rights. The Marconi Company thus made the most of the lack of enthusiasm from Indian investors.<sup>48</sup>

But while the moving spirit behind the company's formation was the Chinoy brothers, this venture was a veritable mix of captains of the Indian industry with no pronounced political moorings. The Wadias, who belonged to the Parsi community, had an illustrious career which began with making ships for the British from the early eighteenth century. A brochure of F. M. Chinoy & Co. notes that the success of the IRTC is 'largely due to the assistance and the able guidance of the famous Wadia Bros., Sir Cusrow and Sir Ness Wadia'.<sup>49</sup> Of all the directors, the Wadias had a far deeper and older relationship with the British. Purshottamdas Thakurdas and Ibrahim Rahimtoola, who became the chairman of the IRTC in

<sup>46</sup> Chinoy, *Pioneering in Indian Business*, p. 51.

<sup>47</sup> 'Classified Ad 22', *TOI*, 20 March 1925, p. 7.

<sup>48</sup> Chinoy, *Pioneering in Indian Business*, p. 51.

<sup>49</sup> 'Men and Motors', Brochure, *TOI Press*, 1933.

1927, had moved beyond being just successful merchants and had grown to become the bridge between the government and the business class.<sup>50</sup>

As the British government did not want to invest capital in the venture, it meant that the promoters had to be resourceful enough to raise the requisite capital. One of the conditions for the grant of a license was that 60% of the company's capital must be subscribed in India. This was a crucial sector for the government, but it was also a prestigious project to be lapped up by native capitalists. It was a special opportunity which required deep pockets, long-term commitment to the industry and excellent relations with top British administrative officials.

It can be safely assumed that the British would have been reluctant to enter into an agreement with a company belonging to or under the control of a single family or group. Perhaps, the opposition and criticism to the issuance of the license would have been sharper had it been just a single family or members of only a particular community at the helm of the IRTC. The formation of the IRTC was not an ordinary culmination of capital and a business plan. By its very nature of convoluted clauses, strategic importance, use of patents and an enhanced interest and scrutiny by the British Parliament and various departments, the Indian company thus formed had to be one that would tick the various crucial boxes in both India and Britain. This, in some ways, explains the nature of the company—Muslim Khoja Ismaili merchants partnering with Parsi and Hindu capitalists drawn from the business circle of Bombay. Though there were business ventures which entailed partnerships between members of different communities in colonial Bombay, the IRTC was in a different league. The IRTC was a more sophisticated venture and, most importantly, was a service provider, not dealing in agricultural produce, manufactured goods or consumer items.

The introduction of beam wireless in India involved various sets of agreements: the deal between the IRTC and Marconi Company for the use of the latter's patent in India; the agreement between the secretary of state for India and the IRTC laying out the broad contours of its formation; the grant of license to the IRTC by the Government of India to carry out the beam wireless service; and the subsequent agreement between the postmaster general and the IRTC setting out the rates for the services and other details of revenue sharing. All these agreements were, of course, preceded by the acceptance of Marconi's Imperial Wireless Chain proposal by the British government.

### **The Success of Beam Wireless and the Failure of Radio Broadcasting**

The opening ceremony of the beam wireless telegraph service between India and England was a well-choreographed event. It was expected that the service would be opened in early 1927, but it was delayed as the post office and the Marconi

<sup>50</sup> Moraes, *Sir Purshotamdas Thakurdas*, p. 26.

