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# Notes

## Introduction

1. Studies in political science assume an inherent tendency among countries with large oil revenues to pursue excessive degrees of centralization and authoritarian rule with little prospects for democracy. For example, see Michael Ross, “Does Oil Hinder Democracy?,” *World Politics* 53, no. 3 (2001): 325–361; Ellis Goldberg, Erik Wibbels, and Eric Mvukiyehe, “Lessons from Strange Cases: Democracy, Development, and the Resource Curse in the U.S. States,” *Comparative Political Studies* 41, nos. 4–5 (2008): 477–514. In economics, the “resource curse” or “Dutch disease model” describes how an abundance of natural resources, such as oil, creates obstacles to growth (e.g., productivity, trade, and consumption) rather than democracy. See Jeffrey D. Sachs and Andrew M. Warner, “Natural Resource Abundance and Economic Growth,” *National Bureau of Economic Research Working Paper Series*, no. 5398 (1995): 1–47.
2. Michael Watts made an important contribution to this scholarship by factoring in the material properties of oil in reconfiguring “governable spaces” in local and national Nigerian politics. (Michael Watts, “Resource Curse? Governmentality, Oil, and Power in the Niger Delta, Nigeria,” *Geopolitics* 9 (2004): 50–80. Another exception that takes seriously the materiality of oil in terms of its transformation into property and rents is Fernando Coronil’s *The Magical State: Nature, Money, and Modernity in Venezuela* (Chicago: University of Chicago Press, 1997).
3. A. S. Alsharhan and A. E. M. Nairn, *Sedimentary Basins and Petroleum Geology of the Middle East* (New York: Elsevier, 2003), 693. In geological terms, the combination of carbon-rich source rocks, porous and permeable reservoir rocks, and effective caprocks characterizes the Middle East (e.g., Iran, Iraq, Syria, Kuwait, Saudi Arabia, Bahrain, Qatar, the United Arab Emirates, Oman, and Yemen) to a high degree, producing high-quality oil.
4. At the onset of the First World War, virtually all the leading navies—those of Britain, Germany, Italy, Russia, and the United States—were in the process of converting to oil. See Bruce Podobnik, *Global Energy Shifts: Fostering Sustainability in a Turbulent Age* (Philadelphia: Temple University Press, 2006), 65–67.
5. *Ibid.*, 5.

6. Daniel Yergin, *The Prize* (New York: Free Press, 1992). Also, see the first two volumes of the three-volume official history of AIOC, which laud the company's pioneering impact and consistent showing of ingenuity in confronting setbacks posed by oil operations and political groups in Iran: R. W. Ferrier, *The History of the British Petroleum Company*, Volume 1: *The Developing Years, 1901–1932* (Cambridge: Cambridge University Press, 1982); James H. Bamberg, *The History of the British Petroleum Company*, Volume 2: *The Anglo-Iranian Years, 1928–1954* (Cambridge: Cambridge University Press, 1994); James H. Bamberg, *British Petroleum and Global Oil, 1950–1975: The Challenge of Nationalism* (vol. 3 of *The History of the British Petroleum Company*) (Cambridge: Cambridge University Press, 2000).

7. My goal is not to study the impact of oil, intact as a separate sphere, on society and the economy because that is what political economy does. I am arguing that the identity of oil is not well bounded but is intrinsically entangled in all sorts of environments, regulatory regimes, information, and machineries. Concession terms, property relations, cartel arrangements, and the law were internal to the technical definition and production of the oil “itself,” so to speak. The historical identity of oil is not possible without all the representational and physical work that must be done to produce and sell it. See Marianne De Laet and Annemarie Mol, “The Zimbabwe Bush Pump: Mechanics of a Fluid Technology,” *Social Studies of Science* 30, no. 2 (2000): 225–263.

8. Within the field of STS, there has been no investigation showing how human and technological forces clash and get rearranged in quite the same way, and with as broad consequences, as occurred in the building of Iran's British-controlled oil industry. Geoffrey Bowker's investigation of the oilfield services company, Schlumberger, is one of the few studies of the oil industry drawing on methods from STS to think about the organizational work of building an oil industry. But it focuses on the building of Schlumberger's laboratory and its world, rather than drawing out the further connections for our understanding of politics. See Geoffrey Bowker, *Science on the Run: Information Management and Industrial Geophysics at Schlumberger, 1920–1940* (Cambridge, MA: MIT Press, 1994).

9. Ross, “Does Oil Hinder Democracy?”; Alan H. Gelb, *Oil Windfalls: Blessing or Curse?* (New York: Oxford University Press, 1988).

10. On the “oil curse” and the importance of looking at both domestic social forces and external geopolitics, also see Andrew Rosser, “Escaping the Resource Curse: The Case of Indonesia,” *Journal of Contemporary Asia* 37, no. 1 (2007): 38–58. Political economy improves on the political science approach by taking social classes and the “rentier state” into account. See, for example, Hazem Beblawi and Giacomo Luciani, eds., *The Rentier State, Nation, State, and Integration in the Arab World*, vol. 2 (New York: Croom Helm, 1987); Terry Lynn Karl, *The Paradox of Plenty: Oil Booms and Petro-States* (Berkeley: University of California Press, 1997).

11. The concept of the “rentier state” serves as the dominant paradigm for studying the impact of oil on state formation. Oil is explored only in terms of

its economic properties as a rent, overlooking its physical or material properties as well as the role of oil workers and oil company operations in shaping the powers of the state. See, for example, Hossein Mahdavy, “The Patterns and Problems of Economic Development in Rentier States: The Case of Iran,” in *Studies in the Economic History of the Middle East: From the Rise of Islam to the Present Day*, ed. M. A. Cook, 428–467 (London: Oxford University Press, 1970).

12. Donald MacKenzie, “An Equation and Its Worlds: Bricolage, Exemplars, Disunity and Performativity in Financial Economics,” *Social Studies of Science* 33, no. 6 (2003): 831–868.

13. Thomas Hughes, *Networks of Power: Electrification in Western Society, 1880–1930* (Baltimore: Johns Hopkins University Press, 1983).

14. Ferrier, *History of British Petroleum*; Bamberg, *History of British Petroleum*.

15. For STS studies of calculation in a non-Western setting, see for example, Helen Verran, *Science and an African Logic* (Chicago: University of Chicago Press, 2001).

