The deep digital divide: the telephone in British India 1883-1933

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Abstract: *»Die tiefe digitale Kluft. Das Telefon in Britisch-Indien, 1883-1933«*. After the telegraph the telephone is seen as the second means of the media revolution which took place after the middle of the nineteenth century. In the USA the telephone was used widely within a short time after its invention and implementation. Yet, whereas in the USA the telephone was hailed as a modern means of communication which helped to forge the nation, in Europe the telephone did not attract many public or private users. Particularly the British ruling class regarded the telephone as a means of domestic communication. This attitude towards the telephone had severe consequences in the colonial context as the British Indian government constructed telephone lines only as a means of administrative and military control representing an extended household. The lack of telephone lines in the successor states of British India, the Republics of Pakistan and India, was still prevalent at the end of the twentieth century.

Keywords: communication means, telephone, technical and social history, colonialism, imperialism, British India, global studies.

1. The Telephone and its Social Impact

The global use of the mobile/ cell phone has long been the focus of sociologists interested in the social impact and the behaviourist consequences of the latest wireless communication device.[1] Even in small countries like Israel the omnipresent "mobile" has become an object of interest for the scientific community.[2] Yet most literature on telecommunication devices is from the USA, because of the deep impact that such technologies had on the development of the American society. Within a few decades of its invention the telephone was transformed from an urban communication device used by shopkeepers, upper middle class employees and businessmen into one widely used, for instance, by farmers. Both the telegraph and the telephone made westward expansion easier

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[1] Richard Ling, *The Mobile Connection. The Cell Phone's Impact on Society* (Amsterdam: Morgan Kaufmann, 2004); *idem, New Technologies, New Ties. How the Mobile Connection Is Reshaping Social Cohesion* (Cambridge, MA: MIT Press, 2008).
[2] Akiba A. Cohen, Dafna Lemish and Amit M. Schejter, *The Wonder Phone in the Land of Miracles. Mobile Telephony in Israel* (Cresshill, NJ: Hampton Press, 2008).

as they speedily developed from an intra-urban into an inter-urban and rurban communication system. However, well into the twentieth century, this development remained unique to the USA. It was only after 1950 that Western European countries bridged the communicative gap, whereas regions like the South Asian subcontinent still lack such a densely woven communication system.[3]

In 1989, India had less than 4 million telephones for its then population of 800 million people. In other words, the ratio was 1 telephone to 200 people. Four years later, the number of telephones had increased to 7 million and an additional 2.8 million connections had been applied for. Compared to the preceding years, this was an impressive figure. Yet, at the same time, the ratio of 1:125 was still lamentable in comparison with most of the "underdeveloped" countries where the ratio was 1:10, not to mention the most industrialised countries with a proportion of 1:1.6.[4] To improve the situation, the Congress administration under Rajiv Gandhi, prime minister between 1984 and 1991, set up the Telecom Commission in early 1989 to look into the improvement of the telephone system. Headed by Satyanarayan Gangaram Pitroda, better known as Sam Pitroda, a US-based businessman and a close confidant of Rajiv Gandhi, the Telecom Commission was to circumvent the bureaucracy with its strangling license system (known in India as the "License Raj"[5]). Within a few years Pitroda and the Telecom Commission were successful in setting up a wide network of (urban) public telephones.[6] It was against this background that the usage of telephones in India multiplied.

Since 1989, and particularly during the 1990s, the telephone industry has been, like other branches of the Indian economy, deregulated. However, the "liberalisation" of telecommunications was only partially implemented in 1997 and again in 2003.[7] The Telecom Regulatory Authority of India Act (TRAI) of 1997 regulated private telecommunication services including mobile telephones, landline telephones and other wire-based services.[8] As there had been

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[3] Sidney H. Aronson, "Bell's Electrical Toy: What's the Use? The Sociology of Early Telephone Usage," in *The Social Impact of the Telephone*, ed. Ithiel de Sola Pool (Cambridge, MA and London, England: MIT-Press, 1977), 28-32; Itihiel de Sola Pool et al., "Foresight and Hindsight: The Case of the Telephone," in ibid., 27-35.

[4] Dietmar Rothermund ed., *Indien. Kultur, Geschichte, Politik, Wirtschaft, Umwelt. Ein Handbuch* (München: Verlag C.H. Beck, 1995), 382, 563.

[5] "Raj": Hindustani for "reign," "realm." British India was also called the "British Raj."

[6] Nivedita Menon and Aditya Nigam, *Power and Contestation. India since 1989* (Halifax and Winnipeg: Fernwood Publishing, 2007), 9.

[7] For an overview of that process *vide* T. H. Chowdary, "Liberalization of Indian Telecom: Regulation in the Era of Convergence," in *IT Experience in India. Bridging the Digital Divide*, ed. Kenneth Keniston and Deepak Kumar (New Delhi: Sage Publications, 2004), 48-70. (For information on infrastructure and services).

[8] *Telecom Regulatory Authority of India Act*, 1997, no. 24 (1997) (*The Gazette of India*) *vide* esp. pt. II, sec.1, c. III. <http://www.trai.gov.in/trai_act3.asp>.

no further legislation since colonial times, the law had to refer back to the Indian Telegraph Act of 1885 and the Indian Wireless Telegraphy Act of 1933 which regulated the state monopoly and had founded the license system.[9] Ultimately, the Indian Telegraph (Amendment) Act of 2003 stipulated that the recommendations of the TRAI were to be implemented.[10] According to these laws, telephone communications as well as wireless telecommunications are dealt with as an appendix to the telegraph system, an enduring legacy of colonial legislation. It also indicates that, in order to understand the still deplorable state of the telephone system in the Indian Union (as elsewhere in the successor states of British India), it is rewarding to look at the beginnings of the telephone here. More generally, it is worth looking at its application in the USA and, in contradistinction, in Great Britain.

