The Sultan's Messenger: Cultural Constructions of Ottoman Telegraphy, 1847-1880
Author(s): Yakup Bektas
Source: *Technology and Culture*, Vol. 41, No. 4 (Oct., 2000), pp. 669-696
Published by: Johns Hopkins University Press and the Society for the History of Technology
Stable URL: http://www.jstor.org/stable/25147593
Accessed: 15-10-2015 07:16 UTC

The Sultan's Messenger

Cultural Constructions of Ottoman Telegraphy, 1847–1880

YAKUP BEKTAS

The railway and telegraph are not only of incalculable value as political instruments, but they are the pioneers of enlightenment and advancement: it is theirs to span the gulf which separates barbarism from civilization; and this is an enviable lot, by whose exertions, the arts and industry, the capital and enterprise, the knowledge of humanity of Western Europe shall be familiarized and brought home to the dwellers in the East.

—William P. Andrew

There's every reason to believe that the simple statement, that the Electric Telegraph was used to convey the messages of the Sultan, would protect it from all accidents.

—William Ainsworth to W. P. Andrew

In 1877 the Ottoman Empire possessed the world's eighth largest telegraph network, extending over more than seventeen thousand miles.[1] The empire, spanning parts of three continents, its cities and provinces separated by deserts, mountains, seas, and rivers, discovered in the telegraph an ideal system of communication and union. No other technology in the nineteenth

Dr. Bektas is a postdoctoral research fellow at the Smithsonian Institution. He thanks Roger Sherman, Bernard Finn, Ben Marsden, and the editors of *Technology and Culture* for their help and suggestions, and Crosbie Smith for his help during the initial research for this paper. This article benefited from the comments of two anonymous referees and Steve Lubar, and, in an earlier version, from those of John Agar and Tadaaki Kimoto. The author gratefully acknowledges the financial support of the Japan Society for the Promotion of Science and Smithsonian Institution postdoctoral research fellowships, and the generous assistance of the librarians and archivists at, in particular, the Public Record Office in London, Başbakanlık Osmanlı Arşivi in Istanbul, the Smithsonian Institution in Washington, D.C., and PTT Müzesi in Ankara. He also thanks Walter Adams and Lydia Wallick for their help with maps.

0040-165X/00/4104-0002$8.00

1. W. P. Andrew, *Memoir on the Euphrates Valley Route to India* (London, 1857), 161–62; W. Ainsworth to W. P. Andrew, 13 August 1856, Public Record Office (PRO),

OCTOBER
2000
VOL. 41

century inspired the Ottoman world as deeply and widely. Its effects extended from diplomacy and foreign relations to legislation and even architecture. The mysterious sight of its poles and wires excited wonder and suspicion in the lay Ottoman. Peasants and nomads had never before experienced anything like the wires that passed through their villages and by their tents in the highland wilderness, then wound off through the mountains to the sultan's palace. In the mostly barren landscape they stood as tangible monuments of new spatial and intellectual frontiers, and provided, as in the West, a vast apparatus of social and cultural experimentation.

Above all, the telegraph came to symbolize the sultan's authority and geographic reach, a socially constructed symbolic linkage that was skillfully exploited by the British promoters who marketed it as an imperial design associated with the sultan. Later the telegraph did indeed become the sultan's telltale and secret messenger, and for many Ottomans it was an innovation that kept their empire united. Yet for those skeptical of the Christian-Western world, it was an infidel, satanic invention. This idea arose in part because the telegraph entailed a spatial framework that contrasted with the traditional view of geographical space and distance.[2]

This article will consider the Istanbul-Fao overland line, which traversed the full length of the Ottoman dominions in Asia (some 1,800 miles) to unite Britain with India. "Empire" has been a common theme in studies of British telegraphy, but in this case the telegraph served two empires, British and Ottoman, with only partially consistent aims.[3] For the British it acted not only to unite their empire but to enhance their political and commercial interests in the East. The Ottomans, on the other hand, exploited the advantages of electric communication to consolidate the control of their own empire.

London, FO78-1420, 1856–1858, European and Indian Junction Telegraph, vol. 1 (hereafter TEL1). I use the following additional abbreviations in the footnotes: EAST.TEL for PRO, FO97-414, 1854–1856, Telegraph: Service in the East—Crimea, Varna, Bucharest, Sulmanie; TEL2 for PRO, FO78-1634, 1860–1861 European and Indian Junction Telegraph, vol. 2; TEL3 for PRO, FO78-1900, 1862–1865 European and Indian Junction Telegraph, vol. 3. In 1877, the world's telegraph systems were ranked as follows: United States, 79,000 miles; Great Britain, 75,000; Russia, 31,459; France, 28,784; Austria, 28,148; Germany, 19,152; Australia, 18,448; Turkey, 17,618; India, 15,705; Canada, 13,995; Italy, 12,622. *Telegraphic Journal and Electrical Review* 5 (15 October 1877), 246–47.

2. Although the wires and poles required regular maintenance, the electric telegraph greatly reduced the constraints imposed by geographical distance on communication and separated communication from transportation. On the relationship between space and the telegraph, see J. W. Carey, *Communication as Culture: Essays on Media and Society* (Boston, 1988), 201–29.

3. D. R. Headrick, *The Tools of Empire: Technology and European Imperialism in the Nineteenth Century* (Oxford, 1981), and *The Invisible Weapon: Telecommunication and International Politics, 1851–1945* (New York, 1991), 19–21; Bruce J. Hunt, "Doing Science in a Global Empire: Cable Telegraphy and Electrical Physics in Victorian Britain," in *Victorian Science in Context*, ed. B. Lightman (Chicago, 1997), 312–33, and "Insulation for an Empire: Gutta-Percha and Development of Electrical Measurement in Victorian Britain," in *Semaphores to Short Waves*, ed. F. A. J. L. James (London, 1998), 85–104.

In the West, the electric telegraph and the railways generally expanded together, whereas the development of the telegraph in the Ottoman Empire, as in Japan and China, was independent of the railway service.[4] The telegraph lines reached towns and villages where railways were unheard of. Transcending local and national boundaries, the telegraph brought distant regions within the reach of the central government. The extension of the system, therefore, involved problems ranging from political and national differences, such as boundary disputes, to the cultural representation of the telegraph and the visual impact of its wires, poles and stations. Wires and poles were vulnerable to human interruption and abuse, and a favorable attitude among local populations was vital to the security of the lines. An examination of problems raised by the Ottoman telegraph, and of the responses they elicited, provides insight into the interaction of a radically new technology and its host culture.

The Sultan's Telltale

The first attempt to present the electric telegraph to the Ottoman court came when the technology was still in its infancy. In 1839, Mellen Chamberlain, Samuel F. B. Morse's agent in the East, visited Istanbul (Constantinople) to demonstrate the newly invented apparatus with the hope of obtaining a concession from the sultan. Unable to get the crude instruments to produce good results, Chamberlain set off for Vienna to have them improved. But he drowned when his steamer capsized in the Danube.[5]

The next attempt came in 1847, when John Lawrence Smith, who was on a United States scientific mission to Sultan Abdul Mejid, displayed the Morse system to him.[6] Smith set up a short line between the main entrance and a reception room of the Beglerbey, the sultan's favorite summer palace

4. In Britain and the United States the electric telegraph began as a system for regulating railway operations and generally followed the railway lines, with some exceptions. On the simultaneous expansion of railways and telegraphy, see J. Kieve, *The Electric Telegraph: A Social and Economic History* (Newton Abbot, 1973), 29–39; Iwan R. Morus, "The Electric Ariel: Telegraphy and Commercial Culture in Early Victorian England," *Victorian Studies* 39 (1996): 339–78.

5. Samuel F. B. Morse to Chamberlain, Paris, 22 February 1839, Morse Papers, Library of Congress; *S. F. B. Morse: His Letters and Journals*, ed. E. L. Morse (New York, 1973), 2:148–9; Cyrus Hamlin, *Among the Turks* (New York, 1878), 185–87.

6. Irade Dahiliye (internal affairs, hereafter I.D.) 7919, 11 August 1847, Basbakanlık Osmanlı Arşivi, Istanbul (hereafter Ottoman Archives); John Porter Brown, "An Exhibition of Professor Morse's Magnetic Telegraph before the Sultan," *Journal of the American Oriental Society* 1 (1849): liv–lvii; Hamlin, 185–86; A. Tanrıkut, *Türkiye Posta ve Telgraf Teşkilat ve Mevzuatı* (Ankara, 1984), 536; Nesimi Yazıcı, "Osmanlı Devleti'nde Posta Teşkilatı" (Ph.D. diss., Ankara Ilahiyat Fakültesi, 1981), 350–53. For a detailed account of the electromagnetic telegraph at the sultan's palace, see Y. Bektas, "Displaying the American Genius: The Electromagnetic Telegraph in the Wider World," *British Journal for the History of Science* (forthcoming).

OCTOBER
2000
VOL. 41

on the Bosporus, and made a grand show of demonstrating the telegraph to the sultan. The sultan was so impressed that he had the demonstration repeated with full ceremony before the officials of his government the next day. Delighted by the invention, he awarded Morse a diamond-studded decoration and a *berât*, an official acknowledgement and recognition of excellence. Morse later praised the sultan as the first head of state to appreciate the real value of his invention.[7]

The sultan's enthusiasm was later to provide strong rhetorical support for the promoters of telegraphy. However, it was not until the Crimean War that the first line was built. Cyrus Hamlin, then a missionary, later the president of Robert College in Istanbul, observed that the pashas had united against its establishment: "They wanted no such tell-tale to report their doings everyday, while in the distant interior."[8] Even during the trial at the palace the wire had been found mysteriously cut, possibly by a pasha who wished it to fail. Indeed, the introduction of the telegraph was not in the best interest of the pashas, who often ruled arbitrarily in the distant provinces of the vast empire.[9] With the telegraph, the sultan's orders could now be quickly conveyed to the governors and officials, who could be summoned to Istanbul or be replaced without warning. Furthermore, public complaints and petitions about pashas and other matters could be communicated to the sultan directly.