16. On the company’s relation to the Iranian and British governments, many studies have framed the issue as a conflict between private, commercial versus public, government interests, rather than leaving the distinction an open issue. See, for example, Gregory P. Nowell, *Mercantile States and the World Oil Cartel, 1900–1939* (Ithaca, NY: Cornell University Press, 1994).

17. Koray Caliskan and Michel Callon, “Economization, Part 1: Shifting Attention from the Economy towards Processes of Economization,” *Economy and Society* 38, no. 3 (2009): 368–398; Michel Callon, Yuval Millo, and Fabian Muniesa, eds., *Market Devices* (Malden, MA: Blackwell, 2007).

18. Michel Callon, “What Does It Mean to Say That Economics Is Performative?,” in *Do Economists Make Markets? On the Performativity of Economics*, ed. Donald A. MacKenzie, Fabian Muniesa, and Lucia Siu, 311–357 (Princeton, NJ: Princeton University Press, 2007); Bruno Latour, *Reassembling the Social: An Introduction to Actor-Network Theory* (Oxford: Oxford University Press, 2005).

19. To avoid burdening readers, I refer to STS and “sociotechnical” in broad terms but am drawing on specific scholarship from Actor Network Theory (ANT), performativity of economics, social shaping of technology, and infrastructure studies. ANT is exemplified in Michel Callon, “Some Elements of a Sociology of Translation: Domestication of Scallops and the Fishermen of St. Briec Bay,” in *The Science Studies Reader*, ed. Mario Biagioli, 67–94 (New York: Routledge, 1999), esp. 68.

20. Callon, “What Does It Mean to Say That Economics Is Performative?,” 348; Caliskan and Callon, “Economization, Part 1,” 12–13.

21. Bruno Latour, *Politics of Nature: How to Bring the Sciences into Democracy*, trans. C. Porter (Cambridge, MA: Harvard University Press, 2004), 12.

22. Historians and sociologists of technology have been studying infrastructures (e.g., large-scale technical systems, informational infrastructure) seriously and as an analytical category since the 1980s and 1990s. Exemplary works include Paul N. Edwards, *A Vast Machine: Computer Models, Climate Change, and the Politics of Global Warming* (Cambridge, MA: MIT Press, 2010); Ashley Carse, *Beyond the Big Ditch: Politics, Ecology, and Infrastructure at the Panama Canal* (Cambridge, MA: MIT Press, 2014); Geoffrey Bowker and Susan Leigh Star, *Sorting Things Out: Classification and Its Consequences* (Cambridge, MA: MIT Press, 2001).

23. Vincent Lepinay, “Parasitic Formulae: The Case of Capital Guarantee Products,” in *Market Devices*, ed. Michel Callon, Yuval Millo, and Fabian Muniesa, 261–283 (Malden, MA: Blackwell, 2007); MacKenzie, “An Equation and Its Worlds.”

24. For an important analysis that highlights the limits of traditional democracies in managing sociotechnical controversies by drawing on tools from STS to propose “technical democracy in action,” see Michel Callon, Pierre Lascoumes, and Yannick Barthe, *Acting in an Uncertain World: An Essay on Technical Democracy*, trans. Graham Burchell (Cambridge, MA: MIT Press, 2009).

25. See, for example, Michel Callon, “Society in the Making: The Study of Technology as a Tool for Sociological Analysis,” in *The Social Construction of Technological Systems: New Directions in the Sociology and History of Technology*, ed. Wiebe E. Bijker, Thomas P. Hughes, and Trevor J. Pinch, 83–103 (Cambridge, MA: MIT Press, 1987) on electric cars, and Bruno Latour, *Aramis or the Love of Technology*, trans. Catherine Porter (Cambridge, MA: Harvard University Press, 1996) on the building of a new rail system in France. In recent years, scholarship has started to address this bias, such as in Edwards, *A Vast Machine*, on the work of modeling in relation to the climate, and Carse, *Beyond the Big Ditch*, on the building of the Panama Canal.

26. Gabrielle Hecht, *The Radiance of France: Nuclear Power and National Identity after World War I* (Cambridge, MA: MIT Press, 1998). Hecht’s study of French nuclear power uses the concept of “technopolitical regime” to nicely map some of the larger sociotechnical processes at work in the building of the nuclear industry and national state. Also see Samuel Lussac, “The State as a (Oil) Company? The Political Economy of Azerbaijan,” *GARNET Working Paper 74/10* (Warwick, UK: Center for the Study of Globalisation and Regionalisation, University of Warwick, 2010). Lussac’s study of the building of the Azerbaijani oil network is another example of the extent to which energy and politics intertwine when one scrutinizes the connections between the so-called state and nonstate actors (human and nonhuman) involved.

27. My discussion of Khuzistan as a laboratory draws on Bowker, *Science on the Run*. For a discussion of STS scholarship on real-world experiments, see Matthias Gross, “Give Me an Experiment and I will Raise a Laboratory,” *Science, Technology & Human Values* 41, no. 3 (2015): 1–22. On the relation between imperialism and scientific expertise in transforming Africa into a laboratory, see Helen Tilley, *Africa as a Living Laboratory: Empire, Development,*

and the Problem of Scientific Knowledge, 1870–1950 (Chicago: University of Chicago Press, 2011).

28. Andrew Barry, “Technological Zones,” *European Journal of Social Theory* 9, no. 2 (2006): 239–253. Scholarship that draws on STS has identified strategies of unknowns, notably those of uncertainty, ignorance, and risk, but also ambiguity and forms of temporization practiced by international economic organizations such as the World Bank and the IMF. See the special issue on “Strategic Unknowns: Towards a Sociology of Ignorance” edited by Linsey McGoe in *Economy and Society* 41, no. 1 (2012).