Company concentrated on developing stations in Australia and South Africa.<sup>51</sup> In the second half of July 1927, the inauguration was again postponed by a week due to the monsoon in India, which caused some connectivity issues. Finally, it was agreed that the viceroy would send a message to the King on 27 July. The viceroy was to feed in the message between 5.25 and 5.30 pm Indian Standard Time.<sup>52</sup>

The service was expected to generate a new market from among the officers and merchants who had family and business links between India and England. The different categories of services (and charges specified) for availing them in Britain and addressed in India were as follows: British government telegrams (six pence and half penny), ordinary telegrams and government telegrams other than British government telegrams (one shilling and one penny), deferred telegrams (six pence half penny), press telegrams (two pence half penny), daily letter telegrams (three pence half penny with a minimum charge of five shillings and ten pence per telegram) and weekend letter telegrams (three pence per word with a minimum charge of five shillings per telegram).<sup>53</sup>

As per the agreement, the service entailed transmitting and receiving 30,000 paid five-letter words in a period of 24 hours throughout the day. As expected, there were other provisions that were designed to benefit the British Empire. These included giving priority to the traffic of the Imperial Government or the Government of India, if such a request was accompanied by a certificate signed by a secretary to the government, and that the onward transmission of traffic received from any other country should not lead to a delay in messages being transmitted through or terminating in India. The government was entitled to pay one-half the normal rates for the services.<sup>54</sup>

Although the messages between the King and the viceroy were transmitted in July 1927, the service was opened to the public only on 6 September 1927. At the first annual general meeting of the IRTC, shareholders were informed that the company did not have adequate staff to meet the demand. Speaking on the occasion, C. N. Wadia, who presided, said, 'Within one week of opening our service, we handled a volume of traffic exceeding our most optimistic estimates'.<sup>55</sup> The total words sent and received by the IRTC were as follows: 11,487,741 in 1928; 12,932,764 in 1929; 12,495,434 in 1930; and 12,745,952 in 1931.<sup>56</sup> According to Sultan Chinoy, by 1934 the vast majority of the company's staff was Indian except

<sup>51</sup> *Broadcasting-India Radio Telegraph*. IOR/L/PO/3/2, Document No. 11, R. H. A. Carter, India Office to Lord Stamfordham, Buckingham Palace, 19 July 1927.

<sup>52</sup> IOR/L/PO/3/2, Document No 8, M. G. Simpson, Indo-European Telegraph Department, India Office to F. W. Philips, General Post Office, 20 July 1927.

<sup>53</sup> IOR/L/E/9/1324, Agreement dated 9 March 1928 between postmaster general and IRTC; see Clause 7.

<sup>54</sup> IOR/L/E/9/1323, Agreement between the secretary of state for India and IRTC. See Clauses 10, 14, 17, 18.

<sup>55</sup> 'Beam Wireless: Indian Radio Telegraph Company Meeting', *TOI*, 9 March 1928, p. 6.

<sup>56</sup> 'Bombay-London Telephone', *TOI*, 10 March 1932, p. 6.

the chief engineer.<sup>57</sup> The company was taking other important strides, which were seen as a natural progression.

The launch of the IRTC meant that the Eastern Telegraph Company, which operated the cable routes in India, was no longer the only avenue to send messages to foreign shores. Within a few months of the launch of the beam wireless service, the cable routes faced a drop in traffic. It was the same situation in other parts of the Empire. A committee was set up to examine the competition between beam wireless and cable services, which included representatives from the India office.<sup>58</sup> The government knew the importance of the cable telegraph and hence could not let it cease operations. Not surprisingly, it was decided to merge the cable telegraph and the beam wireless services.

In July 1932, the IRTC took over the operations of the Eastern Telegraph Company, which operated the following cable routes: Bombay–Aden–East Africa, Bombay–Aden–Port Said–London and Madras–Penang–Singapore. Due to this merger of cable and radio operations, the IRTC was rechristened as the Indian Radio & Cable Communications Co. Ltd (IRCC). The new company would control foreign traffic originating from India to all parts of the world.<sup>59</sup> The cable rates were to be reduced to the level of the rates for the beam wireless services. F. M. Chinoy & Co. continued to be the secretaries and treasurers, undoubtedly with greater benefits and more returns. The merger also eliminated any possibility of competition that could have led to a rate war. This was a monumental development which put the management of the country's entire external communication in Indian hands.