2. The US-American Case

Looking back, the story of the telephone, like the one of the telegraph, has largely been told by US-American historians.[11] Like Samuel Morse, Alexander Graham Bell (1847-1922) was christened the inventor of the telephone when he demonstrated the instrument to the public in 1876, despite the fact that in Germany Philipp Reis (1834-74) had actually discovered the principle of acoustic signal transmission, including the invention of a simple and functional apparatus for the transmission of voice, in 1861.[12] Similarly, in the US others, including Elisha Gray (1835-1901) and Thomas Edison (1847-1931), had worked on the same electro-scientific problem.[13] As with the telegraph, the scientific community in Europe and the USA basically shared the same knowledge about the "telephone" and was aware of the challenges and possibilities the telegraph

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[9] *The Indian Telegraph Act, 1885. An Act to Amend the Law Relating to Telegraphs in India.* <http://www.dot.gov.in/Acts/telegraphact.htm>; *The Indian Wireless Telegraphy Act of 1933. Act XVII of 1933.* <http://www.dot.gov.in/Acts/wirelessact.htm>.

[10] *The Indian Telegraph (Amendment) Act, 2003. An Act further to Amend the Indian Telegraph Act 1885.* <http://www.dot.gov.in/Acts/telegraphact.htm>.

[11] The earliest books are by Herbert N. Casson, *The Story of the Telephone.* Chicago: A.C. McClurg & Co. 1910; Frederick L. Rhodes, *Beginnings of Telephony.* (1929; repr., New York: Arno Press, 1974). The latest and certainly most seminal book was written by Claude S. Fischer, *America Calling. A Social History of the Telephone to 1940* (Berkeley: University of California Press, 1992).

[12] A. P. Koppenhofer, *Als Philipp Reis das Telefon erfand* (Horb am Neckar: Geiger Verlag, 1998); Rolf Brenzen, *Das Telephon von Philipp Reis. Eine Apparategeschichte* (Marburg: Brenzen Verlag, 1999).

[13] Even contemporaries of Bell admitted that Philipp Reis was the most important contributor to the solution of the problem regarding the transmission of acoustic signals (in his case of music) over wires. Reis exhibited his "telephone"-apparatus for the first time at the Physische Gesellschaft of Frankfurt/Main on October 26, 1860, cf. Silvanus P. Thomson, *Philipp Reis, Inventor of the Telephone* (London and New York: E. & F. N. Spon, 1883). Thomas Edison, for example, worked on the improvement of Reis' apparatus in 1875.

offered with respect to its development. Yet it has to be admitted that, for various reasons, apart from Philipp Reis nobody in Europe was interested in such an improved technology, and that it was indeed the scientific community in the US which actively pursued the idea of electromagnetic transmission of acoustic signals.

More parallels can be drawn between the early history of the telegraph and that of the telephone. Both included tales of personal rivalry and law suits laying stake to exclusive patent rights.[14] Bell fought more than 600 law cases at various courts showing how international the "fight for patents" was, and indicating the financial potential which the commercialization of such an invention promised. Bell foresaw the potential of the telephone, improved and professionalized his telephone device, founded the National Bell Telephone Company and became a rich man through a powerful undertaking after his company had merged with the New England Telephone Company to turn into the American Telegraph & Telephone Company (AT&T) in 1885.[15] What is remarkable about this narrative is that it tuned in with fundamental values in American society, including those of individual invention, personal effort and private enterprise, characteristics which became very important for the self-understanding and self-definition of US-Americans, the nation and – significant to this study – for its historiography.

Undoubtedly the telephone became part of a national myth that helped to shape the American self-consciousness of being a 'modern' nation. Contemporaries like Arthur Pound, a retired director of AT&T, remarked in his retrospective *The Telephone Idea: Fifty Years Later* that the telephone had been the most important technological device forging the American nation.[16] Even in the 1880s, though, the US-journal *Scientific America* trumpeted:

> Nothing less than a new organization of society – a state of things in which every individual, however secluded, will have at call every other individual in the community, to the saving of no end of the social and business complications, of needless goings to and fro, of disappointments, delays, and a countless host of those great and little evils and annoyances which go so far under present conditions to make life laborious and unsatisfactory.[17]

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[14] The patent law originates with the English "Statute of Monopolies" of 1624. Since then it has been developed in England, and with the beginning of the nineteenth century also in the USA followed by all European countries. *Vide* Peter Kurz, *Weltgeschichte des Erfindungsschutzes. Erfinder und Patente im Spiegel der Zeiten. Zum hundertjährigen Jubiläums des Gesetzes betreffend die Patentanwälte vom 21. Mai 1900* (Köln: Heymann Verlag, 2000).

[15] George P. Oslin, *The Story of Telecommunications* (Macon: Mercer University Press, 1992), 213-14, 228-31.

[16] Arthur Pound, *The Telephone Idea: Fifty Years Later* (New York: Greenberg, 1926).

[17] "The Future of the Telephone," *Scientific American*, January 10, 1880, 16 quoted in Carolyn Marvin, *When Old Technologies Were New. Thinking About Electric Communication in the Late Nineteenth Century* (New York and Oxford: Oxford University Press, 1988), 65.