29. More and more, historians are moving away from cultural history toward histories of the sociotechnical, influenced by STS. See Michael T. Allen and Gabrielle Hecht, eds., *Technologies of Power: Essays in Honor of Thomas Parke Hughes and Agatha Chipley Hughes* (Cambridge, MA: MIT Press, 2001); Tony Bennett and Patrick Joyce, eds., *Material Powers: Cultural Studies, History and the Material Turn* (New York: Routledge, 2010); Sara B. Pritchard, *Confluence: The Nature of Technology and the Remaking of the Rhone* (Cambridge, MA: Harvard University Press, 2011). Environmental historians, such as Richard White, are also paying more attention to the materiality of commodities and writing sociotechnical histories, in the way that William Cronon has been doing for some time. See William Cronon, *Nature’s Metropolis: Chicago and the Great West* (New York: Norton, 1991), and Richard White, *Railroaded: The Transcontinentals and the Making of Modern America* (New York: Norton, 2011). The history of the corporation figures in work like that of Philip Stern, *The Company State: Corporate Sovereignty and the Early Modern Foundations of the British Empire in India* (Oxford: Oxford University Press, 2011).

30. Timothy Mitchell, *Carbon Democracy: Political Power in the Age of Oil* (London: Verso, 2011). Toby Jones has also conceptualized the activities and meanings of scientific and technical knowledge in the building of oil and water infrastructure as internal to the work of building the national, Saudi Arabian state. The analysis departs significantly from mine, however, in treating science and technology as mere “instruments” of state power. See Toby Jones, *Desert Kingdom: How Oil and Water Forged Modern Saudi Arabia* (Cambridge, MA: Harvard University Press, 2010). On the importance of materials in politics, also see Andrew Barry, *Material Politics: Disputes along the Pipeline* (Malden, MA: Wiley, 2013).

31. Donald MacKenzie, “Nuclear Missile Testing and the Social Construction of Accuracy,” in *The Science Studies Reader*, ed. Mario Biagioli, 343–357 (New York: Routledge, 1999). Regarding the testing of nuclear missiles, decision-making processes involve a kind of heterogeneous engineering in which the technical characteristics of missiles, such as their accuracy, are determined based on design criteria. But at the same time, the decisions are organizational because the well-being of particular corporations, project offices, and whole branches of the armed services can depend on them, as can a multiplicity of careers. Thus, interests clash.

32. Jacqueline Best, "Bureaucratic Ambiguity," *Economy and Society* 41, no. 1 (2012): 86–106, esp. 101.
33. According to the dominant narrative, British imperial interests in naval expansion and in blocking Russian imperial encroachment from the north of Iran triggered Winston Churchill's decision, as First Lord of the British Admiralty, to get the British government involved in D'Arcy's oil venture by switching the Royal Navy's source of fuel from coal to an almost total dependency on oil.
34. Kenneth Pomeranz, *The Great Divergence: China, Europe, and the Making of the Modern World* (Princeton, NJ: Princeton University Press, 2000), 23. The energy shift to fossil fuels, particularly from wood to coal, produced a dramatic easing of northwest Europe's land constraints during industrialization.
35. *Ibid.*, 276, 280.
36. Steven G. Galpern, *Money, Oil, and Empire in the Middle East: Sterling and Postwar Imperialism 1944–1971* (Cambridge: Cambridge University Press, 2009), 1–2.
37. Timothy Mitchell, "McJihad," *Social Text* 73 (2002): 1–18, quote on 7. In his discussion of the global economy of oil, Mitchell locates a shift in the form of empire and its method of creating political control particular to the emergence of the oil corporation in the interwar period.
38. See Stern, *The Company State*, which studies the English East India Company on its own terms as the product of overlapping sovereignties, legal structures, and boundary making shaping the corporation's formation over an extended period, with important consequences for our understanding of the powers of the British Empire.
39. An account of Iran's historical experience with state building usually sees oil as central to understanding the patterns and problems of the state's social and economic development over the course of the twentieth century. The moment of despotic rule under the Pahlavi monarch, Reza Shah (1925–1941), is the usual point of departure for political and economic accounts that insist on the failure of Third World "pseudomodernist" leaders. These leaders are described as alienated from the culture and history of their own society yet as rarely demonstrating any "real understanding of European ideas, values, and techniques" in their problematic projects of rapid industrialization. See, for example, Homa Katouzian, *The Political Economy of Modern Iran: Despotism and Pseudo-Modernism, 1926–1979* (New York: New York University Press, 1981), 102–103.
40. For a critique of the boundary problem in theories of the state, and in relation to society, see Timothy Mitchell, "Limits of the State: Beyond Statist Approaches and Their Critics," *American Political Science Review* 85 (1991): 77–96. Mitchell argues that technical innovations in the organization and control of modern society are better understood as techniques of power and domination internal to social processes rather than occurring in terms of an external relationship between separate spheres.
41. Large-scale infrastructure projects were projects of state building, but they did not work simply as practices of reduction and simplification to render,

as James Scott argues, the holder of authority's "field of vision more legible and hence more susceptible to careful measurement and calculation." Scott's argument highlights the failures of methods of abstraction used to organize and control populations and industry, yet at the same time it assumes that there are more "real" or correctly scientific ways for a state authority to represent the objectives of its farmers, for example. See James C. Scott, *Seeing Like a State: How Certain Schemes to Improve the Human Condition Have Failed* (New Haven, CT: Yale University Press, 1998), 11.

42. The best discussion of how Western "democracies" relate to fossil fuels is provided by Mitchell's *Carbon Democracy*, which I draw on in this study to identify particular infrastructural configurations as incompatible with democracy. While democracies appear to thrive in Western contexts, they rely on the pursuit of undemocratic arrangements in other parts of the world, often in terms of the control, distribution, and sale of Middle East oil.

43. Antony Anghie, *Imperialism, Sovereignty, and the Making of International Law* (Cambridge: Cambridge University Press, 2007), 212.

44. Podobnik, *Global Energy Shifts*, 72–73. According to Podobnik, the history of these "complex commercial agreements" that were "designed and repeatedly revised, as broader geopolitical relationships ... underwent major shifts" begins after World War I with the San Remo Agreement of 1920, which granted British and French companies rights to the oilfields of Mesopotamia. Dutch interests controlled oil production in the East Indies and "Britain controlled the Indian and Burmese oil sectors."

45. Anthony Sampson, *The Seven Sisters: The Great Oil Companies and the World They Shaped* (New York: Viking Press, 1975), 6.

46. Thomas Brockway, "Britain and the Persian Bubble, 1888–1892," *Journal of Modern History* 13, no. 1 (1941): 36–47.

47. Ranin Kazemi, "The Tobacco Protest in Nineteenth-Century Iran: The View from a Provincial Town," *Journal of Persianate Studies* 7 (2014): 251–295.