But the Chinoys and the Wadias could not replicate the success of the IRTC in their radio broadcasting venture. The Indian Broadcasting Company (IBC) was formed around the same period as the IRTC. It was granted a five-year monopoly in 1926 and an assurance that it would receive 80% of all licence fees.<sup>60</sup> Along with the Chinoys and Wadias, the other big investor (and a director) was Raja Saheb Dhanrajgirji Narsingirji (1893–1988), a banker.<sup>61</sup> Radio broadcasting was inaugurated by Lord Irwin on the same day as the beam wireless services. However, the trajectory of both these ventures could not be more dissimilar. While

<sup>57</sup> Chinoy, *Pioneering in Indian Business*, p. 59.

<sup>58</sup> IOR/L/PO/3/2, Document No. 1, R. H. A. Carter, India Office to Sir Norman Leslie, 5 October 1927.

<sup>59</sup> The IRTC changed its name to The Indian Radio & Cable Communications Co. Ltd with effect from 1 May 1932. See *Enquiry by the Indian Radio and Cable Communications Company Ltd*. Document No. 5, Letter to the Political Department, Government of India, 4 May 1932. Foreign and Political Department, Reforms Branch, File No 215-R/32, 1932, National Archives of India (NAI), Delhi.

<sup>60</sup> The agreement between the IBC and secretary of state for India was dated 13 September 1926. It was signed by the two Chinoy brothers on behalf of the IBC. Home Department, Political Branch, File 240 KW, 1927, NAI, pp. 4–14.

<sup>61</sup> Gupta, *Power, Politics and the People*, p. 453.

the agreement between the IBC and Government of India was ‘potentially lucrative’, both were responsible for creating a ‘financial and operational disaster’.<sup>62</sup>

One reason for the failure was the difference of opinion between the India office and the Government of India on the proposed shape and scope of broadcasting in India. Lord Birkenhead (1872–1930), the secretary of state for India, was in favour of radio broadcasting reaching the far ends of the country—the villages in the Punjab and the Frontier province—and not just the English-speaking inhabitants in the cities of Bombay and Calcutta as the agreement between the IBC and the Government of India entailed. However, to meet Lord Birkenhead’s expectations, the Government of India would have to play a greater role in the operations, which it was not inclined to do.<sup>63</sup> In the 1920s, the beam wireless service was far more crucial to the Empire than radio broadcast. As discussed earlier, the revenue model for the beam wireless was robust and the IRTC booked profits from the very year of its establishment.

There was also a crucial difference between beam wireless and radio broadcasting. While the beam wireless involved much simpler installation, radio broadcasting required far more complex infrastructure. As noted earlier, introducing beam wireless in India involved getting a patent from Marconi and installing a set of corresponding transmitters in both the countries. For radio broadcasting, a complex network of interconnected systems involving transmitters, antennae, studios and mobile units would be needed. This would require massive investment over a long term, and clearly neither the state nor a private enterprise would be able or willing to do this.

The British policy pertaining to radio broadcasting in India was different to what was pursued in Britain. The establishment of the British Broadcasting Corporation (BBC) in January 1927 marked the beginning of a non-commercial, Crown-chartered public broadcast service, but in India a private company was favoured for radio broadcasting which was expected to become popular across the country. The IBC also suffered due to undercapitalisation. It became a loss-making unit which had to be voluntarily wound up in 1930. It was ultimately taken up by the government. Shareholders lost over 97% of their investment.<sup>64</sup>

The growth of broadcasting in India was inevitable, and even though the IBC died, the Chinoys managed to establish a hold over the radio trade. Rahimtoola Chinoy became the founding president of the All-India Radio Merchants’ Association, an influential body of radio dealers which had also put pressure on the government to take over the IBC. This was done to safeguard the interests of the radio dealers who were crucial in the development of the broadcasting sector. The position of influence that Rahimtoola Chinoy reached was no doubt due to the

<sup>62</sup> Pinkerton, ‘Radio and Raj’, p. 173. Sultan Chinoy pins the blame wholly on the government saying that broadcasting fared badly because of ‘lack of sympathy and support from the Government’. See Chinoy, *Pioneering in Indian Business*, p. 58.