The telegraph, like railways and other industrial enterprises, found an open door to the Ottoman Empire during the Crimean War (1853–56). Begun as an Ottoman-Russian war over the latter's territorial claims, it drew Britain and France to side with the sultan to prevent Russian expansion into the Mediterranean. The alliance initiated an Ottoman rapprochement with Christian Europe and its innovations, such as railways and

7. Şefik Bey (first secretary to the sultan) to Morse, 9 December 1847; J. L. Smith to D. S. Carr (U.S. minister resident to the Ottoman Empire), 31 January 1848; and Carr to Morse, Istanbul, 23 October 1848, Diplomatic Correspondence, RG 84, United States National Archives, Washington, D.C. Morse was always proud to acknowledge the sultan's distinction. See Morse to Haidar Effendi (Ottoman chargé d'affaires in Paris), Irade Hariciye (external affairs, hereafter I.H.) 8587, Paris, 15 September 1858, Ottoman Archives; Morse to Hamlin, New York, 15 May 1863, Robert College Heritage Collections, Istanbul; Morse, *Letters and Journals*, 2:297–99.

8. Hamlin, 185–95. "Pasha," "Bey," and "Effendi" are titles of respect and often of official or professional rank. A pasha is a high-ranking Ottoman official or governor. "Bey" is generally a title of courtesy, similar to "mister" or "gentleman," but also a lower military rank. "Effendi" refers to a man of education. The Ottomans did not use surnames; personal name and title sufficed.

9. Similar reactions came from Japanese daimyos, who even managed to keep some parts of western Japan out of the telegraphic network until their great rebellion in Satsuma in 1877 was suppressed. The internal reaction of Chinese officials delayed the introduction of the system there. On Japan, see Zenshichi Takahashi, *Oyatoigaigokujin, tsûshin* (Tokyo, 1969); on China, see Erik Baark, *Lightning Wires: The Telegraph and China's Technological Modernization, 1860–1890* (Westport, Conn., 1997), 69–70.

telegraphs. Furthermore, in the military sphere, at least, the traditional Ottoman opposition to such innovations, often based on religious grounds, was largely muted, since religious law held that innovations useful to winning a war were justifiable.[10]

The Crimean Telegraph

At the beginning of the war, the fastest message from the Crimea could reach London in five days: two days from the Crimea to Varna by steamer, and three further days on horseback from there to Bucharest, the nearest point that had been connected to the European telegraph network through the Austrian lines. Shortly after joining the Ottoman armies against Russia in the Crimea, Britain and France undertook to connect by electric telegraphy the headquarters of the allied armies with their governments in Paris, London, and Istanbul (fig. 1).[11] After a convention was signed in February 1855, France built a line between Bucharest and Varna, while Britain undertook to lay submarine lines between Varna and Balaklava in the Crimea, the base of the British army, and Varna and Istanbul, with all the stations under their control and management.[12]

The British government contracted with Newall and Company for the task. The steamer *Black Sea* arrived in the Crimea in early February 1855, with 400 miles of cable on board and a staff numbering about sixty men. Charles Liddell, an experienced civil engineer who had laid cables in the Mediterranean and other seas, directed the laying of the Varna-Crimea cable, with Major Michael Biddulph of the Royal Artillery superintending the scheme on behalf of the British government.[13] By late April 1855,

10. Bernard Lewis, *The Muslim Discovery of Europe* (London, 1982), 221–38.

11. "Memorandum: Conversation with Frederic Cadogan respecting his proposal to carry out telegraphic communication between the Crimea and London, 4 December 1854," Earl Clarendon, 9 December 1854; Cadogan to Edmond Hammond, 13 and 22 December 1854; and Cadogan to Hammond, 2 January 1855, EAST.TEL.

12. "Convention between Her Majesty and the Emperor of the French, relative to the Establishment of a Line of Electric Telegraph between Bucharest and Varna. Signed at London, 1 February 1855 (Ratification exchanged at London, 28 February 1855)"; "Regulations for the Use of the Crimean Telegraph," 28 February 1855, EAST.TEL.

13. Balaklava, a small village southeast of Sevastopol, was the British supply harbor and headquarters of the allied armies in the Crimea. Its telegraphic link with Varna was a significant military advantage for the allied armies; *Times* (London), 22 January 1855 (leading article on the Black Sea telegraph). In addition to the disturbing influence of the strong return current, great difficulties were encountered at first in adapting the instruments furnished by Newall and Co. to the cable. See M. A. Biddulph, *Report to the War Department on the Telegraphic Communication from Constantinople through Vienna to England, and Generally on the Submarine Telegraph Service in the East* (London, 1856), 1–26. Indeed, the cable was laid with very little slack and did not survive for very long. See Charles Bright, *Submarine Telegraphs* (London, 1898), 21.

OCTOBER
2000
VOL. 41

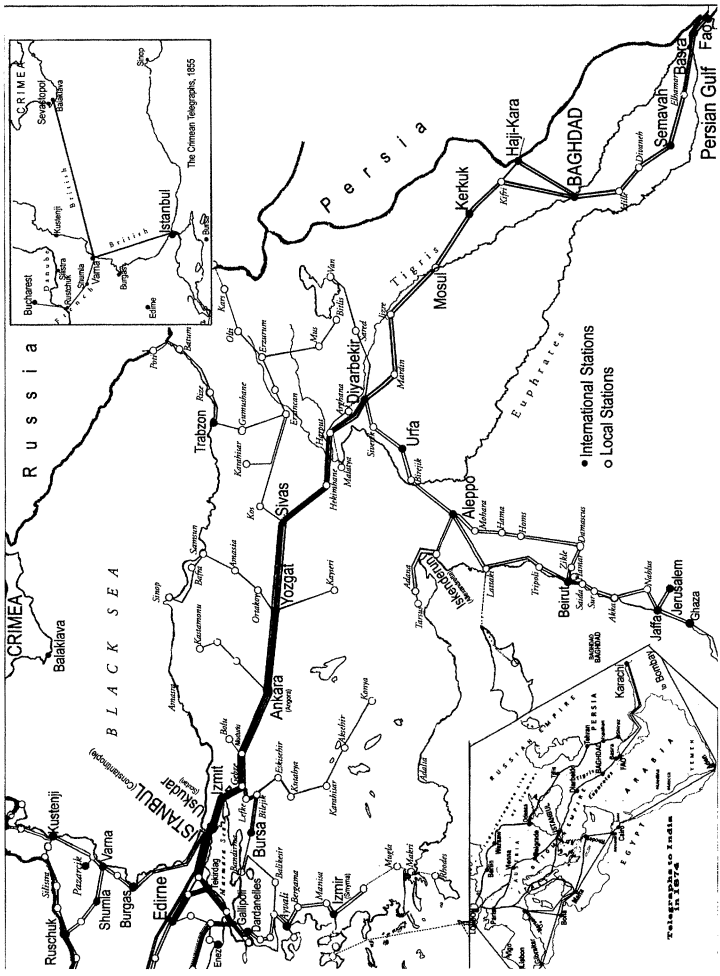

FIG. 1 The Ottoman part of the Indo-European telegraph and major Ottoman lines in the Asian part of the empire in 1868. Based on an original map by the Ottoman Telegraph Department in I.H. 13687, 1868, Başbakanlık Osmanlı Arşivi, Istanbul. The inset map in the upper right corner shows the Crimean Telegraphs in 1855. The submarine lines were temporary and went out of service shortly after the war. The inset map in the lower left corner shows the operational telegraph lines to India in 1874. (Map by the author; inset at lower left based on a map in F. J. Goldsmid, *Telegraph and Travel* [London, 1874].).

Balaklava was in communication with Varna. Messages in cipher were received there and transmitted via the new French line to Bucharest and thence to Paris and London. The whole operation took about five hours at that time, including at least two hours for carrying messages across the Danube by boat, because the cable under the river had not yet been laid.[14]

The cable connecting the Crimean peninsula with Varna was at the time the longest (340 miles) continuous submarine cable operating between two points. The line used Morse's system of instruments, with some modifications by Carl Frischen of Hannover that allowed the messages to be sent along the single wire from both ends simultaneously. Three months later the British government contracted with Newall and Company for another submarine line from Varna to Istanbul, a length of 150 miles, to complete the telegraphic circuit to the seat of the Ottoman government. By early October, Istanbul was in telegraphic communication with Europe via Varna and Bucharest (fig. 2).[15] News of the war could now be telegraphed to European cities, one of the first uses of the electric telegraph for military purposes.

The Ottoman government, which was soon admitted as a third party to the telegraph convention concluded between Britain and France, introduced appropriate legislation and set up the necessary organization to protect the lines from injury and interruption.[16] After the war it purchased both the submarine and land lines, with all their associated equipment.[17] As no local telegraph community with sufficient know-how existed at the time, the Ottoman share in the construction of these lines was limited to providing poles and labor and guarding the completed lines. However, Ottoman engineers were learning about telegraphy from the British and French engineers. More remarkably, since the beginning of the war the Ottoman interest in telegraphy had grown substantially. The government appointed a commission of high officials, including the chief dragoman and some military officers, to plan a general project for the establishment of telegraphic communication in the empire. The commission was the nucleus of what became the telegraph department in the Ottoman Ministry of Public Works. Its first project was the construction of a 170-mile line between Istanbul and Edirne (Adrianople), a principal Ottoman town in

14. The French laid a cable across the Danube, but it was very soon destroyed by passing vessels; *Times* (London), 12 May 1855 (lead article).

15. *Illustrated London News*, 17 November 1855, 597–98.