48. The term *Seven Sisters* became widely used for the largest oil corporations in the 1950s when Enrico Mattei, head of the Italian state oil company, ENI, first popularized it. The term referred to Exxon, Shell, BP, Gulf, Texaco, Mobil, and Socal (or Chevron).

49. Barry, "Technological Zones," 246. Other zones include social and environmental matters affected by oil industry projects, corruption, and violence.

## Chapter 1

1. Ozokerite is a paraffin-like member of the bitumina family. See Alison Frank, *Oil Empire: Visions of Prosperity in Austrian Galicia* (Cambridge, MA: Harvard University Press, 2007), 54.

2. D'Arcy's legal counsel signed the actual text on his behalf. See Ferrier, *History of British Petroleum*, 643.

3. The British company was known as the Anglo-Persian Oil Company until 1935, when it was renamed AIOC. For consistency, I refer to the company as AIOC and the country as Iran, rather than Persia, except in direct quotations.
4. See “Concessions,” <http://www.iranicaonline.org/articles/concessions>.
5. A number of studies in the field of environmental history have examined the social and technical aspects of the global oil industry’s development within their respective geographic locations by considering the question of property development in relation to mineral rights. For a discussion of the history of property rights and the building of the oil market in California, see Paul Sabin, *Crude Politics: The California Oil Market, 1900–1940* (Berkeley: University of California Press, 2005); for the building of the oil market in Austrian Galicia, see Frank, *Oil Empire*.
6. *Ferae naturae* means “nature [wild] animals” or any animals that are not designated domesticated animals by law. As Peter Shulman explains, “In the late nineteenth century, the Pennsylvania Supreme Court in the United States ruled that on account of the migratory nature of oil and gas (it flowed underground), ownership of the resource belonged to the individual upon whose property the fuel was first brought to the surface” (Peter A. Shulman, “‘Science Can Never Demobilize’: The United States Navy and Petroleum Geology, 1898–1924,” *History and Technology* 19, no. 4 (2003): 365–395, quote on 378).
7. Ricardo Hausmann, “State Landed Property, Oil Rent and Accumulation in Venezuela: An Analysis in Terms of Social Relations,” doctoral dissertation, Cornell University, 1981, 64–65.
8. Ibid. Fernando Coronil also adds that oil production was significantly cheaper in all other oil-producing nations than in the United States, “in part because they had richer oilfields but also because oil extraction was more rationally organized than in the United States. Since the subsoil in these countries is public property, oil fields are not anarchically subdivided into scattered small plots, as in the United States. ... Given uniform market prices determined by high-cost US oil, this cost difference was the source of surplus profits for the oil companies that operated overseas” (Coronil, *The Magical State*, 53). Coronil sees state ownership of the subsoil as a more “rational form” of management control, but this chapter argues somewhat differently that forms of property developed due to a combination of the oil’s physical properties, and battles with local forms of property control that generated alternative political arrangements, rather than any (ir)rational forms of property management.
9. Michel Callon, “What Does It Mean to Say That Economics Is Performative?”
10. For a brief history of concessions (*emtiyazat*) in Iran, see <http://www.iranicaonline.org/articles/concessions>. For the Middle East, see Henry Catton, *The Evolution of Oil Concessions in the Middle East and North Africa* (Dobbs Ferry, NY: Oceana Publications, 1967).
11. Studies that consider the history of Anglo-Iranian oil, partially or in its entirety, focus mainly on concession disputes over royalty terms and postwar oil crises concerning nationalization of the oil industry. See, for example, Ervand

Abrahamian, *The Coup: 1953, the CIA, and the Roots of Modern U.S.-Iranian Relations* (New York: The New Press, 2013); Massoud Karshenas, *Oil, State, and Industrialization in Iran* (Cambridge: Cambridge University Press, 1990); Nikkie R. Keddie, *Modern Iran: Roots and Results of Revolution* (New Haven, CT: Yale University Press, 2003).

12. Wolff was previously responsible for having secured the famous British tobacco concession, which ultimately led to the first organized political struggle in Iran, uniting religious clerics, students, and merchants against foreign concessionary control. As a result, the ruling monarch had no choice but to revoke the concession in 1892. Wolff was also a leading figure behind the opening of the Karun River to international traffic. See Brockway, "Britain and the Persian Bubble, 1888–1892," 37–38.

13. Ferrier, *History of British Petroleum*, 5. Reuter's agent, Edouard Cotte, discussed de Morgan's reports with Kitabji at the Paris Exhibition in 1900. See Arash Khazeni, *Tribes and Empire on the Margins of Nineteenth-Century Iran* (Seattle: University of Washington Press, 2009), 117.

14. See Article 6 of the 1901 concession in Ferrier, *History of British Petroleum*, 641. On the connection to Russian oil, see Robert W. Tolf, *The Russian Rockefellers: The Saga of the Nobel Family and the Russian Oil Industry* (Stanford, CA: Hoover Institution Press, 1976); Nowell, *Mercantile States*, 53.

15. Nowell, *Mercantile States*, 50–51. On the role of the Swedish Nobel family and French Rothschild family in building the Russian oil industry, see Tolf, *The Russian Rockefellers*, 156.

16. Nowell, *Mercantile States*, 53.

17. Keddie, *Modern Iran*, 61–62, 69–71. The Anglo-Russian agreement was signed in 1907. According to Brockway, Russia strengthened its position in Iran from the 1880s on by "organizing under tsarist officers the only effective military force in the country" (Brockway, "Britain and the Persian Bubble," 37).

18. Iran's government actively sought loans to solve its chief financial problems and to reestablish control of the provinces. An alternative Baku-Batum pipeline route ultimately prevailed due to the lower cost it incurred for exports to the Far East via the Suez Canal as well as exports to Europe from the Black Sea. The route also avoided antagonizing the British. The construction of the pipeline was delayed through 1901, however, because the Russian minister of transportation continued to back the Persian route (Nowell, *Mercantile States*, 51).

19. This argument draws on Timothy Mitchell's critical account of the beginnings of the oil industry in the Middle East in "The Prize from Fairyland," *Carbon Democracy*, chap. 2. Nowell also questions the imperialist framing (Nowell, *Mercantile States*, 51). The BP company history takes on the imperialist narrative in Ferrier, *History of British Petroleum*.