<sup>63</sup> *Ibid.*, pp. 170–75.

<sup>64</sup> ‘Indian Broadcasting Company’, *TOI*, 11 July 1931, p. 5.

involvement of F. M. Chinoy & Co. in the IBC.<sup>65</sup> Besides demonstrating his hold over an umbrella body associated with a growing sector, the leadership of such an organisation endowed him with tremendous influence in official circles. But it was also symptomatic of the need to spearhead ancillary businesses and provide leadership to trade bodies that were linked and beneficial to larger business interests.

The government had put forth the argument to allow private enterprise to develop the beam wireless and radio broadcast services. F. M. Chinoy & Co., the moving force behind both companies, knew that raising capital would not be easy, and although the Chinoy brothers along with the other promoter-directors did invest substantially, these ventures were never their primary interests. The extent and nature of their involvement was thus driven by the need to capitalise on emerging sectors open to private enterprise. There was always the possibility of a government takeover despite official assurances and the good relations they enjoyed with senior officials.

The establishment of the IRTC and its metamorphosis into the IRCC was symbolic of the trust that the Government of India could place in indigenous business leaders. This trust carried on from the days of the burgeoning opium trade to the establishment of sectors such as steel and wireless networks. Rahimtoola Chinoy and Sultan Chinoy were knighted in 1936 and 1939, respectively. Their younger brother, Nurmohamed, became chairman of the Motor Trade Association and the Motor Manufacturers and Importers' Association, and a director of the Central Bank.<sup>66</sup> Rahimtoola Chinoy joined the board of the Imperial Bank of India, and Sultan Chinoy became a director of the Reserve Bank. The three brothers were also closely associated with the Bombay Municipal Corporation, while Rahimtoola Chinoy went on to win elections to the Assembly and Council of State. Rahimtoola Chinoy was president of the Bombay Municipal Corporation in 1926–27, and Sultan Chinoy was the mayor of Bombay in 1938–39. In 1945, Sultan Chinoy was included in a delegation of Indian industrialists which visited Europe and the United States along with J. R. D. Tata, G. D. Birla, A. D. Shroff and others.<sup>67</sup>

A clear demarcation of responsibilities among the Chinoy brothers helped in the advancement of Bombay Garage and the IRTC. The Chinoy brothers divided various businesses among themselves, which was carried forward by their next generation. Rahimtoola Chinoy was the chairman of F. M. Chinoy & Co.; Sultan Chinoy was the managing director and looked after the day-to-day operations; Nurmohamed was responsible for sales; Dost Mohammad and Ghulam Hussein, the two sons of the deceased elder brother Fazalbhoy, managed the Pune branch and workshops, respectively.<sup>68</sup>

<sup>65</sup> Chinoy, *Pioneering in Indian Business*, pp. 82–83; 'Radio Merchants' Association', *TOI*, 8 December 1936, p. 19.

<sup>66</sup> Chinoy, *Pioneering in Indian Business*, pp. 91–92.

<sup>67</sup> The designation of president of the Municipal Corporation was changed to mayor in 1931. See 'Mr S. Chinoy Elected Mayor of Bombay', *TOI*, 8 April 1938, p. 14; 'Industrialists on Mr. Amery's Claim', *TOI*, 31 May 1945, p. 5; 'Mr. R. Chinoy Dead', *TOI*, 28 November 1957, p. 3.

<sup>68</sup> Chinoy, *Pioneering in Indian Business*, p. 92.

For close to two decades, India's foreign communications were successfully managed by a private company. This journey was made possible due to the excellent working relationship between the Chinoy brothers and the other promoters. A younger son of Ibrahim Rahimtoola, Abdulla, was appointed director of the IRTC in 1932, denoting a greater involvement of family members of the original promoters.<sup>69</sup> There seems to be no evidence of any dispute among the bigger shareholders, which provided stability and helped in their subsequent negotiations with the government.