16. The Crimean telegraph was initially limited to military dispatches, but its use was later expanded to include official and public correspondence. See Stratford de Redcliffe to Earl Clarendon, 11 October 1855, and War Department to Lord Wodehouse, 25 October 1855, EAST.TEL. On the regulations and the Ottoman involvement, see Lord Cowley to Earl Clarendon, Paris, 17 November 1855; Office of Committee of Privy Council for Trade to Lord Wodehouse, 24 November 1855; and War Department to Lord Wodehouse, 24 December 1855, EAST.TEL.

17. I.H. 7383, 13 February 1857, and I.H. 7417, 14 February 1857, Ottoman Archives.

OCTOBER
2000
VOL. 41

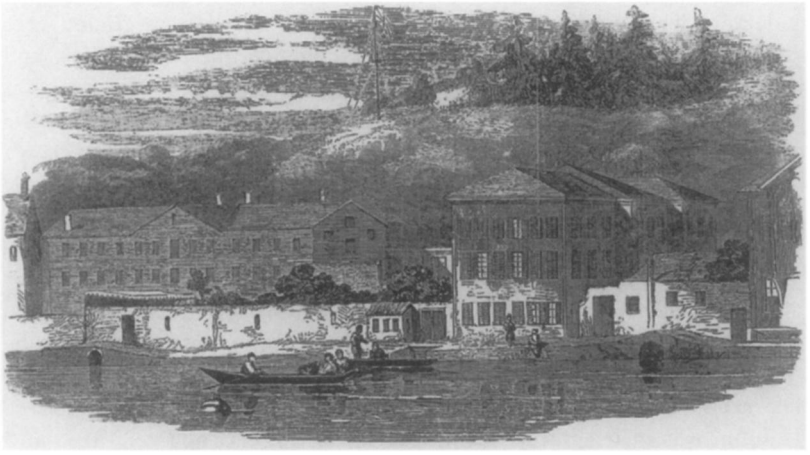

FIG. 2 The first submarine telegraph station on the Bosporus, located in the British Embassy, from which wires were carried on poles over steep hills to Beyoglu (Pera) for the Ottoman government. (*Illustrated London News*, 17 November 1855.)

Europe.[18] It was built with the help of French engineers and opened in time to convey the news of the end of the war.

The European and Indian Junction Telegraph

After the war, European interest in building a telegraph and railway network in the interior and on the periphery of the Ottoman Empire mounted. European paths of expansion crossed the Ottoman dominions, and Asia Minor was considered a vital junction between Europe and India. Britain, France, and later Austria intensified their efforts to exploit political and economic advantages gained by their alliance with the Ottoman Empire in the war. They saw railways and telegraphs as significant military, political, and commercial enterprises. For the British companies, which had monopolized most of the world's telegraphic industry and expertise, the Ottoman dominions presented an opportunity for entrepreneurial expansion. The driving force behind the British involvement in Ottoman telegraphy, however, was the need for a telegraphic link with India, particularly after the mutiny of 1857.[19]

18. Edirne, held dear by the sultans as an old Ottoman capital, was a major commercial and political center in the European part of the empire. The telegraphic link there was to speed intelligence to Istanbul and serve as a junction to the European network. On this first Ottoman telegraph project, see A. Baha Gökoğlu, *Yurdumuzda Telgrafçılık, Ilk Hatlar, Ilk Telgraf Tarifesi, Ilk Telgraf Türesi* (Istanbul, 1935), 48–57.

19. The Indian Mutiny of 1857 was the first Indian uprising against British rule. It

The British companies vying to build the telegraph to India backed three main routes: one entirely by land from Europe through Asia Minor and Persia to Karachi; one by submarine cable through the Mediterranean and the Red Sea; and a combined land-sea route from the Mediterranean across Syria, along the Euphrates River to the Persian Gulf at Fao, and under water from there to Karachi (fig. 3). The first route, geographically the shortest, presented the additional advantage of not requiring long submarine lines, which had not yet been shown to be practicable. On the other hand, of the three routes this one would rely the most on the cooperation of the Ottoman Empire. The brothers John and Jacob Brett and Lionel and Francis Gisborne, the principal British promoters of submarine cables, obtained exclusive rights from the Ottoman government during the war to lay a cable to India via the Mediterranean and Red Sea route. None of their proposals, however, went forward at the time. William B. O'Shaughnessy, the superintendent of the Electric Telegraph in India, examined the Red Sea project early in 1856 and found it impracticable because of the high cost of building and maintenance.[20] He endorsed, instead, a variant of the third route: a submarine line from Karachi, the most westerly town in India, to Fao at the head of the Persian Gulf, and thence up the bed of the Tigris to a terminus at Baghdad. From there a land line could extend either to Istanbul or to Iskenderun (via Aleppo) on the Mediterranean to meet a submarine line.

In June of the same year, under the leadership of William P. Andrew, the European and Indian Junction Telegraph Company was established in London to link Britain with India via the Euphrates route. Andrew, a visionary entrepreneur of Victorian technology, had projected railway lines all over the globe. His plans for the Euphrates included a railway as well as the telegraph. He envisaged "an unbroken chain of electric communication,

---

began among the sepoys of the East India Company's army and spread rapidly but was suppressed by the British, who greatly benefited from a network of field telegraphs. The mutiny proved the value of speedy communication, and made a telegraph line between Britain and India a major British objective. The telegraphic communication with India, therefore, became the subject of intense debate in Britain among government officials, politicians, agents, and telegraph companies. For their voluminous correspondence, see, for example, House of Commons, "Correspondence respecting the Establishment of Telegraphic Communication in the Mediterranean, and with India," *Parliamentary Papers*, 1857–58, 4 May 1858, vol. 60, pp. 1–368 [289–670]. Some aspects of the telegraph in India are discussed in Saroj Ghose, "Commercial Needs and Military Necessities: The Telegraph in India," in *Technology and the Raj*, ed. R. MacLeod and D. Kumar (New Delhi, 1995), 153–76.

20. W. B. O'Shaughnessy to Sir James C. Melvill (secretary of the East India Company), 28 April 1856, and O'Shaughnessy to Melvill, 9 June 1856, TEL1. O'Shaughnessy (1809–89), who experimented on submarine telegraphy in India as early as 1839, was a major figure in the establishment of electric telegraphy in India. See Mel Gorman, "Sir William O'Shaughnessy, Lord Dalhousie, and the Establishment of the Telegraph System in India," *Technology and Culture* 12 (1971): 581–601.

OCTOBER
2000
VOL. 41

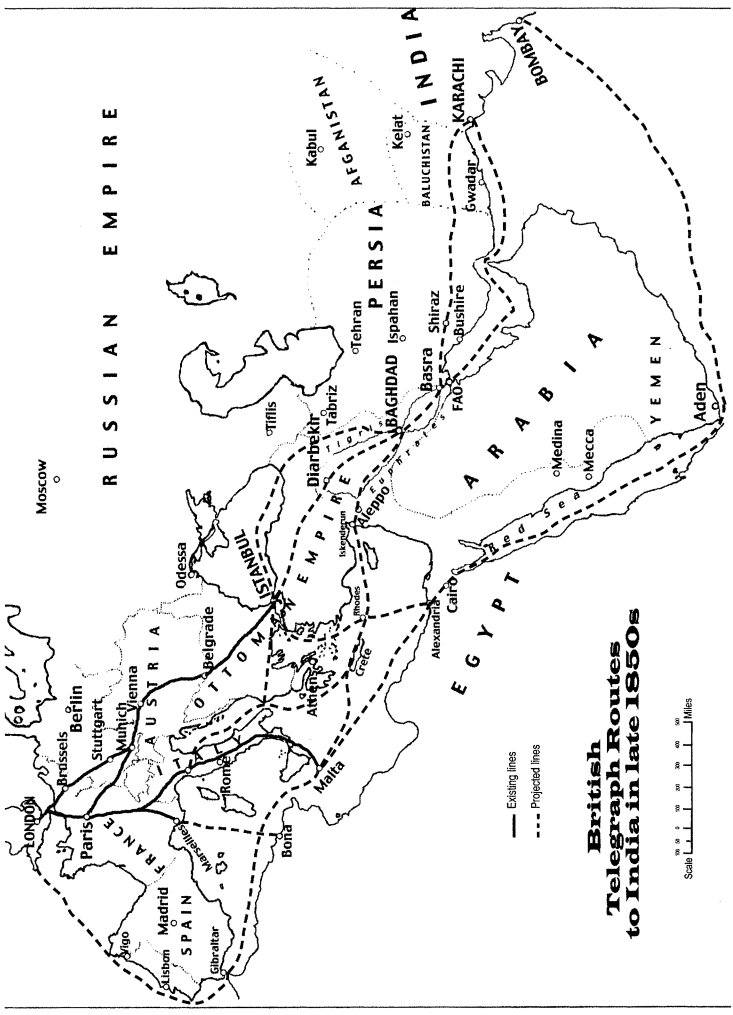

FIG. 3 The main British telegraph routes to India projected after the Crimean War. A route across Russia was also projected, but it was not a politically viable alternative for the British at the time. (Map by the author, based on F. J. Goldsmid, *Telegraph and Travel* [London, 1874].)

going straight from the head-quarters of Queen Victoria's government to every extremity of her eastern empire."[21] The East India Company supported the scheme by pledging to connect Karachi with Fao, allowing O'Shaughnessy to act as its consulting engineer, and later offering the services of more of its engineers.[22] In January 1857 British officials began negotiations for this route with the Ottoman government through Stratford de Redcliffe, their influential ambassador. They won the support of the grand vizier, Reşid Pasha, and the foreign minister, Ali Pasha, leading promoters of the telegraph in the Ottoman Empire.

The concession being looked upon as certain, by the summer the European and Indian Junction Telegraph Company had dispatched a large quantity of telegraph wires and supplies to Baghdad. However, when the scheme was finally brought before the Supreme Council of the Reforms (Tanzimat), Fuad Pasha, its chairman, who was believed to be influenced by the French, induced other ministers to oppose the whole design.[23] Such dissension was an ordinary occurrence: Britain and France, and later other powers, often competed for such concessions in the Ottoman Empire. Each hoped to expand its sphere of influence through these undertakings, while the Ottoman government sought a tactical balance among them.