20. Thus, Nowell explains that as long as D'Arcy met his contractual obligations to explore for oil, "the Russian pipeline project was stymied" (Nowell, *Mercantile States*, 53).

21. Mitchell says that after securing the 1901 concession in Iran, D'Arcy started to compete with the Deutsche Bank to win rights in Mesopotamia from Turkey (Mitchell, *Carbon Democracy*, 50). His attempts to obtain a concession received approval from the British Foreign Office in 1904 and diplomatic support starting in 1908. See Marian Jack (Kent), "The Purchase of British Government's Shares in the British Petroleum Company, 1912–1914," *Past & Present* 39, no. 1 (April 1968): 139–168, esp. 141.

22. Ferrier, *History of British Petroleum*, 70; Nowell, *Mercantile States*, 53.

23. Nowell, *Mercantile States*, 52–54.

24. Mitchell, *Carbon Democracy*, 50. After further exploration failures, the firm cut back its commitments in Iran: "It was primarily the protection of its Indian investments that took Burmah Oil Co into Persia" (in Ferrier, *History of British Petroleum*, 69, 92). Burmah Oil took a year to incorporate AIOC as there was little interest in developing a new source of supply at Masjid Suleiman. The company took another three years to lay an 8-inch pipeline to carry oil 140 miles to Abadan and build a set of machinery with which to refine it (Mitchell, *Carbon Democracy*, 54).

25. Nowell, *Mercantile States*, 52–53. Royal Dutch and Shell Trading and Transport entered the oil business in the Far East in the 1890s. Competition with Standard Oil forced these two companies to cooperate on Russian production as a supplement to their holdings in the Far East—this was the Asiatic Petroleum Company. Shell was strongest in transport, Royal Dutch in marketing, and Rothschild's company, Bnito, in production.

26. As Mitchell explains, one alliance formed to manage Asian trade and the other for Europe. As mentioned above, in 1905, the Shell group forced Burmah Oil to agree to a division of Asian sales, an agreement that Standard Oil also followed. On the European side, Rothschild joined the other large Caspian producer, Nobel, in 1906 and with Deutsche Bank, its partner in Romania, formed the European Petroleum Union (EPU) to manage the western European kerosene and fuel oil markets. The cartel agreed with Standard Oil to divide up European sales. The EPU worked in tandem with the 1905 cartel agreement, Asiatic Petroleum. See Mitchell, *Carbon Democracy*, 46–47; Nowell, *Mercantile States*, 59.

27. Pennsylvania (North America), Baku, Burma, Sumatra, Austrian Galicia, and Romania constituted the six main oil-producing regions of the world at the time. Oil companies knew of several sites in the Middle East where rival companies might develop large new sources of petroleum, "threatening the world with additional supplies" (Mitchell, *Carbon Democracy*, 46–47).

28. The Burmah Oil Company was threatened on two fronts—by the Shell group's (Asiatic Petroleum) oil exports from Baku eroding its sales in India, and by the potential development of oil in neighboring Mesopotamia. On the oil and railway scheme in Mesopotamia that threatened to circumvent AIOC's control of Iran's oilfields, see Mitchell, *Carbon Democracy*, 57–59.

29. Ferrier, *History of British Petroleum*, 24, 27–28. According to Ferrier, the first "serious geological reference" comes from W. K. Loftus's study, "On the

Geology of Portions of the Turco-Persian Frontier and the Districts Adjoining,” submitted in August 1855 to the Geological Society in London. Prior to going to Iran, de Morgan had worked as an Egyptologist. He published his findings on oil deposits in Iran in a multivolume, encyclopedic work, *Mission Scientifique en Perse*. See Khazeni, *Tribes and Empire*, 116.

30. Geoffrey Jones, *The State and the Emergence of the British Oil Industry* (London: Macmillan, 1981), 132.

31. Ferrier, *History of British Petroleum*, 55. The British Admiralty formed a very positive opinion of the “value of the Concession,” having had the advantage of reading geologists’ reports, “all pronounc[ing] favourably as to the petroliferous possibilities of the territory” (“Admiralty Commission on the Persian Oilfields,” April 6, 1914, no. 23–47, L/P&S/10/410, India Office Records (IOR), London).

32. Khazeni, *Tribes and Empire*, 116.

33. The region was transferred to Iraq after 1914. As Mitchell points out, it was also located near the Tehran-Baghdad road that passed through the town of Khanaqin, a location that might have been pursued by the Baku oil firms to bypass D’Arcy’s monopoly over pipeline construction to the Gulf (Mitchell, *Carbon Democracy*, 50).

34. Ferrier, *History of British Petroleum*, 66–67, 86–87.

35. Mitchell, *Carbon Democracy*, 59.

36. Mitchell, *Carbon Democracy*, 61. Mitchell adds that on the domestic front, the British government’s rescue of AIOC “provided a means to evade public scrutiny of the cost of a switch from coal to oil, but did nothing to address causes of those expenses—monopolistic control of oil prices.” The bailout also avoided the “democratic obstacle” of a rising labor force, seen in the movement by Welch coal miners. Also see Jack (Kent), “The Purchase of British Government’s Shares in the British Petroleum Company”; Nowell, *Mercantile States*, 54–57.

37. See A. A. Fursenko, *The Battle for Oil: The Politics and Economics of International Corporate Conflict over Petroleum, 1860–1930* (Greenwich, CT: JAI Press, 1990), 141. TPC was renamed the Iraq Petroleum Company (IPC) in 1928. The agreement excluded Egypt and Kuwait, which together with southern Iran were already under British control. See chapter 3.

38. Ferrier underplays the company’s relation to the British Admiralty and the role of the British government. It takes for granted the nature of relations between transnational corporations and governments. See Ferrier, *History of British Petroleum*, 10, 202–204, 260–261.