General Carty, chief engineer of AT&T since 1907, opined that "[s]ome day we will build up a world telephone system making necessary to all people the use of a common language, or a common understanding of languages, which will join all the people of the earth into one brotherhood …"[18] Promoters of the telephone shared the same enthusiasm as the promoters of the telegraph some thirty years earlier. Because of the reluctant introduction of the telephone outside the US, some American authors ridiculed the way in which the rest of the world, including Europe, dealt with the innovation and the sort of old-fashioned prejudices which existed around it. Such prejudices were topped by stories about the "despotic regime" of the Shah of Persia who became the object of much laughter when he introduced the telephone in his country. According to an anecdote the new Shah set up a wire between his palace and the huge market square in Tehran and invited the people to talk to him whenever possible. So they did using the device "freely and in such language" that the monarch had to order out his soldiers to attack the crowds. When he also had fired at the new parliament he was chased out of the country by an enraged population.[19]

Be that as it may, the message of the story is that for Americans, as portrayed by a few texts on telecommunication at the beginning of the twentieth century, nobody outside the United States actually utilized the full potential of the telephone as a means of mass communication. The telephone stood for an instrument which, due to free access and free speech, promoted democracy based on a liberal as well as an equal society. And so the telephone (and the telegraph) became part of the national history's narrative. Indeed, the story of the telephone in the US is impressive and quite exceptional. In 1876, the year of the "invention," 3,000 telephones existed in the US, in 1880 the number was 54,000 and by 1893 it had increased to 266,000. In 1900, approximately 1,356,000 American households were connected by telephones. At the end of the 1920s, on the eve of the Great Depression, roughly 20 million telephones covered approximately 40 per cent of the US-American households.[20]

From a more general sociological point of view it can be observed that, *cum grano salis*, non-Southerners, city-dwellers, the well-to-do and white-collar workers were more likely than others to have telephones, basically for business reasons. For primarily social reasons, another equally important group wanted to have a home telephone, among its members many rural settlers, suburban residents and young people, particularly women. However, despite the widespread introduction of the telephone – at least in comparison to the rest of the

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[18] Quoted in Itihiel de Sola Pool et al., "Foresight and Hindsight: The Case of the Telephone," 128-9.

[19] Casson, *The Story of the Telephone*, 265-6.

[20] Marvin, *When Old Technologies Were New*, 64; Fischer, *America Calling*, 22, 40-4.

world – no dramatic social change took place.[21] Nevertheless, the telephone had a deep impact on the organization of businesses, particularly on the division of the administration, bureaucracy and production centres, the public and the private.[22] Thus the telephone became a distinct marker of the "modern city" and the "urban way of living."[23] In general terms, telephones enabled informal (long) chatting and the maintenance of social contacts as well as the formal (short) conversations for business matters often ending with arrangements. It enabled people to have intimate conversations even across vast distances, conversations that preserved the personality, recognisability and inflection of the ordinary voice.[24]

This was true for the US more or less since the beginning of the introduction of the telephone.[25] Throughout the rest of the world the situation was rather deplorable. The digital divide regarding the telegraph and the number of telegrams sent between Europe and North America on the one hand and to and within the rest of the world on the other was reflected in telephone communication between the US and Europe, as well as the rest of the world.[26] In 1910, about 11,300,000 telephones operated worldwide. Of these 7,6 million telephones (that is more than two thirds) were registered in the USA, followed by Germany with just over a million, Great Britain with roughly 650,000 and France with 233,000 telephones.[27] In sharp contrast to these figures was the number of telephones operating throughout all Asia: a mere 159,000 telephones (that is less than 0.015 per cent) at the eve of World War I.[28] Further facts indicate the widening gap: Between 1920 and 1932 the number of telephones in the USA, as mentioned above, increased from 13,4 million to just above 20

[21] Marvin, *When Old Technologies Were New*, 255, 261, 268. For the diffusion of the telephone among the various social classes and groups ibid., 86-108.

[22] Roland Abler, "The Telephone and the Evolution of the American Metropolitan System," in *The Social Impact of the Telephone*, ed. Ithiel de Sola Pool (Cambridge, MA and London, England: MIT-Press, 1977), 310-12.

[23] Jean Gottmann, "Megalopolis and Antipolis: The Telephone and the Structure of the City," in *The Social Impact of the Telephone*, ed. Ithiel de Sola Pool (Cambridge, MA and London, England: MIT-Press, 1977), 303-17.

[24] Ian Hutchby, *Conversation and Technology. From the Telephone to the Internet* (Cambridge: Polity Press, 2001), 82-5.

[25] Fischer, *America Calling*, passim.

[26] Roland Wenzlhuemer, "The Development of Telegraphy, 1870-1900: A European Perspective on a World History Challenge," *History Compass* 5 (2007): 1-23; *idem*, "The Dematerialization of Telecommunication: Communication Centres and Peripheries in Europe and the World, 1850-1920," *Journal of Global History* 2 (2007): 345-72, table 4. Internal and external telegraphic messages per inhabitants in selected countries, 1870-1900, 360.

[27] The French telephone system was the worst in all Western Europe, cf. Jaques Attali and Yves Stourdze, "The Birth of the Telephone and Economic Crisis: The Slow Death of Monologue in French Society," in *The Social Impact of the Telephone*, ed. Ithiel de Sola Pool (Cambridge, MA and London, England: MIT-Press, 1977), 97-111.

[28] Anton A. Huurdeman, *The Worldwide History of Telecommunications* (Hoboken, NY: John Wiley & Sons, 2003), 230, table 15.1 "Worldwide Telephone Penetration in 1910".

million, while in British India, for example, the number of telephones grew from 22,773 in 1917-18 to 37,067 in 1920-21, and in 1931-32 the number of telephones had risen to 52,730.[29]