When the significant Ottoman objection was raised that their capital had not been chosen as the terminus of the line, Andrew agreed to reroute the line to run from Istanbul, instead of Iskenderun via Aleppo, to Baghdad.[24] But the Ottoman government, increasingly aware of the economic and political implications of telegraph links among their major towns and provinces and the capital, stopped all further negotiations on British or French controlled systems. The Ottoman officials insisted on keeping "the telegraph towards India in their own hands."[25]

21. The founding members of the European and Indian Junction Telegraph Company included such leading British figures as Sir John MacNeill, railway engineer, William Ainsworth, geologist and geographer, and Major J. A. Moore, ex-director of the East India Company. They originally proposed to form a connection at Iskenderun with the Bretts' submarine cable and then carry the wire via Aleppo and the Euphrates to the head of the Persian Gulf and thence by submarine cable to Karachi. See Andrew, *Memoir on the Euphrates Valley Route* (n. 1 above), 142–43, 229–49. William Patrick Andrew (1806–1887) founded the Sind, Puncap and Delhi Railway Co. in 1855 and was its chairman until 1886. The great scheme of his life, from 1856 until his death, was the Euphrates Railway. He was knighted in 1882.

22. Melvill to Andrew, 10 July 1856; Andrew to Earl Clarendon, 23 June 1856; Melvill to Andrew, 25 March 1857; and Andrew to E. Hammond, 2 July 1857, TEL1.

23. Redcliffe to Earl Clarendon, Therapia, 28 July, 12 and 22 August 1857; Staniforth to Redcliffe, 11 August 1857, TEL1. Reşid, Ali, and Fuad pashas were three major Ottoman reformist politicians who held the positions of grand vizier and foreign minister at various times between 1840 and 1870.

24. O'Shaughnessy to Andrew, 20 August 1857, and Redcliffe to Earl Clarendon, Therapia, 22 August 1857, TEL1.

25. Redcliffe to Earl Clarendon, Therapia, 1 September 1857, TEL1.

OCTOBER
2000
VOL. 41

The Ottoman government required that it have overall control of the project, but it did agree to employ British engineers and the workmen the European and Indian Junction Telegraph Company had engaged, and to use the company's stock of supplies. It also offered to build the line with two wires, one to be retained by the Ottoman government for its own service, the other to be dedicated to Anglo-Indian traffic.[26] In explaining the advantages of this Ottoman project, Ali Pasha, the foreign minister, pointed out that it would fulfill Britain's aim of facilitating communication with India while at the same time it would render an immense service to the provinces of the Ottoman Empire.[27]

The British government sanctioned the undertaking upon the recommendation of Redcliffe, who strongly believed in networks of railways and telegraphs as the basic means of introducing "Western civilization" to the East.[28] It promised to connect the Ottoman overland telegraph to a submarine line at Basra, and to pay the Ottoman government an annual subsidy for British use when the line was completed.[29] In late 1857, O'Shaughnessy visited Istanbul to discuss the plan with the Ottoman officials, including Ali and Fuad pashas. His communications, urging British support for the Ottoman overland line to the Persian Gulf, encouraged the British Privy Council to recommend that every facility should be afforded the Ottoman government for the undertaking.[30]

Istanbul to Fao: Uniting Empires

Before the close of 1857, the Ottoman government sent an agent to London to purchase "the wire, instruments, and other necessary articles."[31]

26. Redcliffe to Earl Clarendon, Therapia, 10 September 1857, TEL1.

27. Ali Pasha to Musurus Pasha (the Ottoman ambassador at London), 30 September 1857, TEL1; House of Commons, "Correspondence respecting the Establishment of a Line of Telegraph between Constantinople and Basra," *Parliamentary Papers*, 1857–58, 15 April 1858, vol. 60, pp. 1–5 [281–88], and "Correspondence respecting the Establishment of Telegraphic Communication in the Mediterranean, and with India" (n. 19 above), p. 180.

28. *Times* (London), 16 September 1858. See also his speeches in Sir MacDonald Stephenson, *Railways in Turkey: Remarks upon the Practicability and Advantage of Railway Communication in European and Asiatic Turkey* (London, 1859), and Y. Bektas, "The British Technological Crusade to Post-Crimean Turkey: Electric Telegraphy, Railways, Naval Shipbuilding and Armament Technologies" (Ph.D. diss., University of Kent at Canterbury, 1995).

29. R. S. Newall, *Observations on the Present Condition of Telegraphs in the Levant* (London, 1860), 1–30; Lionell Gisborne to Lord Clarendon, 28 January 1858. See also "Memorandum on the Establishment of a Line of Telegraph to India via Basra," I. Irwing, 3 September 1859; and Foreign Office to Redcliffe, 14 September 1857, TEL1.

30. Redcliffe to Lord Clarendon, 28 October 1857, TEL1.

31. Musurus Pasha to Lord Clarendon, 27 January 1858, in "Correspondence respecting the Establishment of Telegraphic Communication in the Mediterranean, and with India," p. 206.

Musurus Pasha, the Ottoman ambassador there, was instructed to secure the employment of a "distinguished British engineer" to direct the construction of the line. Upon the recommendation of Lord Clarendon, Michael Biddulph, now a colonel, who had been the head of the British telegraphs in the East during the Crimean War, was selected for the position in early 1858.[32] Immediately after his arrival in Istanbul he was appointed chief engineer under the direction of Mehmet Effendi, the first director of the Ottoman Telegraph.[33]

The work began in August 1858. By October the British staff numbered sixteen, including construction engineers, linemen, surveyors, a medical officer, and an interpreter.[34] Laborers were mostly Ottoman subjects. The engineers were British army officers who had served under Biddulph in the Crimea. The construction of the line was divided into three sections. In some districts it followed as straight a route as possible rather than the old post roads. The poles were obtained by the authorities of each locality. By the beginning of winter, when most work stopped because of the heavy snow, about 75 miles of the first section had been completed.[35] But Biddulph soon found himself at odds with the authorities. Ostensibly the dispute was over who was in charge. The situation was aggravated by the

32. War Department to Foreign Office, 3 January 1858; Foreign Office to Biddulph, 18 February 1858; and Irwing, "Memorandum on the Establishment of a Line of Telegraph to India via Basra," TEL1. General Sir Michael Anthony Shrapnel Biddulph (1823–1904) was trained at the Royal Military Academy at Woolwich. He served as assistant engineer of the Royal Artillery during the Crimean War, became director of submarine telegraphs in the Black Sea when the project began, and was made a colonel after the war. He probably volunteered for the position superintending the construction of the Istanbul to Fao line in order to be close to his prospective wife in the Crimea. After his return home in 1859 he served on the committee of the first Atlantic cable. Biddulph spent most of his subsequent military career in the British army in India as a commanding officer.

33. Left free to secure the employment of the staff required for the construction, Biddulph chose mostly from among those officers who had worked under him in the Crimea. For the details of Biddulph's employment in the Ottoman Empire, see Michael A. S. Biddulph, *Report, Explanatory of a Map of the Telegraph Lines of the Ottoman Empire . . . with an Appendix, Containing Correspondence and Papers Relating to the Line of Telegraph Between Constantinople and Basra* (London, 1860), 17. Biddulph's report includes the correspondence between him and Ottoman officials. See also the *firman* (imperial edict) explaining the details of Biddulph's engagement in I.H. 8297/1, Ottoman Archives.

34. They were J. G. Holdsworth, assistant engineer; C. Dukes, construction superintendent; C. Carthew, E. H. and H. E. McCullum, J. Welsh, and J. Irving, engineers; Thomas Humbly and W. Carr, linemen; and A. Ross and W. Turnbull, surveyors. Biddulph names four others as Chatfield, Lawrence, Colvin, and Nial. See Biddulph, *Report*. For an incomplete list of the Ottoman payroll, see M. Kaçar, "Osmanlı Telgraf Işletmesi," in *Çagını Yakalayan Osmanlı*, ed. E. Ihsanoğlu and M. Kaçar (Istanbul, 1995), 71–73. See also I.H. 8587, 23 September 1858, Ottoman Archives.

35. H. C. Rawlinson, *Notes on the Direct Overland Telegraph from Constantinople to Karachi* (London, 1861).

OCTOBER
2000
VOL. 41

appointment of two local telegraph officers as chiefs of staff of construction for two of the three sections.[36] Biddulph, distressed by what he claimed was their interference, expressed in a letter to Ali Pasha, now the grand vizier, his belief that "a good permanent line of telegraph will never be constructed in connexion with the telegraph Department of the Porte [the Ottoman government]."[37]

The Ottoman authorities, for their part, were severely critical of Biddulph, particularly for his frequent leaves of absence. By the spring of 1859 Biddulph was hardly at work. His absences, he claimed, were due to his being "constantly and seriously ill."[38] In May, when the government forced him to give up his position, only 150 miles of line from Üsküdar had been completed (fig. 1). Although some able officers resigned at the same time, many remained to complete the line.[39]

The departure of Biddulph in 1859 was a setback for the Ottoman line, but the failures in submarine telegraphy in the following year strengthened its competitive position. The British government, whose desire from the outset had been to establish a submarine cable to India under its exclusive control, had initially supported the Ottoman line only as an secondary alternative. Most of its support went to the Red Sea Telegraph Company of the Brett brothers, which had been given a fifty-year contract to connect Britain with India by a submarine cable. This line was laid between May 1859 and early 1860, but five of its six sections soon failed. Further, with the failures

36. They were Mustafa Effendi for the Izmit-to-Sivas section and Remzi Effendi for the Sivas-to-Diyarbekir section. See Biddulph to Mehmet Effendi, Constantinople, 14 August 1858, TEL1.