39. Keddie, *Modern Iran*, 54. On the Reuter concession see “Iran Under the Later Qajars, 1848–1922,” in Peter Avery, G. R. G. Hambly, and C. P. Melville, eds., *The Cambridge History of Iran, Volume 7: From Nadir Shah to the Islamic Republic* (Cambridge: Cambridge University Press, 1991), 174–212 esp. 187–191 and “The Iranian Oil Industry” in Peter Avery, G. R. G. Hambly, and C. P. Melville, eds., *The Cambridge History of Iran, Volume 7: From Nadir Shah to*

*the Islamic Republic* (Cambridge: Cambridge University Press, 1991), 639-705 esp. 640. Other renting precedents involving foreign concerns included European trading companies (Keddie, *Modern Iran*, 132). Ferrier explains that the first 1872 Reuter concession specifically granted rights in the extraction of coal, iron, copper, lead, and petroleum (Ferrier, *History of British Petroleum*, 24).

40. Brockway, "Britain and the Persian Bubble, 1888-1892," 38.

41. *Ibid.*, 39.

42. *Ibid.*, 41. As Ferrier notes, the ruling Qajar government had granted a few smaller petroleum concessions in the late nineteenth century but the operations were unsuccessful (Ferrier, *History of British Petroleum*, 24-27).

43. *Ibid.*, 42. Also see George N. Curzon, *Persia and the Persian Question*, vol. 2 (London: Longmans, Green, 1892); Mitchell, *Carbon Democracy*, 52. He also signed an agreement with the ruler of Kuwait to prevent the building of a pipeline.

44. Mitchell, *Carbon Democracy*, 53; Ferrier, *History of British Petroleum*, 43-44, 69; Nowell, *Mercantile States*, 53. Mitchell explains that this group of India-based British imperialists was attempting to expand the reach of Britain's Indian empire by establishing greater control of the Persian Gulf and encouraging local British monopolies in trade, steam navigation, and other enterprises.

45. Ferrier, *History of British Petroleum*, 33.

46. On the history of the doctrine of ownership in Iran see Ann K. S. Lambton, *Landlord and Peasant in Persia: A Study of Land Tenure and Land Revenue Administration* (London: Oxford University Press, 1953; reprint New York: I. B. Tauris, 1991), v (page citations are to the reprint edition); Afsaneh Najmabadi, *Land Reform and Social Change in Iran* (Salt Lake City: University of Utah Press, 1987); Eric J. Hooglund, *Land and Revolution in Iran, 1960-1980* (Austin: University of Texas Press, 1982). For the development of this argument in the Ottoman context, see Huri Islamoglu, *State and Peasant in the Ottoman Empire* (Leiden: Brill, 1994); Martha Mundy and Richard Saumarez Smith, *Governing Property, Making the Modern State: Law, Administration and Production in Ottoman Syria* (New York: I. B. Tauris, 2007). For the case of Egypt, which builds on Islamoglu's argument, see Timothy Mitchell, *Rule of Experts: Egypt, Techno-Politics, Modernity* (Berkeley: University of California Press, 2002), 57. On the transformation of local land tenure arrangements in relation to Mexican oil, see Myrna I. Santiago, *The Ecology of Oil: Environment, Labor, and the Mexican Revolution, 1900-1938* (Cambridge: Cambridge University Press, 2009).

47. Gene R. Garthwaite, *Khans and Shahs: A Documentary Analysis of the Bakhtiari in Iran* (Cambridge: Cambridge University Press, 1983), 19. Also see Khazeni, *Tribes and Empire*, chap. 4, passim.

48. Abadan is located approximately 30 miles east of Basra.

49. Ahmad Kasravi, *Tarikh-i Pansad Sal-i Khuzistan (Five Hundred Year History of Khuzistan)* (Tehran: Payam Press, 1950), 208.

50. Ibid. Ferrier also explains that the oil deposits of Iran have been utilized for centuries for “caulking boats, bonding bricks, setting jewelry, and in flaming missiles.” See L. Lockhart, “Histoire du Pétrole en Perse jusqu’au Début du XX Siècle,” *La Revue Pétrolifère* (Paris, 1938), cited in Ferrier, *History of British Petroleum*, 24.
51. According to Lambton, the official unit of currency in Iran was the *rial* (rs) composed of 1,000 *dinars*. “*Tuman*, while not in official use,” she explains, was “commonly employed to designate 10 rs.” The official exchange rate at the time of Lambton’s research in the 1940s and early 1950s was 89.40 *rial* to the British pound sterling (Lambton, *Landlord and Peasant*, 409–410).
52. Membership in these communities is usually understood in terms of kinship relations, so outsiders, especially European powers such as the British, called them “tribes”—a vague term for people the state does not control.
53. Kasravi, *Tarikh-i Pansad Sal-i Khuzistan*, 211. Also see William Theodore Strunck, “The Reign of Shaykh Khaz’al Ibn Jabir and the Suppression of the Principality of ‘Arabistan: A Study in British Imperialism in Southwestern Iran, 1897–1925,” doctoral dissertation, Indiana University, 1977, 349, 389.
54. In the region around Masjid Suleiman where the Bakhtiyari winter pastures were located, over 250 plows were known to exist. Crops such as wheat, barley, and small amounts of rice were under cultivation at the time of oil discovery. See Arash Khazeni, “Opening the Land: Tribes, State, and Ethnicity in Qajar Iran, 1800–1911,” doctoral dissertation, Yale University, 2005, 226.
55. Khazeni, “Opening the Land,” 74, 78, 86, 98. Khazeni explains that as leader (*ilkhān*) of the Bakhtiyari confederation from the 1870s onward, Husayn Quli Khan led a migratory administration, taxing on behalf of the state both the pastoral and agrarian wealth of the “tribes” through the *maliyat shakhi* (“horn” or flock tax) and the *kbish* (plow tax). As they became increasingly sedentary, the Bakhtiyari became easier targets for state taxation and control.
56. Lambton, *Landlord and Peasant*, 283.
57. Ibid., liv–lv.
58. Najmabadi, *Land Reform and Social Change*, 44–45.
59. Also see Lambton’s discussion of the multiple forms of *tuyūl* in the Qajar period (p. 139). She explains that “as the control of the [Qajar] government weakened so the tendency grew to convert *tuyūls* into *de facto* private property, inheritable and alienable by sale.”
60. Najmabadi refers to Lambton’s history as a “classic reference” for the study of property in Iran. See Najmabadi, *Land Reform and Social Change*, 43:214n1. For her treatment of *milk* (private property), see Lambton, *Landlord and Peasant*, lii, 51, 456. At one point, Lambton makes the translation while quoting a primary Farsi source dating from the fourteenth century that is discussing property arrangements in the tenth century.
61. Lambton, *Landlord and Peasant*, lv.
62. For example, Lambton explains that “all *divani* land, was ... potentially *khassseh*, since the *shah* could declare it so whenever he wished” (ibid., lv, 108).