Thus, during the first hundred years after its invention, in all countries except the US, the telephone was almost exclusively an urban means of communication. On January 1, 1912, some 220,800 phones existed in London; in Berlin the number was 133,900, and in Paris roughly 84,000, whilst towards the east of Europe the numbers steadily decreased. St. Petersburg had just 39,600 and Warsaw only 25,800. However small these numbers are, comparing them with British India shows how wide the gap was. In Calcutta, between 1890 and 1900 the number of lines increased from 437 to 821, whereas in Madras the number of phones was 1,224 in 1923; In the capital under construction – New Delhi – some 800 phones operated shortly after World War I.[30] Although the first automatic switching system was introduced in the USA in 1892, then in Canada in 1901 and Germany in 1908, it was only in 1923 that Bombay, the *urbs prima in Indis*, introduced such an operator system.[31] This striking asymmetry does not only imply a deep digital divide[32] (which was already observed by US contemporaries[33]) at the turn of the nineteenth century but also deserves some explanation with respect to present-day asymmetries.34

3. British Attitudes towards the Telephone

In Europe, particularly in Great Britain, the telephone was not viewed as an inter-house urban or rurban means of telecommunication but as a device for intra-house communication. As early as 1877 *The Times* declared:

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[29] Ibid., 233, table 15.4 "Telephone Development in the US"; India, *Annual Report on the Posts and Telegraphs of India for the Year 1921-22* (Delhi: Superintendent Government Printing, 1923), 33 [BL: IOR]. The telephone was of such marginal importance, if of any, that statistics in the said reports are sometimes incomplete. The mentioned numbers are the only ones available in an uninterrupted row of years. For 1931-32 *vide* India, *Annual Report on the Indian Posts and Telegraphs Department for the Year 1931-32* (Calcutta: Government of India Central Publication Branch, 1933), 33 [BL: IOR].

[30] Krishnalal Sridharani, *Story of the Indian Telegraphs: A Century of Progress* (New Delhi: Government of India Press, 1953), 100-8 passim.

[31] Huurdeman, *Worldwide History of Telecommunications*, 250.

[32] The term "digital divide" is discussed by Pippa Noris, *Digital Divide. Civic Engagement, Information Poverty, and the Internet Worldwide* (Cambridge: Cambridge University Press, 2001), esp. 3-25. In particular the term denotes the fact that people have different kinds of access to the internet and therefore to information segregating information societies (mostly Western) from the rest of the world.

[33] Casson, *The Story of the Telephone*, 245-61.

[34] Present-day asymmetries indicated by the digital divide have been analyzed by Kenneth Keniston, "Introduction: The Four Digital Divides," in *IT Experience in India. Bridging the Digital Divide*, ed. Kenneth Keniston and Deepak Kumar (New Delhi: Sage Publications, 2004), 11-36.

In America, with long length of single wire, and a fine dry climate, the telephone may perhaps come into use practically. But in England, with most of the telegraph wires already overweighted, it is hardly likely to become more than an electrical toy, or a drawing-room telegraph, or at most a kind of electrical speaking tube.[35]

Two years later, in 1879, the Postmaster General announced that the Post Office had no plans to install the telephone as part of a long-distance telegraph branch. However, given the extant primitive state of telephone development, especially the problems with an amplification over long distances, it would be unjust to blame the Postmaster General for his lack of prescience.[36] The same year, the chief engineer of the British Post Office asserted that the telephone would have no future in Great Britain because it was of no practical use besides being applied, if at all, as a device for internal household communication.

I fancy the descriptions we get of its use in America are little exaggerated, though there are conditions in America which necessitate the use of such instruments more than here. Here we have a superabundance of messengers, errand boys and things of that kind … . The absence of servants has compelled Americans to adopt communication systems for domestic purposes. Few have worked at the telephone much more than I have. I have one in my office, but more for show. If I want to send a message – I use a sounder or employ a boy to take it.[37]

What is striking about this statement is not the ignorance towards the telephone and the assumption that it was at the most a simple appliance for intra-house communication with servants and domestics but that, in the opinion of a British contemporary, the impulse behind the invention of the telephone was the absence of service staff in the United States, which made such a device imperative. Additional statements by British aristocrats underline this attitude towards the telephone as a mere means of domestic communication. The telephone was nothing more than a modern device substituting former mechanical bell-pulls and improving current electrical push-bells to command servants.[38]

Now, when I require my morning coffee, hot water, or what not other little convenience, I must but touch a button, sparking my bedroom wave emitter once, so that I may be almost attended to by one or all of my domestics, from

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[35] *The Times*, August 21, 1877, quoted in Charles R. Perry, "The British Experience 1876-1912: The Impact of the Telephone during the Years of Delay," in *The Social Impact of the Telephone*, ed. Ithiel de Sola Pool (Cambridge, MA and London, England: MIT-Press, 1977), 72.

[36] Ibid., 73.

[37] Quoted in Ithiel de Sola Pool et al., "Foresight and Hindsight: The Case of the Telephone," 128.

[38] Colin Cherry, "The Telephone System: Creator of Mobility and Social Change," in *The Social Impact of the Telephone*, ed. Ithiel de Sola Pool (Cambridge, MA and London, England: MIT-Press, 1977), 118-22.

wherever occupied in or about my premises. … These are my views, as to what it may be possible for the luxuriously situated bachelor to accomplish.[39]

Some writers argued in journals on the new science of electricity that the telephone and other electrical devices would in the long run replace servants. Yet the lament of "job-killing" was only rarely included in the litany of "pros and cons" of electrical devices. Instead it was argued, the telephone would increase the servants' responsibilities as they would have to screen incoming calls hence acting as a buffer between the outsiders and the insiders of a household. Despite some voices of concern which feared the blurring of long established boundaries between the private and the public in Britain, the telephone was generally regarded as a model of privileged communication.[40] Thus, arguments were made that the utility of the telephone could not be preserved without restricting its availability. Keeping British telephone services expensive and exclusive was a political expression of whose communications needs were important to the British government and whose were not. Postmaster General Arnold Morley addressed Parliament in 1895:

> The telephone could not, and never would be an advantage which could be enjoyed by the large mass of the people. He would go further and say if in a town like London or Glasgow the telephone service was so inexpensive, that it could be placed in the houses of the people, it would be absolutely impossible. What was wanting in the telephone service was prompt communication, and if they had a large number of people using instruments they could not get prompt communication, and yet make the telephone service effective.[41]

It was a sentiment that *The Times* echoed in 1902:

> When it is all said and done the telephone is not an affair of the millions. It is a convenience for the well-to-do and a trade appliance for persons who can very well afford to pay for it. For people who use it constantly it is an immense economy, even at the highest rates ever charged by the telephone company. For those who use it merely to save themselves trouble or add to the diversions of life it is a luxury. An overwhelming majority of the population do not use it and are not likely to use it at all, except perhaps to the extent of an occasional message from a public station.[42]

What is startling about all these statements is the fact that the political classes as well as public opinion agreed upon the use and applicability of the telephone. To a large extent government officials as well as the media were responsible for the "technological inertia" which accompanied the introduction

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[39] "Queries and Answers," *Science Siftings* (London), June 11, 1898 quoted in Marvin, *When Old Technologies Were New*, 82.

[40] Marvin, *When Old Technologies Were New*, 68-9, 76.

[41] *Lightning* (London), June 27, 1895, 447 quoting the *Daily Chronicle*, March 2, 1895, quoted in ibid., 101.

[42] *The Times*, January 14, 1902, 7 cited in Perry, "The British Experience 1876-1912," 75.

of the telephone as was the case with most technological inventions.[43] Yet in Britain it seemed that this initial inertia was perpetuated, hindering the development of telephone communications. Additionally, as long as a telegram was cheaper than a telephone call, telegrams would remain the major form of long-distance communication. Aristocratic-bourgeois attitudes as well as a desire for political control went hand in hand, meaning that in Great Britain, like in continental Europe, the telephone was an urban means of communication limited to the upper classes of society for a long time. The slow growth in the number of telephones in Great Britain where numbers rose from 45,000 in 1890 to 818,000 in 1915 marks a ratio of 1:1.85. London accounted for more than a third of the telephones in the whole of Britain underlining the politics of telephone communication touched upon above.[44]

Numbers regarding the development of the telephone are reflected by its historiography. Typically, history-writing on the telephone in Britain is, in comparison to that on the telegraph, rather poor; even when the telephone is mentioned, it is lumped together with the telegraph and the wireless to indicate the general growth of communications. As a separate and important means of communication the telephone has never attracted attention. It is against this background that one has to approach the history of the telephone in British India. There attitudes towards the telephone met the political necessities of the colonial regime, therefore deeply influencing the development of the telephone system in South Asia.

4. The Telephone System of British India

Apart from three short chapters in Shridharani's early book on telegraphy there is no historiography on the development of the telephone system in British India. Similar to the historiography on the telephone in Great Britain, the history of the telephone in British India is also combined with that of the telegraph and the wireless to indicate "a century of progress" as the subtitle of Shridharani's book denotes.[45] Furthermore, the introduction of the telephone is described simply as a part of urban history. The slow growth of the British Raj's telephone system, it is argued, was due to the fact that India largely consisted of villages. Even in post-colonial times the internalized "Orientalist" and therefore colonial notion of India as a land of villages became an excuse for the

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[43] Joel Mokyr, "Technological Inertia in Economic History," *Journal of Economic History* 52, no. 2 (1992): 325-38.
[44] Perry, "The British Experience 1876-1912," 76, 82.
[45] Sridharani, *Story of the Indian Telegraphs*, 85-108.

country's backwardness with respect to the telephone.[46] Seemingly, past developments were not to be changed and, ironically, they were not changed until the end of the 1980s. A closer scrutiny of the spread of the telephone in British India reveals that it was the requirements of the colonial regime for control, rather than the needs of Indian villages, that determined the development of the new communication system.

The telephone was introduced in British India in 1881, after some pressure from the Bengal Chamber of Commerce.[47] As with the telegraph, the government was the sole owner of the telephone, which came under the Telegraph Department. Following a government decision to allow the limited participation of the private sector in the telephone business licences were granted to the recently founded Oriental Telephone Company to establish telephone exchanges in Calcutta, Madras, Bombay and Rangun. A few other local (urban) companies operated telephone networks in major cities, including Karachi and Ahmedabad. In October 1883 the Government of India passed a resolution which delineated the state's monopoly of the telephone system. Accordingly it states:

> The construction, maintenance, and working of all exchanges for, and the lines between, Government offices will be in all cases undertaken by the Government Telegraph Department. When connections are desired between towns, each possessing a license exchange, the trunk line of communication will, in all cases, be erected, maintained, and owned by the Government Telegraph Department, and let to the Company at an annual rental. But it must be understood that no Company has the right to *claim* the erection of a trunk line, and that the State is free to approve or decline any individual case. ...

> The Government of India have expressly laid down that they will not give to any company a monopoly for Telephone Exchanges. They reserve to themselves full power to erect one for themselves anywhere for the public in any place for which no licence has been granted to no more than one Company due to application.[48]

The regulation of state monopoly and the license system remained in operation until 1943 when the Government of India decided to "nationalize" the telephone system. Telephones and telephone lines were, from an administrative point of view, seen as an appendix to the existing telegraph lines. In practice, as early as 1884 the telephone was combined with the telegram service in the major cities of British India. A small but steadily increasing number of tele-

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46 Ibid., 100-08. For the "Orientalist" perception of India and its villages *vide* Ronald Inden, *Imagining India* (Cambridge, MA and Oxford, England: Blackwell Publishers, 1992), 131-61.
47 Sridharani, *Story of the Indian Telegraphs*, 88.
48 Resolution by the Government of India, no. 303 T., dated October 25, 1883, in India, *Administrative Report of the Indian Telegraph Department for 1883-84* (Calcutta: Government Printing, India 1884), 23-4 [BL: IOR].