37. Biddulph to Ali Pasha, Constantinople, 14 August 1858, TEL1.

38. Sir Henry Bulwer (British ambassador in Istanbul) to Lord John Russell, 30 May 1860, TEL2; Biddulph, *Report*, 9. However, the memoir of Lewis Gordon, an engineering professor and a partner in Newall and Co., reveals that Biddulph was in fact lovesick: he had an affair with a lady in the Crimea, whom he had met while he was the head of the Crimean telegraph. Biddulph would often interrupt his work to visit her, a journey that could take four days or more, depending on the progress of the line from Istanbul. See Thomas Constable, *Memoir of Lewis D. B. Gordon, F.R.S.E.* (Edinburgh, 1877). Chaps. 5–8 are full of correspondence on Biddulph's love affair with Lady Karani, whom he eventually married. I thank Ben Marsden for pointing me to this correspondence. The Ottoman government did not continue Biddulph's services beyond his one-year contract. Ironically, the sultan granted him a considerable sum of money, apparently for his resignation due to "sickness." See I.H. 9423, 28 December 1859, Ottoman Archives.

39. Upon the recommendation of Sir Henry Bulwer, the British ambassador in Constantinople, the position of chief engineer was offered to Holdsworth, but he declined because he had been an officer under Biddulph's command. See Bulwer to Holdsworth, 13 March 1859; Holdsworth to Bulwer, 14 March 1859, TEL2. C. Carthew and the McCullum brothers, retired as noncommissioned officers of the Royal Artillery, assumed the superintendence of the works. Carthew was entrusted with the construction of the section between Mosul and Basra. He and his four assistants arrived at Baghdad in the summer of 1859 to direct the construction. See Colonel A. B. Kemball (British consul general at Baghdad) to Foreign Office, 20 July 1859, Baghdad, TEL2.

of the recently laid Atlantic and Franco-Algerian lines, submarine telegraphy was beginning to look like a failed technology.[40] The land routes were starting to appear more reliable than cables. The Ottoman line now seemed the most promising option for the telegraph to India, especially after it connected Baghdad to the European telegraph network in January 1861. British authorities agreed with Sir Henry Rawlinson, a respected British politician, oriental scholar, and Assyriologist, who declared this overland route "the only immediately practicable means of telegraphic communication with India," given the state of oceanic telegraphy at the time.[41]

If Britain was going to rely on the Ottoman line for communication with India, it would be essential to ascertain that all the components were properly constructed and reliable. Accordingly, with the approval of the Ottoman government, the British government appointed Colonel Arnold Kemball, consul general and political agent in Baghdad, and John Henry Greener, a professional telegraph engineer, to inspect the portions of the Ottoman line that had been built or were in progress toward India.[42] Arriving in Istanbul before Christmas, 1860, Kemball noted that the cable laid by Newall and Company across the Bosporus, connecting Beyoglu (Pera) on the European side with Üsküdar on the Asian side, was not sufficiently armored to prevent interruptions.[43] Several other cables laid by the Ottoman government were similarly deficient. They were frequently damaged by the anchors of vessels sailing in and out of the Golden Horn, the inlet of the Bosporus at Istanbul. Telegrams could then cross the Bosporus only by boat, causing hours of delay. Kemball and Greener recommended the use of a well-protected cable at the narrowest part of the straits.[44]

40. For an appraisal of the submarine cables and technology of the time, see Vary T. Coates and Bernard Finn, *A Retrospective Technology Assessment: Submarine Technology* (San Francisco, 1979), 1–63; Crosbie Smith and Norton Wise, *Energy and Empire: A Biographical Study of Lord Kelvin* (Cambridge, 1989), esp. chaps. 13 and 19.

41. Rawlinson urged the Royal Geographical Society to support the Ottoman line by introducing it to the more general notice of the British public as one of the instances of the application of geographical science to the practical wants of the age. See Rawlinson (n. 35 above), 2 and 17.

42. Foreign Office to Bulwer, Baghdad, 5 December 1860, TEL2; F. J. Goldsmid, *Telegraph and Travel: A Narrative of the Formation and Development of Telegraphic Communication Between England and India, Under the Orders of Her Majesty's Government, with Incidental Notices of the Countries Traversed by the Lines* (London, 1874), 79–84. I thank Sarah Barnard of the Institute of Electrical Engineers, London, for the full name of Greener, one of the early members of the Society of Telegraph Engineers and perhaps the first professional engineer involved in Ottoman telegraphy.

43. See Kemball's "Report on the Condition of the Telegraphic Line Now Under Construction between Constantinople and Baghdad" to Bulwer, 22 December 1860, TEL2.

44. Establishing communication across the Bosporus was a major technical challenge. In 1856 Liddell proposed in an ambitious plan to suspend a wire cord from two iron columns, one of which was to be erected on the top of the Rumeli Tower on the European side, the other on the top of the Anadolu Tower on the Asian side, but the Ottoman and

OCTOBER
2000
VOL. 41

They then inspected the whole line and every station, reaching Mosul by early April 1861. Though they reported several sections of faulty construction, and broken and missing porcelain insulators, they found the 800-mile line between Üsküdar and Diyarbekir generally in a satisfactory state for telegraphic communication.[45] However, in the next section, from Diyarbekir to Mosul, they found greater signs of hasty and careless construction, as well as unsuitable materials, including poplar poles too thin for the purpose. Nor had the climate of the region been taken into account; the batteries, for example, were not suitable for hot climates. All these deficiencies, they concluded, were due to the lack of a qualified superintendent: "there were many hands but no heads" to carry out the construction in the proper fashion.[46] Kemball's reports on the needed improvements to the line were communicated to the Ottoman government, with the British urging them to carry out the recommendations at once.[47] Davud Effendi, the director of the Ottoman Telegraph, not only embraced the suggestions but further proposed to the grand vizier that the services of an efficient staff of British engineers be secured to extend the line to the Persian Gulf.[48]

This last section, from Mosul to the Persian Gulf at Fao, presented three main problems. The first was the question of whether to lay an aerial wire or a subfluvial cable in the bed of the Tigris between Baghdad and Basra. The second was a boundary dispute with the Persian government. The third was the protection of the line from interruption by local peoples.

The idea of a subfluvial cable arose out of concern for security. The Ottoman government made preparations for a cable in the bed of the Tigris, believing that it would be less liable to human interruption. Most British authorities, however, thought that this plan would eventually cost more for construction and maintenance and would not necessarily reduce the feared interference. Patrick Stewart, an experienced British engineer and superintendent of Indian telegraphs in Bengal, urged the authorities to adopt the overland option.[49] In the end, the subfluvial line was abandoned,

---

other engineers later found this idea impracticable. See Goldsmid, 80; Biddulph, *Report* (n. 33 above), 13. On the recommendations of Greener and Kemball, see Greener to Kemball, "Memoranda on Manipulation of Telegraph between Constantinople and Baghdad," 24 December 1860, Constantinople; Kemball to Bulwer, 4 January 1861, Constantinople, TEL2.

45. See a lengthy report by Kemball to Lord Russell, 5 April 1861, Mosul, TEL2.

46. Ibid.; Kemball's reports from Ankara, 28 January 1861, and from Sivas, 14 February 1861, in Goldsmid, 82–83.

47. Foreign Office to India Office, 4 May 1861; Bulwer to Lord Russell, Constantinople, 24 May 1861, TEL2.

48. Davud Effendi to Ali Pasha, Constantinople, 7 June 1861; Bulwer to Lord Russell, Constantinople, 18 June 1861, TEL2.

49. Patrick Stewart, "On the comparative merits of overland and subfluvial lines of telegraph between Baghdad and Basra," in India Office to Foreign Office, 23 August 1860;

not only because of the high cost but also because of technical problems, such as the need for stronger insulation than what was available.[50]

The poor performance of the submarine cables not only gave impetus to the Ottoman project, it also made an entirely overland line from Baghdad through Persia to India the stimulus for intense diplomatic activity. While the British government significantly increased its political representation at the Persian court, engineers and officials pondered strategies for the Persian section of such a line.[51] Stewart was sent there on a special mission to investigate the feasibility of an entirely overland line from Baghdad to India. But he ruled out the immediate practicability of such a line, and instead advocated the extension of the Ottoman line to the Persian Gulf to meet the Indian submarine line, as had been originally projected.[52] A separate overland line through Persia to India could be built later, he suggested.

In late 1862 the British government made fresh proposals for constructing the remaining part of the line, between Baghdad and the Persian Gulf, on its own account, but the Ottoman government insisted on completing the project itself. On the recommendation of the British government, Ahmet Effendi, an Ottoman engineer, and C. Carthew, a British engineer from Biddulph's team still in the Ottoman employ, were appointed assistants to Colonel Kemball to survey the country between Baghdad and Basra through which the telegraph was to pass.[53] Meanwhile, the Indian government formed the Indo-European Telegraph Department to lay a cable from Karachi to join the Ottoman line at Fao on the Persian Gulf.

When the arrangements for the extension of the line to Fao were complete, late in 1863, the Ottoman and British governments signed a temporary working agreement, which went through several changes.[54] The British

---

Stewart to India Office, 18 August 1860; and India Office to Hammond, 31 August 1860, TEL2.

50. Kemball to H. J. Anderson (chief secretary of the government of Bombay), Baghdad, 7 May 1861, TEL2.

51. India Office to Hammond, 26 September 1861; Foreign Office to India Office, 28 September 1861, TEL2. The Ottoman Empire and Persia were on the main British land routes to India. A telegraph line through these countries to India would mean for Britain not only a line of speedy communication with India but also a significant political advantage, especially as a measure against Russian expansion into the region and a way of securing the route to India. The British considered their alliances with the sultan and shah indispensable to their political and economic interests in the East. A telegraph and railway network was intended to consolidate these alliances.