Despite the failure of the IBC, the IRCC continued to prosper and grow. In August 1940, it announced a record net profit of over ₹1 million and declared a 15% dividend on ordinary shares and a 12% dividend on deferred shares.<sup>70</sup> On the back of the Second World War, the tremendous growth in traffic lifted the profit margins. The IRCC continued its operations till the end of 1946, after which it was taken over by the government and came to be known as the Overseas Communications Service from January 1947. The IBC was to ultimately become the iconic All-India Radio (AIR).

### Conclusion

The formation and trajectory of the IRTC embodied a distinctive moment in late-colonial India's economic history where indigenous capital, imperial technology and state regulation intersected to produce a business model that drew upon resources and expertise from a diverse set of sources of what I term 'cosmopolitan capitalism'. This article has challenged narrow views of Gujarati Muslim trading communities, revealing how local entrepreneurs could shape global communication networks and redefine the colonial technological order. By positioning an Indian-led enterprise at the heart of the Imperial Wireless Chain, the Chinoys not only facilitated the introduction of beam wireless technology to the subcontinent but also redefined the contours of private enterprise within a colonial economy. Their ability to mobilise capital from Parsis, Hindus and Muslims in a shared venture reflected Bombay's cosmopolitan capitalism.

The IRTC's beam wireless venture rapidly surpassed expectations, cementing Indian control over the country's external communications through its merger with cable operations in 1932. This success contrasted sharply with the collapse of the IBC, which faltered under policy ambiguities, infrastructural demands and undercapitalisation. Yet, even in failure, the Chinoys leveraged their broadcasting involvement to consolidate influence in the radio trade and associated business bodies. The IRTC's evolution into the IRCC reflected both the strategic acumen of Bombay's cosmopolitan capitalist elite and the colonial state's willingness to entrust high-value infrastructure to select Indian entrepreneurs. By the time of its

<sup>69</sup> 'Bombay-London Telephone', *TOI*, 10 March 1932, p. 6.

<sup>70</sup> 'Indian Radio and Cable Communications Co.', *TOI*, 28 August 1940, p. 4.

nationalisation in 1947, the IRCC had redefined India's global communications linkages and exemplified how indigenous business families could parlay imperial partnerships into enduring economic and political capital. Family firms in India have been described as constrained due to the inherent contradictory objectives of maximising profit and maintaining stability.<sup>71</sup> The Chinoy managed to achieve both profitability and stability. Their advent into the beam wireless enterprise was an audacious enterprise that explored an entirely new sector unconnected to the businesses in which the Chinoy were present. The family firm in this case comes across as a site for dynamic entrepreneurship. The wireless sector helped cement their position as a major capitalist group capable of pooling funds and influential individuals in a commercial venture.

The history of the IRTC thus brings to focus the crucial intersection of business, politics and Empire in late-colonial South Asia, illuminating how indigenous entrepreneurs leveraged imperial partnerships to convert access to technology and markets into economic and political capital and influence.

## References

- Aitor, A. E. *Geophysics, Realism, and Industry: How Commercial Interests Shaped Geophysical Conceptions, 1900–1960*, Kiribati, 2016.
- Birla, R. *Stages of Capital: Law, Culture and Market Governance in Late Colonial India*, Durham, 2009.
- Broadcasting—Indian Radio Telegraph*, India Office Records and Private Papers, IOR/L/PO/3/2, 18 December 1926–5 October 1927, (IOR), Asia, Pacific and Africa Collections (APAC), British Library (BL), London, United Kingdom.
- Chinoy, S. *Pioneering in Indian Business*, Karachi, 1983.
- Desai, A. 'Origins of Parsi Enterprise', *Indian Economic and Social History Review*, Vol. 5 (4), 1968, pp. 307–17.
- Dobbin, C. *Urban Leadership in Western India: Politics and Communities in Bombay city, 1840–1885*, Oxford, 1972.
- Enquiry by the Indian Radio and Cable Communications Company Ltd.* Foreign and Political Department, Reforms Branch, File No 215-R/32, 1932, National Archives of India (NAI), Delhi, India.
- F. M. Chinoy & Co., Brochure*, Bombay, 1926.
- Gupta, P. S. *Power, Politics and the People: Studies in British Imperialism and Indian Nationalism*, United Kingdom, 2002.
- Headrick, D. *The Tentacles of Progress: Technology Transfer in the Age of Imperialism, 1850–1940*, New York, 1988.
- Headrick, D. *The Invisible Weapon: Telecommunications and International Politics, 1851–1945*, New York, 1991.
- Home Department, Political Branch, File 240 KW, 1927, NAI, Delhi.
- Kaul, C. *Communications, Media and the Imperial Experience: Britain and India in the Twentieth Century*, Basingstoke, 2014.
- Markovits, C. *Merchants, Traders, Entrepreneurs: Indian Business in the Colonial Era*, Basingstoke, 2008.