grams was received and sent via telephones. Within a decade the number of such telegrams in Bombay and Calcutta amounted to roughly 55,000.[49] Considering the total number of 3.5 million telegrams in 1885-6, the number of telephone-telegrams (that is, telegram orders given by telephone calls to the telegraph office) in British India is fairly negligible, once again indicating the supportive rather than independent status of the improved technology.[50]

From a statistical perspective, the telephone network grew extremely slowly but, nevertheless, steadily. Between 1882 and 1924 the number of departmental telephones, that is state owned telephones, rose from 56 to 12,007 whereas the sum of telephones belonging to private (licensed) companies in Calcutta, Madras, Bombay, Karachi, Rangun, Ahmedabad and Mulmein increased from 244 to 25,222 during the same period.[51] In the following decade the number of all telephones added up to almost 55,000.[52] Significantly, the ratio between private (licensed) and public (governmental) telephones remained nearly the same in this period. However, there is a lacuna in the statistical material. Though the amount of telephones for each year is available,[53] the increasing mileages of telephone lines are hardly ever given, in contrast to those of telegraph lines, which are meticulously listed.[54] For example, the report of 1931-32 summarily notes that telephone trunk lines connect the major towns in Upper India, but it also mentions that until the end of 1932 British India did not have any telephone lines connecting the subcontinent with the rest of the world. Preliminary steps were being taken by the Indian Wireless Radio Company to establish a wireless telephone connection between India and the United Kingdom.[55]

The overall lack of interest in the telephone is indicated by sporadic, yet rather curious, entries in the records. The Annual Report of 1905-06 regretted having to omit the pages of the telephone statistics since there were only a

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[49] Sridharani, *Story of the Indian Telegraphs*, 92.

[50] India, *Annual Report on the Indian Posts and Telegraphs Department for the Year 1932-33* (Calcutta: Government of India Central Publication Branch 1934), appendix XIV, Growth of Telegraph Department and Its Operations from 1854-55 to 1932-33, 84-7 [BL: IOR].

[51] India, Annual *Report on the Posts and Telegraphs of India for the Year 1923-24* (Delhi: Government of India Press, 1924), appendix XV(a), Growth of Departmental Telephones from 1882 to 1923-24, 88-9 and appendix XV(b), Growth of Telephones under Licensed Companies at Calcutta, Madras, Bombay, Ahmedabad, Karachi, Rangoon, and Moulmein, from 1882 to 1923-24, ibid., 90-1 [BL: IOL].

[52] India, *Annual Report on the Indian Posts and Telegraphs Department for the Year 1932-33* (New Delhi: Printed by the Manager, Government of India Press, 1934), 22 [BL: IOR].

[53] Cf. volumes of the India, *Annual Report on the Indian Posts and Telegraphs Department* and India, *Administration Report of the Indian Telegraph Department*, respectively, for the years 1881-82 until 1932-33, passim.

[54] India, *Annual Report on the Indian Posts and Telegraphs Department for the Year 1920-21* (Delhi: Superintendent Government Printing, 1922), 48 [BL: IOR].

[55] India, *Annual Report on the Indian Posts and Telegraphs Department for the Year 1931-32* (Delhi: Printed by the Manager, Government of India Press, 1933), 24 [BL: IOR].

limited number of pages available in the volume.[56] As early as 1886 officials from the Telegraph Department admitted that "these results, [that is, the increase in telephones] are to a certain extent disappointing."[57] Generally the business was small and only undertaken for government offices.[58] As late as 1920 the Department lamented the difficulties encountered in getting apparatus, cable and equipment from England.[59] To point out the deplorable state of the telephone network, the report of 1921-22 listed the ratios of telephones per inhabitant of some 'Western' countries in comparison to the one of British India. According to this data, the ratio was 1:8 in the US, in Canada it was 1:10, in the United Kingdom (hardly surprising) 1:47, and in British India 1:8,455.[60] In fact, the development of automatic long distance dialling was retrogressive as the facilities established between Lyallpur and Lahore in the Punjab in 1923 had to be abandoned due to the paucity of long distance circuits.[61]

That the political and commercial urban elites of British India did make use of the telephone is demonstrated by this fact: As soon as the direct telephone trunk line connected Calcutta with Bombay at the beginning of the 1930s, the average number of monthly calls increased to 1,250 as against 180 calls at the time traffic passing via Lucknow and Delhi.[62] With the rise of the British, Delhi, the former seat of the Mughal Empire had declined to the status of a mediocre North Indian provincial town, especially after the Revolt of 1857, which the British ruthlessly suppressed. It became the capital of British India in 1912 when the colonial government decided to shift the political center from Calcutta to the newly built city of New Delhi. There the British viewed the telephone as an indispensible part of a modern metropolis. As recent literature has shown, New Delhi was even seen as a model town with respect to hygiene, sanitation and environmental concerns in an otherwise filthy, unhealthy and dangerous Indian environment.[63] The telephone played a crucial part in the ideology of this model town.

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[56] India, *Administration Report of the Indian Telegraph Department for 1905-06* (Simla: Government Central Printing Office, 1906), 1 [BL: IOR].

[57] India, *Administration Report of the Indian Telegraph Department for 1886-87* (Calcutta: Government Printing, India 1887), 24 [BL: IOR].

[58] India, *Administration Report of the Indian Telegraph Department for 1884-85* (Calcutta: Government Printing, India 1885, 19) [BL: IOR].

[59] India, *Annual Report on the Indian Posts and Telegraphs Department for the Year 1920-21*, 47.

[60] Ibid., 31.

[61] Sridharani, *Story of the Indian Telegraphs*, 97.