52. Stewart to Allison, Tehran, 17 June 1862; Foreign Office to Bulwer, 18 November 1862, TEL3.

53. Ali Pasha to Erksine, Constantinople, 27 December 1862, TEL3.

54. The draft convention was signed by Erksine, the British chargé d'affaires at Constantinople, and Ali Pasha, then the Ottoman foreign minister, on 9 December 1863. For this and the alterations, see "A Draft Convention Signed by Erksine and Ali Pasha," Foreign Office to India Office, 22 March 1864; India Office to Foreign Office, 3 June 1864;

OCTOBER
2000
VOL. 41

placed considerable emphasis on the number of British officers to be stationed at Fao, and on the employment of British clerks, or clerks acquainted with English, at the telegraph stations between Istanbul and Fao. Finally, in anticipation of the opening of the line, an official convention was signed by the queen and the sultan in September 1864.[55] The Ottoman government agreed to allocate one wire of the main line from Istanbul to Fao exclusively to British traffic with India, and to employ operators who understood English at the major stations.

In late October 1864, Stewart reported that only one obstacle to the completion of the line remained: a dispute between the Ottoman Empire and Persia over about eighteen miles of their frontier, across which the line was to pass.[56] The dispute had already caused a nine-month delay, and the two governments were still unable to come to an understanding how to carry the wire across the frontier.[57] In Istanbul, Stewart alerted the Ottoman officials that if the disagreement continued, the British government might make use of the Russo-Persian line, which was advancing by way of Tiflis, Tehran, and Bushire.[58] The unwelcome competition from a line through Russia extending to the Persian Gulf compelled the Ottoman authorities to reach a quick agreement with Persia.[59] Ali Pasha, again the foreign minister, consented to the neutralization of the disputed territory and the construction of the line through the area under the direction of Kemball at the joint expense of the Ottoman and Persian governments. An agreement was signed, and within a month the line was complete.[60] In early January 1865, the Ottoman overland telegraph finally joined the Indo-European submarine line, allowing the first uninterrupted telegraphic communication between India and Europe.

Erksine to Lord Russell, Constantinople, 6 January 1864; and India Office to Foreign Office, 22 April 1864, TEL3.

55. "Convention between her Majesty and the Sultan, for the Establishment of Telegraphic Communication between India and the Ottoman Territory; signed at Constantinople, 3 September 1864 (Ratification exchanged at Constantinople, 31 October 1864," *Parliamentary Papers*, 1865, [7 February–6 July 1865], vol. 57, pp. 1-6 [487–95].

56. Stewart to Lord Russell, Therapia, 25 October 1864, TEL3. For the British debate on this frontier dispute, see "Correspondence respecting the Demarcation of the Frontier between Turkey and Persia," *Parliamentary Papers*, 1865 [7 February–6 July 1865], pp. 1–15 [829–47].

57. Kemball to Stewart, 21 September 1864, TEL3.

58. "A General Memorandum," Stewart to Ali Pasha, Therapia, 19 October 1864, TEL3.

59. "A Memorandum on the Cost of the Indo-European Telegraph," Stewart to Ali Pasha, Therapia, 25 October 1864, TEL3.

60. For the agreement, see Stewart to Foreign Office, Therapia, 10 October 1864; Stewart to Lord Russell, Therapia, 1 November 1864, TEL3. In the meantime, Stewart's health was rapidly declining. He died and was buried in Istanbul shortly before the opening.

An Unsuitable Language

Including the 1,000-mile-long Belgrade-Istanbul line, the Ottoman part of the telegraph to India extended some 2,800 miles. Although it was from time to time interrupted by storms, heavy snow, avalanches, and technical faults, it nevertheless functioned on the whole as a permanent line. The alternative Indo-European overland telegraph through Russia and Persia was also soon opened. However, the Ottoman line remained the major channel of electric communication for Britain at least until the 1870s, when the submarine lines became operational at last. The construction of the line had taken more than seven years, during which complex technical, managerial, political, and cultural problems were solved. Many British engineers, surveyors, inspectors, agents, and geographers provided technical and entrepreneurial skills during this period. But the British influence on the Ottoman telegraph persisted. The British government built a large telegraph office at Fao, where it would employ as many as fifty officers. British experts secured positions to organize post and telegraph services throughout the Ottoman Empire.[61]

Although I have so far emphasized the dominance of the British in the building of the Istanbul-Fao line, the French, too, were very much a part of the Ottoman telegraph. They provided expertise particularly in the construction of the lines across the European part of the empire, and in the general operation and administration of the telegraph service. The circumstance that French was the official language of international exchange in political and scientific affairs, and now also of the telegraph, augmented their influence. Initially most operators and administrators, including the director of the central office in Istanbul, were recruited from France. The first of these were sixteen men who arrived in 1856 to work the newly built line between Edirne and Istanbul. During this early period there was considerable tension between the French and the local operators, who knew little French and had few mechanical skills. Fledgling Ottoman operators were scorned by French operators, who told them that the telegraph was not suitable for the Ottoman-Turkish language, then written in Arabic script.[62]

Responding to this challenge, local operators at the Edirne office formulated an Ottoman-Turkish version of Morse code in 1856. This formed

61. For example, Frank Ives Scudamore, a major figure in the post and telegraph reforms in Britain, entered the Ottoman service in 1875, when his position in the British Post Office ended, to organize the postal and telegraph services. The sultan conferred on him the order of the Mejidiye in 1877. See Kieve (n. 4 above), 128–89. As early as 1857 Edward James Smith was employed to improve local posts, simplify postage, labels, etc. The R. S. Boumphrey Collection in the Durham University Archives, 104/9 1857–1859, includes letters to and from Smith describing his work and life.

62. A. Baha, *Telgrafçılıkta Ana Dilimiz ve Mustafa Effendi* (Istanbul, 1933), 14.

OCTOBER
2000
VOL. 41

the basis of the official Turkish code. Although within a few years Turkish operators and directors were appointed to the existing stations, service to the public in Turkish did not begin until several years later.[63] Even then, French remained the prevalent language, particularly in international messages, with English second among the foreign languages.

One of social effects of the Ottoman telegraph was thus its encouragement of general literacy and the study of foreign languages. Most of the telegraph staff, both local and foreign, were required to speak French. The Ottoman Telegraph Department for this reason recruited its staff predominantly from the Translation Bureau. This office, set up in 1820, was initially the only domestic institution where the Ottomans could study foreign languages. Münif Pasha, the director of the Telegraph Commission, and the first directors of the Telegraph Department were all graduates of this bureau. Largely because of their familiarity with languages, a sizable group of Ottoman minority subjects, mostly Armenians, found ample opportunities for employment and recognition in the telegraph organization, which at times was overwhelmed by a dozen different languages. Successive Armenian general directors of the telegraphs included Davud Effendi (1860–61), Franko Effendi (1861), Dikran Effendi (1862–63, 1864), Aleko Effendi (1863), and Ağaton Effendi (1864–68). Many able telegraph mechanics, too, to say nothing of hundreds of operators, also belonged to Christian minorities.[64]

All telegraphic equipment, except for poles, was imported from Britain and France until 1870. Although in 1861 Mikael Effendi, and later Besim Effendi, both local operators at Varna, were able to replicate working Morse instruments, such small-scale production was not economical. Local priority was given to the repair and maintenance of the instruments. The repair shops opened as part of the central telegraph house in Istanbul. In 1869, however, one of these shops was converted into a small factory, which produced hundreds of instruments within months.[65] By 1880 the factory, relocated to a different part of the city, was making a considerable number of telegraph instruments. Because the Morse system, some form of which had been in use from the beginning, was comparatively slow and had difficulty representing some Turkish sounds, several other instru-

63. I.H. 7417, 2 January 1857, Ottoman Archives.

64. I.D. 30560, 9 August 1860; and I.H. 12094, 22 October 1864, Ottoman Archives; Kaçar (n. 34 above), 49–51; Nesimi Yazıcı, "Tanzimat Döneminde Osmanlı Posta Örgütü," in *Tanzimat'tan Cumhuriyet'e Türkiye Ansiklopedisi*, 6:1652. Roderick Davison asserts that many young Ottomans in the telegraph service were Freemasons and had modernizing tendencies; see *Essays in Ottoman and Turkish History, 1774–1923: The Impact of the West* (Austin, Tex., 1990), 153. Davison devotes one essay in this volume to "The Advent of the Electric Telegraph in the Ottoman Empire."

65. Nesimi Yazıcı, "Osmanlı Telgraf Fabrikası," *Türk Dünya Araştırmaları* 22 (1983): 70–81.

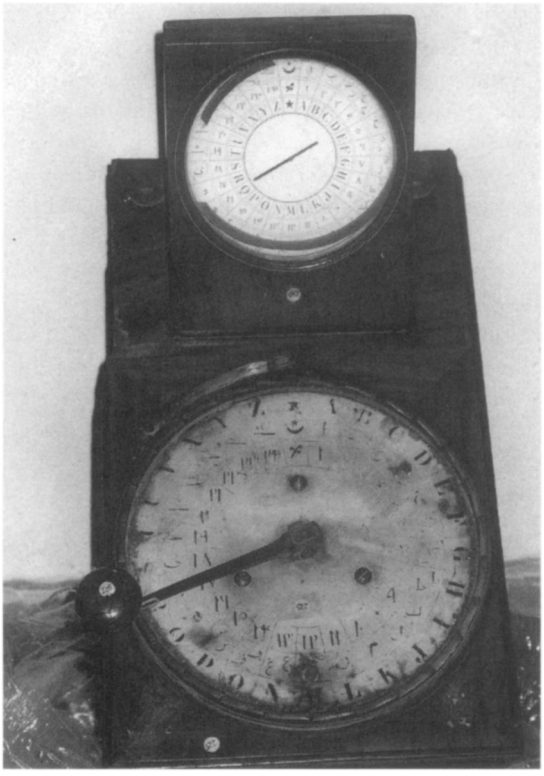

FIG. 4 Wheatstone dial telegraph apparatus adapted to Turkish language in Arabic script, with Roman letters in addition. (Postal Museum [PTT Müzesi], Ankara, No. 225.)

ments, mainly various types of Wheatstone, Siemens, and Hughes designs, were tried (fig. 4). In 1867 David Hughes himself was brought to Istanbul to develop his printing telegraph system for the Turkish language.[66] It had little success. As in other parts of the world, the Morse system superseded all others.