<sup>71</sup> Spodek, 'Traditional Culture and Entrepreneurship', p. M28.

- Masselos, J. 'The Khojas of Bombay: The Defining of Formal Membership Criteria During the Nineteenth Century', in Ahmed Imtiaz, ed., *Caste and Social Stratification Among the Muslims*, Delhi, 1972, pp. 1–20.
- Masselos, J. 'Power in the Bombay "Moholla", 1904–15: An Initial Exploration into the World of the Indian Urban Muslim', *Journal of South Asian Studies*, Vol. 6 (1), 1976, pp. 75–95.
- 'Men and Motors', *Brochure*, Bombay, 1933.
- Moraes, F. *Sir Purshotamdas Thakurdas*, Bombay, 1957.
- Oonk, G., ed., *Global Indian Diasporas: Exploring Trajectories of Migration and Theory*, Netherlands, 2021.
- O'Sullivan, M. *No Birds of Passage: A History of Gujarati Muslim Business Communities, 1800–1975*, Cambridge, MA, 2023.
- Pinkerton, A. 'Radio and Raj: Broadcasting in British India (1920–1940)', *Journal of the Royal Asiatic Society*, Vol. 18 (2), 2008, pp. 167–91.
- Raboy, M. *Marconi: The Man Who Networked the World*, Oxford, 2016.
- Report of the Postmaster General of the Post Office, 1913–14*, London, 1914.
- Shoup, G. S. *Wireless Communication in the British Empire*, n.p., 1928.
- Spodek, H. 'Traditional Culture and Entrepreneurship: A Case Study of Ahmedabad', *Economic & Political Weekly*, Vol. 4 (8), 1969, pp. M27–31.
- Subramanian, L. *Three Merchants of Bombay: Business Pioneers of the Nineteenth Century*, Delhi, 2016.
- Telegraphy–Imperial Wireless Scheme: Grant of Licences to the Indian Radio Telegraph Companies*, Collection 159/12, IOR/L/E/9/1323, August 1923–August 1925, IOR, APAC, BL.
- Telegraphy–Imperial Wireless Scheme: Government of India Agreements with Indian Radio and Cable Communications Company Ltd.*, Collection 159/13, IOR/L/E/9/1324, January 1925–September 1928, IOR, APAC, BL.
- Thomas, P. N. *Empire and Post-Empire Telecommunications in India: A History*, Delhi, 2018.
- Thomas, T. *The Marwaris: From Traders to Industrialists*, Delhi, 1978.
- Tyabji, H. *Badrudin Tyabji: A Biography*, Bombay, 1952.
- Winkler, J. R. *Nexus: Strategic Communications and American Security in World War I*, Cambridge, MA, 2008.
- Winseck, D. R., and R. M. Pike. *Communication and Empire: Media, Markets, and Globalization, 1860–1930*, Durham, 2007.
- Wright, A. *The Bombay Presidency, the United Provinces, the Punjab, etc.: Their History, People, Commerce, and Natural Resources*, Bombay, 1920.