[62] India, *Annual Report on the Posts and Telegraphs of India for the Year 1932-33* (New Delhi: Printed by the Manager Government of India Press, 1934), 21.

[63] Michael Mann, "Delhi's Belly: The Management of Water, Sewerage and Excreta in a Changing Urban Environment during the Nineteenth Century," *Studies in History*, n.s. 23,

While New Delhi was being built, the 1923 Report on telegraphs remarked that the year had witnessed an extensive expansion of the telephone system. This was supported by two automatic exchanges, and recently laid trunk lines connecting New Delhi with other big North Indian cities had expanded by roughly 800 miles.[64] The report, in any case, demanded that attention be given to the telephone system of New Delhi – implying that other British Indian cities had to be neglected accordingly.[65] Three years ago the Annual Departmental Report had bemoaned the difficulties obtaining telephone material. This report also stated that in New Delhi "a new 400 line central battery switch board was installed in place of the 200 line non-multiple board formerly in use."[66] Apparently, the latest and most modern equipment was available in India, too, though to a very limited amount and at a very restricted rate. Between 1913, the year after the capital was shifted to Delhi, and 1947, the year the British left India, the number of telephones in the capital increased from a mere 800 to roughly 7,000.[67] This number represented the densest urban telephone network in all South Asia.

It is also highly interesting to have a closer look at inter-urban telephone connections. Since 1923 annual reports included a map showing the growth of telephone trunk lines. Comparing the maps of 1923 and 1932, several "developments" become visible.[68] One can hardly speak of a telephone trunk line network at the beginning of the 1920s but only of trunk lines simply connecting major cities within British India. Like the first telegraph lines the telephone lines reflected the established information routes of the Mughal Empire running from Bengal up-country via Lucknow and Delhi towards Peshawar and beyond. From Delhi a trunk line ran via Ahmedabad and Surat to Bombay and from there cross-country towards Madras. This line terminated at Sholapur in the middle of the Dekhan, the South Indian plateau. It shapes the "Z" as did the early telegraph line system. Apart from this parallel pattern, the construction of telephone lines – in contrast to the telegraph network – was concentrated in North India and especially in the Punjab as well as in the North West Frontier Province (NWFP), the present-day border between Pakistan and Afghanistan.

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no. 1 (2007): 1-31; Michael Mann and Samiksha Sehrawat, "A City with a View: The Afforestation of the Delhi Ridge, 1883-1913," *Modern Asian Studies* 43, no. 2 (2009): 543-70.

[64] India, *Annual Report on the Posts and Telegraphs of India for the Year 1923-24*, 28.

[65] India, *Annual Report on the Indian Posts and Telegraphs Department for the Year 1925-26* (Calcutta: Government of India Central Publication Branch, 1927), 33 [BL: IOR].

[66] India, *Annual Report on the Indian Posts and Telegraphs Department for the Year 1920-21*, 47.

[67] Anthony D. King, *Colonial Urban Development. Culture, Social Power and Environment* (London: Routledge and Kegan Paul Ltd, 1976), 237.

[68] The maps have been redrawn from the original in India, *Annual Report on the Posts and Telegraphs of India for the Year 1922-23* (Delhi: Government Central Press 1924) [BL: IOR], between 26 and 27, and from India, *Annual Report Posts and Telegraphs for the Year 1932-33*, between 28 and 29.

The map of 1932-33 stresses the latter pattern. The densest telephone trunk line network can be found beyond Delhi, towards the Punjab and along Waziristan (in the NWFP). Meanwhile the trunk line connecting Calcutta with Bombay via the industrial centre of Jamshedpur and the central Indian city of Nagpur had been built as had the line to Madras. Towards the east, in Lower and Upper Burma, which until 1936-7 were provinces of British India, the number of urban telephone networks increased significantly. However, there were hardly any inter-city connections and there was none to the rest of British India. The telephone remained an isolated urban phenomenon. Three major patterns of construction are salient. First, the network comprised all major North Indian cities which were also major military cantonments. The density of cantonments increased towards the northern and western frontier, apparently reflecting the constant preoccupation of the British with the rather non-existent Russian threat from the north, termed "The Great Game" by Rudyard Kipling.[69] Moreover, the telephone trunk lines connecting the cantonments with the new capital at Delhi mirrored the perceived threat from the northeast. Thus, it was for reasons of security and control that the telephone trunk lines expanded that far and concentrated in the northwestern region of the Indian subcontinent.

Second, the major industrial towns and commercial cities were included in the network: not only the British Indian metropolises of Calcutta, Madras, Bombay and Karachi, but also Ahmadabad, Jamshedpur and Kanpur (which was also a major cantonment). Third, there was a deep 'digital divide' between North and South India demarcated by the Calcutta-Bombay trunk line and concentrated in the Indus-Ganges plains. There were hardly any urban, let alone inter-urban, telephone networks south of the said line. The situation was worse than that of the Burmese provinces where more urban networks existed. Finally, it is also significant for the British Indian telephone system that in 1923 no public call facilities existed at all. By 1932 there were seven situated in towns like Palej, north of Bombay, Kathgodam close to Nanital in the Himalayas, and in three small towns in the Arakan and Tenasserim mountains of Lower Burma. There is no explanation given as to why the only public call facilities were installed in the middle of nowhere.

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[69] It is interesting to note that the telegraph and telephone network in the Central Asian provinces of the Russian Empire reflected the same pattern on the northern side of the Himalaya, that is, one of the densest within the empire. Personal communication with Irena Vladimirsky, coordinator of the Jewish Studies Program at the Achva College of Education, Israel.