66. Newspaper clipping, n.d., no title, Morse Papers, reel 34, Printed Matter, 1823–1944, Library of Congress; "Telgrafın Tarihçesi," n.d., n.a., Postal Museum (PTT Müzesi), Ankara. I thank Hatice Şaban and Şerife Ekşi for this latter reference. David Edward Hughes (1831–1900), an Anglo-American, invented, among the other things, a printing telegraph instrument, which he patented in the United States in 1856. Lacking enough support there, Hughes took it to Europe, as Morse had done earlier. Following its adoption by the French government in 1861, after a year's trial, the Hughes printing telegraph came into widespread use in Europe. Between 1862 and 1869 all the major European countries adopted it and conferred upon Hughes many honors.

OCTOBER
2000
VOL. 41

The telegraph, as it became established in the Ottoman Empire, introduced a variety of Western influences, ranging from the system of education to architectural styles. In 1861, the Fünun-i Telgrafiye Mektebi (School of telegraphic science) was established, with a two-year program for technical education in telegraphy. Another school opened six years later.[67] Later, two Western-style institutions in Istanbul launched courses in telegraphy: Galatasaray Lycée, a school established on the French model after the sultan's European visit in 1867, and Daruşafaka, a prominent secondary school for orphans and the poor. Foreign teachers, including Emile Locaine, an eminent French instructor and the head of "telegraphic science" in the Telegraph Department, taught practical and theoretical telegraphy at these schools.[68] Through theoretical courses in telegraphy the Ottomans encountered the abstract study of electricity and magnetism. In 1882 the director of posts and telegraphs sent trainees to Paris to study electricity.[69] The telegraph and post offices that were erected in this period, like the later railway stations, combined in their architecture elements of both European and Ottoman designs. The first central telegraph office in Istanbul, for example, was designed and built by the brothers Gaspare and Giuseppe Fossati of Italy.[70]

By 1870 the number of foreign employees had fallen markedly, and the Ottoman telegraph community had achieved a degree of self-sufficiency in practical skills and knowledge of telegraphic engineering and management. This community consisted of those who had learned mechanical skills from British and French engineers and operators, a small group who had studied telegraphy in Paris, where the Ottoman Embassy ran a school, and those who had gone through a course of training in the local institutions. The Ottoman telegraph system had come to comprise a complex network of educational and administrative bodies, technical communities, post offices, telegraph schools, and factories, all of which provided a multiplicity of channels for transmitting practical skills and knowledge.

"Conveying the Voice of Satan"

The contrast in how the telegraph was received in the West and in the East illuminates the cultural shaping of the meaning of telegraphic communication. The extension of the telegraph in the Western world, which reached a symbolic climax with the effective opening of the Atlantic cable in 1866, was welcomed with enthusiasm and optimism. The telegraph was

67. On these schools and their programs, see Tanrıkut (n. 6 above), 572–75; Yazıcı, "Tanzimat Döneminde," 1649–1650; Kaçar, 111–13.

68. Davison, 133–65; Tanrıkut, 572.

69. *Electrical Review*, 13 October 1882, 286.

70. S. Eyice, "Istanbul'da Ilk Telegraphane-i Amire'nin Projesi, 1855," *Tarih Dergisi* 34 (1984): 61–72.

hailed as the greatest technological triumph of the age.[71] In the Ottoman Empire, Japan, and China on the other hand, it met initially with hostility and anxiety, and was generally taken as part of a design for Western "invasion" and domination. Its introduction coincided with a period of growing Western political and military influence in these regions, which was blamed for the collapse of local power structures.

Indeed, Western promoters saw it as a means of spreading "civilization." Propagation of commerce, science, and Christianity was considered the "natural result" of the geographical progression of the telegraphs and railways. Referring to the Ottoman telegraph and railways in 1858, Redcliffe proclaimed that "Western civilization is knocking hard at the Gates of the Levant," where it had "hitherto been admitted so partially."[72] In "Western civilization" he professed to see the "peaceful solution" to the "Eastern Question"—that is, what to do about the declining Ottoman Empire—and he considered the telegraph one of that civilization's most powerful agents.

Like Redcliffe, most British promoters advocated the telegraph as an agent of change in the Ottoman Empire, but they feared that its wires and poles would be disrupted by the locals, who were not expected to appreciate their value. In areas with a settled population and established authority, to be sure, no substantial reaction against the telegraph was expected. The Ottoman government had introduced legislation that imposed heavy fines and imprisonment on those harming the telegraphic installations.[73] But in the distant parts of the Ottoman Empire, where the sultan's control was weak and hostility toward the central government and its local officials strong, serious malicious actions against the wires, poles, and telegraph installations were anticipated. The problem of protecting the overland telegraph in these regions was a major concern from the start.

It was not only a question of presumed antagonism toward the telegraph. Asia Minor was inhabited by sedentary and nomadic tribes of diverse ethnic makeup and religious orientation. The telegraph wires and poles could easily become targets in their local disputes, as well as in disputes with the central government and its officials. In 1857, W. P. Andrew believed that the telegraph was "a work in which they [the Ottoman government] would inevitably fail, as the Arabs to the eastward of the Euphrates are badly disposed towards the Turkish government."[74] "Over

71. For instance, see Coates and Finn (n. 40 above), esp. 120–55; Colin Hempstead, "Representations of Transatlantic Telegraphy," *Engineering Science and Education Journal* (December 1995): 17–25; David Hochfelder, "Taming the Lightning: American Telegraphy as a Revolutionary Technology, 1832–1860" (Ph.D. diss., Case Western Reserve University, 1999), esp. 273–324.

72. Stephenson (n. 28 above); W. P. Andrew, *Our Scientific Frontier* (London, 1880); Bektas, "The British Technological Crusade" (n. 28 above).

73. Tanrıkut, 583–84; Yazıcı, "Osmanlı Telgraf Fabrikası," (n. 65 above), 71.

74. Andrew to Hammond, 18 September 1857, TEL1.

OCTOBER
2000
VOL. 41

these lawless vagabonds of the desert," the *Electrician* exaggerated, "the Porte has about the same control as Sir Joshua Jebb enjoys over his ticket-of-leave men."[75] Although the Ottoman authorities indeed exerted little control over the tribes living along the route from the east of Diyarbekir to Basra, and their hostility to the Ottoman rulers rendered the operation of the telegraph difficult, such statements were mostly aimed at urging British control of the line.

Relying on the sultan's sanction as a solid basis for public acceptance, William Ainsworth, highly regarded geographer and geologist of Asia Minor, suggested that the mere statement that the telegraph was used "to convey the messages of the Sultan" would safeguard it.[76] As they explained the operation of the system they were building, British agents and engineers and Ottoman officials spread such propaganda. This gave the telegraph a certain sultanic design, which worked as a powerful rhetorical device for shaping the local meaning of the telegraph and muted some of its opponents. A local historian, who witnessed the extension of telegraph lines to the eastern city of Diyarbekir in 1860, observed that "all people watched the telegraph wires with great admiration, and prayed for Sultan Abdul Mejid most gratefully."[77]

In fact, most of the damage that did occur to the telegraph was motivated simply by desire for its materials. Wires were stripped off the poles to make heel ropes for horses.[78] Poles provided fuel in the winter, and porcelain insulators could be used for target practice, while in Persia copper wires were hacked up to make bracelets.[79] An effective solution proposed by Ainsworth, and later by Stewart and Kemball, was to pay a "trifling subsidy" to the chiefs of the local tribes as long as the wire remained intact.[80] This approach aimed to make the tribes an active part of the system. When a section of the line between Mosul and Baghdad was destroyed in February 1861, Ismail Pasha, the governor of the region, proposed to form an irregular cavalry of three hundred men to safeguard the line. Kemball, however, warned that the employment of such a force might "render the telegraph a special object of attack."[81] Instead, he recommended as the most effective solution enlisting the tribes' interests in favor of the telegraph by paying

75. *Electrician*, 2 January 1863, 104. Sir Joshua Jebb (1793–1863) reformed the British penal system. "Ticket-of-leave men" were what we would call parolees.

76. Ainsworth to Andrew, 13 August 1856, TEL3.

77. Quoted in Tanrıkut (n. 6 above), 599.

78. Such incidents were reported in, for example, "Correspondence respecting the Establishment of Telegraphic Communication in the Mediterranean, and with India" (n. 19 above), 1–368 [289–670], and in Goldsmid (n. 42 above), 418.

79. Thomas Stevens, "Telegraph Operators in Persia," *Electrical Review*, 18 August 1888, 7; C. Marvin, *When Old Technologies Were New* (Oxford, 1988), 140.

80. Ainsworth to Andrew, 13 August 1856, TEL1.

81. Kemball to Lord Russell, Kifri, 24 April 1861, TEL2.

them a subsidy and employing some of their horsemen as guards and watchmen. Ismail Pasha and Kemball eventually agreed on just such a plan.[82]

The Ottoman government had initially contemplated building towers at intervals to house special guards and cavalrymen to protect the wires and poles, and had even built some along lines in both the European and Asian parts of the empire.[83] The contractors for the Belgrade-Istanbul line (about 1,000 miles) proposed to employ cavalrymen in groups of five to be placed in two hundred towers located two hours' walking distance apart.[84] The whole Ottoman telegraphic network eventually adopted a system in which special guards (*çavuşlar*) were recruited from nearby villages and towns to watch over the wires and poles, mostly on horseback. In his travels along the telegraph line from Fao to Istanbul in early 1864, Colonel F. J. Goldsmid, then chief director of the British Indo-European telegraphs, visited virtually every station on the route and met with hundreds of operators, who were referred to by the local people as "Telegraph Bey"—literally, "Mr. Telegraph." Goldsmid was escorted from each station to the next by the *çavuş* of each section. He placed their number at about one hundred and thirty, for a telegraph line stretching 1,200 miles.[85] Indeed, the number of *çavuşlar* depended on the social and geographical character of each district. In the long run this system served to integrate the telegraph into the local life, while at the same time contributing to the local economy.