63. See the four “older” aspects characterizing an imperialist empire’s method of achieving political control in a foreign land in the context of the shift to a new kind of colonizing corporation, the transnational oil corporation (Mitchell, “McJihad,” 7).

64. Ferrier, *History of British Petroleum*, 53. D’Arcy worked hard to relieve himself of the financial responsibilities of maintaining the concession, drilling for oil, and setting up a company by attempting to organize a syndicate prior to the creation of a company. In a violation of the concession’s terms, he failed to do so, but he finally succeeded in setting up an exploitation company rather than a concessionary company as he was in no position to do so without oil or financial support. With the significant financial involvement of Burmah Oil in 1905, a new Concessions Syndicate was subsequently formed.

65. *Farman* refers to a “decree, command, order, judgement,” often denoting a royal or government decree, “that is, a public and legislative document promulgated in the name of the ruler or another person holding elements of sovereignty.” See <http://www.iranicaonline.org/articles/farman>.

66. Grey to Barclay, January 4, 1911, no. 266, L/P&S/10/144, IOR.

67. Young to Lamb, March 22, 1912, 70335, British Petroleum Archives (BP), Coventry, UK.

68. Cox to Lorimer, March 9, 1909, 71194, BP.

69. “Lorimer to Ahwaz British Consulate containing extract of letter from Wilson to Reynolds,” March 16, 1909, 71194, BP.

70. Messieurs Strick, Scott and Co. to Wilson, September 30, 1910, no. 255, L/P&S/10/144, IOR.

71. Lambton, *Landlord and Peasant*, 238–239. For this period, Lambton no longer refers to *divani*.

72. *Ibid.*, 253.

73. Reynolds to Messrs. Concessions Syndicate, April 17, 1909, 71194, BP.

74. *Ibid.*

75. “Memorandum by Mr. Kitabji on the Affairs of the D’Arcy Oil Company in Persia,” Spring-Rice to Grey, enclosure in no. 49, March 21, 1907, 416/32, British National Archive, Records of the Foreign Office, Kew, UK (FO).

76. Jenkins to D’Arcy, March 27, 1902, 69403, BP.

77. *Ibid.*

78. Wallace to “Winchester House, London,” April 28, 1909, 71194, BP.

79. *Ibid.*

80. Agent for APOC to Minister of Mines and Public Works, June 5, 1911, 240–014783/18/(0–217), Iranian National Archive (INA), Tehran.

81. In *Governing Property*, Mundy and Saumarez Smith make a similar argument for the history of property and land registration in Ottoman Syria.

82. Mitchell, “McJihad,” 7.

83. Ferrier, *History of British Petroleum*, 48.
84. Ibid.
85. Ali Reza Abtahi, *Naft va Bakhtiyariha (Oil and the Bakhtiari)* (Tehran: Iranian Institute for Contemporary Historical Studies, 2005). Abtahi is citing Reynolds to Ali Sultaneh, November 16, 1904 (1322 Safar 12th), 42–43, Iranian Foreign Ministry Archive, Tehran. Also see Ferrier citing Reynolds to Jenkins, March 31, 1904, H12/27, BP, that the Bakhtiyari were not interested in the distinction between surface and subsurface rights.
86. See Ali Morteza Samsam Bakhtiari, *The Last of the Khans* (New York: iUniverse, 2006), 90.
87. Stephanie Cronin, “The Politics of Debt: The Anglo-Persian Oil Company and the Bakhtiyari Khans,” *Middle Eastern Studies* 40, no. 4 (2004): 1–34, esp. 4.
88. Cronin, “Politics of Debt,” 4.
89. Laurence Paul Elwell-Sutton, *Persian Oil: A Study in Power Politics*, History and Politics of Oil Series (Westport, CT: Hyperion Press, 1976), 19.
90. Cronin, “Politics of Debt,” 4.
91. Ibid., 6.
92. On the concept of technical device in relation to property and fish, see Petter Holm and Kare Nolde Nielsen, “Framing Fish, Making Markets: The Construction of Individual Transferable Quotas (ITQs),” in *Market Devices*, ed. Michel Callon, Yuval Millo, and Fabian Muniesa, 173–195 (Malden, MA: Blackwell, 2007).
93. Abtahi, *Naft va Bakhtiyariha*, 60.
94. “Memorandum by Mr. Kitabji on the Affairs of the D’Arcy Oil Company in Persia,” Spring-Rice to Grey, March 21, 1907, 416/32, FO.
95. Cronin, “Politics of Debt,” 5.
96. Mostafa Elm, *Oil, Power, and Principle: Iran’s Oil Nationalization and Its Aftermath* (Syracuse, NY: Syracuse University Press, 1992), 14.
97. Abtahi, *Naft va Bakhtiyariha*, 144. Extract from “Memorandum on the Governorship of Bakhtiaristan,” by M. Young, n.d., no. 386, 416/54, FO.
98. Elwell-Sutton, *Persian Oil*, 21.
99. Quoted in Elwell-Sutton, *Persian Oil*, 21.
100. On the first group of Bakhtiyari pastoral nomads and sedentary villagers recruited to join the oil industry as laborers working at the wellhead or refinery or as security guards, see Touraj Atabaki, “From ‘Amaleh (Labor) to Kargar (Worker): Recruitment, Work Discipline and Making of the Working Class in the Persian/Iranian Oil Industry,” *International Labor and Working-Class History* 84 (Fall 2013): 159–175.
101. Jones, *The State and the Emergence of the British Oil Industry*, 95–96. Charles Greenway managed Burmah Oil’s campaign to win and maintain the Indian kerosene market and as its managing director, directed AIOC’s

negotiations with the British government after 1912. He was a senior managing partner in Shaw, Wallace, and Company, which worked with Burmah and whose senior partner, Charles Wallace, joined Burmah Oil's board in 1902. Greenway discredited Shell in discussions with the government of India, suggesting a link to Standard Oil.