Telephone Map of India 1923-24
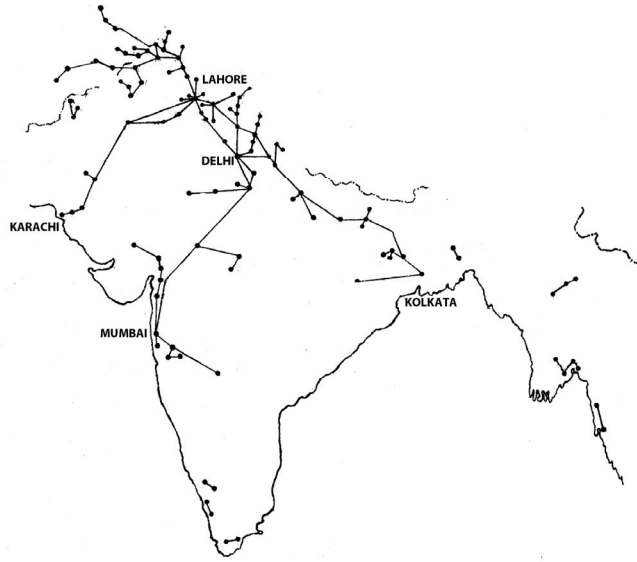
Telephone Map of India 1932-33
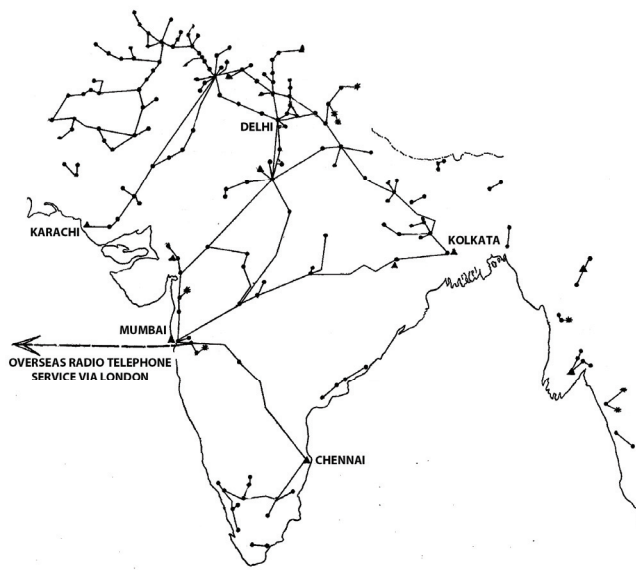
5. Conclusion

What does this rather sketchy and patchwork-like story, which one can hardly call a history of the telephone in British India, leave us with? In the first place, it tells us that in sharp contradistinction to the US, the telephone was not regarded as a means of mass communication which, on the long run, did have some influence on the social behaviour of its users. Taking, in the second place, into account British attitudes towards the telephone in the United Kingdom, two features are discernible in the colonial context. Initially, the British regarded the telephone in British India, as they did in Britain, as a means of intra-house communication. The Delhi Coronation Durbar of 1902, a grand event to commemorate the enthronement of Edward VII as Emperor of British India and King of England and Scotland, sheds some light on the colonial attitude. For the durbar, a huge temporary tent city was erected on the northern outskirts of Delhi.[70] Lord Nathaniel Curzon (1859-1925), the then Viceroy and an ardent promoter of modern technologies, had a tramway built to the durbar site and a telephone network established connecting the assembled British guests of honorary and Indian dignitaries as well as the press.[71] The telephone, it seems, was a means to internally communicate with the major representatives of the British Indian Empire as subordinates of the Viceroy. The only exception was the press who were apparently meant to communicate the splendour of the event to the outside world.

A second incident underlines this observation. In 1922-23 an internal report of the Post and Telegraph Department stated:

> The policy of certain Departments of the Government of India and some local Governments in reducing the number of telephones supplied to their staff is a most unwise one. The usefulness of a telephone system increases enormously in proportion to the increase of subscribers and it is only when all the persons, with whom anyone wants to communicate, are on the telephone that a really substantial saving in postage and the wages of messengers can be affected.[72]

The comment refers to an ongoing debate in favour of the telephone against the *chaprasi* or messenger, with the former seen merely as a substitute for the latter, an expensive (domestic) employee. One is reminded of the same debate which took place in Britain a decade earlier. Like the British in Great Britain, British officials in India saw the telephone as a device of household communi-

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[70] For a detailed account of the Delhi Coronation Darbar *vide* Michael Mann, "Pomp and Circumstance in Delhi, 1876-1937 oder: Die hohle Krone des British *Raj*," in *Symbolische Macht und inszenierte Staatlichkeit. 'Verfassungskultur' als Element der Verfassungsgeschichte*, ed. Peter Brandt, Arthur Schlegelmilch and Reinhard Wendt (Bonn: Dietz Verlag, 2005), 112-21.

[71] India, *Administration Report of the Telegraph Department for the Years 1902-03* (Simla: Government Central Press, 1903),4 [IOR].

[72] Cited in Sridharani, *Story of the Indian Telegraphs*, 96. No reference given.

cation. Taking into account the way in which the new capital at Delhi was equipped, namely with the latest technology, particularly the telephone, it seems that New Delhi was regarded as a huge household. Telephonic communication was to command the British as well as the Indian officials, that is, the domestics of the imperial administration. And finally, to expand the metaphor, British India resembled a large estate, the telephone connecting the guards and watchmen, that is, the soldiers in the cantonments, to the aristocrat in the manor house. The Viceroy and Governor General, often an English aristocrat, in any case a representative of the conservative-bourgeois elite of England, resided at the pompous Government House in New Delhi.[73] It was the British attitude towards the telephone and the colonial context which deepened the digital divide between Europe and South Asia and which created a technically more developed north against an – at least in this respect – underdeveloped south of India.

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[73] Compare Michael Mann and Samiksha Sehrawat, "A City with a View: The Afforestation of the Delhi Ridge, 1883-1913," 543-70.

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