Although many Ottomans saw the telegraph as an "infidel" intrusion, no substantial religious or sectarian antipathy was reported during the construction of the lines, as the telegraph was considered initially an official and military system. However, in the later part of the century it came into increasing civilian use, with merchants and speculators benefiting greatly. In this period, during which European influence threatened the stability of the Ottoman Empire, opposition to telegraphy and other Western innovations grew. In the 1890s Sir Charles Eliot noted that some members of the Muslim clergy discussed seriously how near to a mosque a telegraph wire could properly pass, inasmuch as it was "a means of conveying the voice of Satan from one place to another."[86] Ottoman scholars and mystics con-

82. "Proposition for Maintaining the Security of the Telegraphic Line in the Kerkuk District from the Zab Su to Kashka being 72 Hours as Concerted between Ismail Pasha and Kemball," by Kemball, 24 April, 1861, TEL2. A similar subsidy was later granted to some farmers and heads of secluded villages by the Meiji government in Japan to keep the wires in good working order, and as a result disturbances greatly diminished. See Takahashi (n. 9 above), 72. I thank Tadaaki Kimoto for this reference.

83. I.H 7417, 10 February 1857, and I.D. 8805, 8 February 1857, Ottoman Archives.

84. I.H. 5446, 5 July 1854, Ottoman Archives. Kaçar (n. 34 above), 57, gives the number of these cavalrymen as 675.

85. Goldsmid describes them as "telegraph inspectors," but they were responsible primarily for the security of the lines; see Goldsmid (n. 42 above), 106.

86. Charles Eliot, *Turkey in Europe* (London, 1900), 99; also quoted in Davison (n. 64 above), 139.

OCTOBER
2000
VOL. 41

demned Western inventions for destroying the Divine Order.[87] They saw the "decline of religion" as the result of "contamination of every corner of the world" by the telegraph, posts, railways, and steamships.[88]

Pashas and religious scholars were not the only elements of Ottoman society disturbed by the telegraph. The position of the landowners, or *ağalar*, in the social power structure was also threatened. In remote towns and villages the telegraph official became the representative of the government, and thus also collected government revenues, taxes, and recruited the militia. This diminished the privileges and independence of the *ağalar*, who came under state control. In some such localities, the *ağalar* prevented or at least delayed the coming of the telegraph. At Amasra, an isolated town on the Black Sea, they had the poles taken away and the wires destroyed in 1868.[89] In other parts of the empire negotiations and concessions were often necessary before the lines could be extended. On the other hand, there was considerable public support for the telegraph in the districts where its economic value was recognized. As early as 1864 Goldsmid observed the "friendly feeling towards the telegraph amounting to appreciation of its value, in the towns possessing stations."[90] Many townsmen, particularly merchants and traders, petitioned for the routes to be extended to their localities, and offered labor and financial support.[91]

The real value of the telegraph to the Ottoman Empire, however, was demonstrated when it developed into an effective device for the centralization of power. Before railways or telegraphy it was impossible for the sultan and his officials to exercise effective control over the most distant provinces. By 1874, however, an American missionary in Beirut could describe the Ottoman postal telegraph service as "enabling the central power in Constantinople to move the whole empire like a machine."[92] It became an even more powerful political tool during the long reign of Sultan Abdul Hamid II (1876–1909), who ruled autocratically for thirty-two years. Under his rule more than 30,000 kilometers of lines were built,

87. Some of these reactions are discussed in Rudolph Peters, "Religious Attitudes Towards Modernization in the Ottoman Empire: A Nineteenth Century Pious Text on Steamships, Factories and Telegraphy," *Die Welt des Islams* 26 (1986): 75–105. The reactions of the Ottoman clergy, which often constituted the center of opposition to European innovations, are beyond the scope of this paper and await further research.

88. Babazade Mustafa, "Müslimanlık Ilmi ve Fenni bir Dindir," *Sebil-ur Reşad* 207 (1912), quoted in Niyazi Berkes, *The Development of Secularism in Turkey* (Montreal, 1964), 362–63.

89. Necdet Sakaoğlu, *Amasra'nın Üç Bin Yılı* (Zonguldak, 1987), 144; Orhan Koloğlu, "Yeni Haberleşme ve Ulaşım Tekniklerinin Osmanlı Toplumunu Etkileyişi," in *Çağımı Yakalayan Osmanlı*, ed. E. Ihsanoğlu and M. Kaçar (Istanbul, 1995), 597–608.

90. Goldsmid (n. 42 above), 83–84.

91. E. Z. Karal, *Osmanlı Tarihi* (Ankara, 1983), 7:273; Yazıcı, "Tanzimat Döneminde" (n. 64 above), 1649.

92. H. H. Jessup, *Fifty-three Years in Syria* (New York, 1900), 2:438.

extending the system to remote corners of the empire. Thus, for example, in 1882 a cable was laid across the Red Sea between Hedjaz (northwest Arabia) and Egypt that connected with the land lines to Yemen as well as to Mecca and Medina, the holiest cities of Islam.[93]

The telegraph played a vital role in extending Abdul Hamid's authority. His internal network of spies and secret agents depended mostly on telegraphic correspondence. Their reports were sent directly to the telegraph office established in the Yildiz Palace, the sultan's favorite residence. Pashas were dismissed or transferred in response to public telegraphic petitions. Further, citizens in remote parts of the empire saw the telegraph as a way of connecting to the sultan's palace directly. Believing their complaints would not be properly conveyed because of the bureaucracy and inefficiency of local administrations, groups of people in many towns, including Diyarbekir, Ankara, Sinop, Trabzon, Sivas, and Kayseri, marched to the telegraph stations in unruly crowds and demanded to be put into direct communication with the sultan.[94]

During Abdul Hamid's long reign, numerous revolts, including some in the army and navy, were effectively suppressed with the help of the telegraph. The sultan saw its value as a tool of foreign policy as well. He presented the telegraph as an instrument of Islamic unity, especially when Damascus was linked to Mecca by a telegraphic line.[95] This rhetoric helped legitimize telegraphy in the wider Islamic world.

A Tool of Disintegration

The story of the Ottoman telegraph demonstrates the point that technology transfer, particularly to a culturally different environment, is not merely a matter of moving skills and apparatus from one place to another but rather a socially and spatially defined process. The cultural and political challenges to the extension of the land lines were often just as significant as the technical challenges. Obtaining local support, particularly in the towns along the telegraph lines, was not less difficult than obtaining materials and skilled engineers. The representation of the telegraph by its pro-

93. *Electrical Review*, 29 April 1882, 304.

94. Orhan Koloğlu, *Abdulhamit Gerçeği* (Istanbul, 1987), 337–38.

95. The political exploitation of the telegraph by the sultan and his government has not yet been explored. The case of the Ottoman railways is discussed in Jacob M. Landau, *The Hejaz Railway and the Muslim Pilgrimage: A Case of Ottoman Political Propaganda* (Detroit, 1971), and in F. R. Maunsell, "Hejaz Railway," *Geographical Journal* 32 (1908): 570–85. For a perceptive analysis of policies of authority and control during Abdul Hamid's reign, see Selim Deringil, *The Well-Protected Domains: Ideology and the Legitimation of Power in the Ottoman Empire, 1876–1909* (London, 1998). Deringil does not refer to Western technological systems such as telegraphy and railways, or to the sultan's efforts to exploit them as instruments of power.

OCTOBER
2000
VOL. 41

moters as a sultanic design was one way of creating a more favorable social environment for its public reception. In the long run, associating Western innovations such as the telegraph with the sultan served to promote Western technology in the Islamic world.

The British telegraphic push toward India aimed not only at uniting their empire but also at promoting the telegraph in the regions along its routes as an agent of progress, of Western civilization, and of British commercial and political interests. On the Ottoman side, the telegraph, and later railways, as material extensions of the sultan's control, consolidated his grip on power and transformed his relationship with his subjects, particularly with the officials in the distant interior. These innovations were surely responsible in part for the long reign of Abdul Hamid II, who used them as symbols of Pan-Islamism to hold the empire together. In this sense, the telegraph, an "infidel" invention, was reinterpreted as an "Islamic" one.

At the same time, the telegraph furnished the mountain villagers and townsmen deep in the interior with a means to convey their petitions and complaints rapidly to the central authorities. The use of the telegraph was by no means limited to such legitimate purposes. Disrupting wires in the remote corners of the empire was often an effective way of attracting the attention of the government to social and economic problems, as it was in the secluded mountain villages of Meiji Japan, where this was a common occurrence in the popular social uprisings of 1880s. More ironically, in the hands of the sultan's opponents, such as the Young Turks, the telegraph served to undermine the sultanate, leading to its abolition and the foundation of the Republic of Turkey in the early twentieth century.[96] The telegraph could no longer avert, and in fact probably contributed to, the eventual fall of the Ottoman Empire. In this respect it did not remain an imperial tool, to borrow Daniel Headrick's phrase, but rather came to function as a tool of disintegration.

96. For example, Talat Pasha (1874–1921), a leading figure of the Young Turk Revolution, who became minister of interior and grand vizier (1917–18), was formerly a mere telegraph clerk at Edirne and later at Salonika. The telegraph enabled him to organize and spread the movement in spite of the sultan's spies. Davison rightly points out that the effective use of the telegraph was also a key to the success of Kemal Atatürk, the founding father of the Republic of Turkey; see Davison (n. 64 above), 157–58. It is also ironic that the British, who initially supported the extension of the telegraphic network in the Ottoman Empire, were most hostile to its installations during World War I. Ottoman telegraph and railway networks in Arabia were the primary targets of British imperial agents (such as T. E. Lawrence) who provoked the Arabs to rebel against Ottoman rule during the war.