102. Greenway to Lloyd Scott & Co., April 8, 1910, 70275, BP.

103. Reynolds to Crow, February 25, 1909, 71194, BP.

104. Bakhtiari, *Last of the Khans*, 62–63. Bakhtiari cites Layard's work as *Early Adventures in Persia, Susiana, and Babylonia* (London: John Murray, 1894). Also see Khazeni, *Tribes and Empire*, 82. Khazeni explains that a Farsi translation of parts of Layard's travelogue was included in *Tarikh-i Bakhtiyari*.

105. Lloyd to Reynolds, April 10, 1910, 71194, BP.

106. Lambton, *Landlord and Peasant*, 282.

107. Garthwaite, *Khans and Shabs*, 18–19.

108. Lambton, *Landlord and Peasant*, 285.

109. Garthwaite, *Khans and Shabs*, 24–26. Khazeni also discusses this in *Tribes and Empire*.

110. "Bakhtiyari Affairs: The Land Problem," Dr. Young, Maydan-i Naftun, January 12, 1911, 70335, BP.

111. Young to ?, January 12, 1911, 71691, BP. See Ferrier, *History of British Petroleum*, 76.

112. Ibid.

113. Ferrier, *History of British Petroleum*, 146. The pipeline extended 130 miles from Masjid Suleiman to the Abadan refinery. The company had acquired 9.58 miles at Masjid Suleiman and a strip of land 17 miles long and 1 foot wide for a section of the pipeline extending from Masjid Suleiman to the limits of the Bakhtiyar Mountains.

114. Young to Lamb, April 18, 1911, 317–319, 70335, BP.

115. Ranking to Barclay, May 7, 1911, no. 112–113, L/P&S/10/144, IOR.

116. Young to Lamb, April 18, 1911, 220–221, 71691, BP. In March 1911, the khans employed a man from Isfahan, Farajullah, to "walk about with a stick measuring" the flatlands and the hills. This covered an area that G. B. Scott and "four natives" surveyed and mapped of the oilfields in preparation for the company's negotiations with the khans. For a detailed discussion of these land negotiations and surveying procedures, see Khazeni, *Tribes and Empire*, 154–155.

117. Khazeni, "Opening the Land," 303–304.

118. According to Lloyd to Reynolds, April 7, 1910, 70275, BP, AIOC offered 15 *tuman* per *jarib* for cultivated land and 3 *tuman* for grazing ground with an advance of £2500. Also see Lambton, *Landlord and Peasant*, 407.

119. Lambton, *Landlord and Peasant*, 406–407.

120. Ibid.

121. Ibid.
122. Timothy Mitchell, *Colonising Egypt* (Berkeley: University of California Press, 1991), 33, 44.
123. See *acre* in the *Oxford English Dictionary* (2nd ed., 1989).
124. Young to Lamb, April 25, 1911, 70335, BP. Also see Khazeni, *Tribes and Empire*, 155–156.
125. Ibid. The Farsi word to which they refer is not indicated in the documents.
126. Young to ?, 1911, 194–200, 71691, BP.
127. Major Noel to ?, October 10, 1921, 71691, BP.
128. Cronin, “Politics of Debt,” 7.
129. The agreement was known as the Bakhtiyari Land Agreement of 1911. In total, the khans had sold almost 7,000 acres of winter pastureland, which included customary grazing fields and arable lands. See Khazeni, *Tribes and Empire*, 125.
130. See “Bakhtiyari Affairs: The Land Problem,” Dr. Young, January 12, 1911, 70335, BP; cited in Khazeni, *Tribes and Empire*, 152–153.
131. See Young to Lamb, July 17, 1911, 70335, BP.
132. For a definition of translation as it works in STS, see Bruno Latour, *Pandora’s Hope: Essays on the Reality of Science Studies* (Cambridge, MA: Harvard University Press, 1999), 311.
133. Reynolds to Concessions Syndicate (Glasgow), February 16, 1909, no. 42, 71994, BP.
134. “Iraqi-Persian Relations and the Situation in Khuzistan,” February 27, 1928, 68419, BP. Known as Arvand Rud in Farsi, the Shatt al-Arab waterway is a river formed by the confluence of the Tigris and Euphrates rivers. The southern end of the river forms the border between Iraq and Iran down to the mouth of the river, which empties into the Persian Gulf. The Karun River, Iran’s only navigable river, also flows into the Arvand Rud. The major cities along the river are Abadan (site of the oil refinery) and Khorramshahr on Iran’s side, and the city of Basra in Iraq. The region remains one of the largest sources of dates in the world.
135. Cox to Lorimer, March 9, 1909, 71994, BP.
136. Sheikh Khazzal to APOC (translation), May 15, 1909, 71194, BP.
137. Strunck, “The Reign of Shaykh Khaz’al Ibn Jabir and the Suppression of the Principality of ‘Arabistan,” 396.
138. Cox to Sheikh of Mohammerah, May 15, 1909, L/P&S/10/132, IOR.
139. July 1, 1909, Enclosure 1, no. 350, L/P&S/10/144, IOR.
140. Cox to Wilson, November 6, 1910, no. 256, L/P&S/10/144, IOR.
141. Ibid.
142. Ibid.

143. Greenway to Mallet, December 5, 1910, 71573, BP.
144. Keddie, *Modern Iran*, 69–70, 75–76.
145. Cox to Butler, 1908, no. 148, L/P&S/10/132, IOR.
146. Strunck, “The Reign of Shaykh Khaz‘al Ibn Jabir and the Suppression of the Principality of ‘Arabistan,” 396–397.
147. Ervand Abrahamian, *Iran between Two Revolutions* (Princeton, NJ: Princeton University Press, 1982), 120.
148. Bakhtiari, *Last of the Khans*, 157–160.
149. *Ibid.*
150. *Ibid.*
151. *Ibid.*, 180. See also Abrahamian, *Iran between Two Revolutions*, 150; Strunck, “The Reign of Shaykh Khaz‘al Ibn Jabir and the Suppression of the Principality of ‘Arabistan,” chap. 7, *passim*.
152. “Revolt in Persia,” *The Times*, n.d., 68419, BP.
153. *Ibid.*
154. *Ibid.*
155. Chamberlain to Clive, November 4, 1927, no. 133, 416/81, FO.
156. Cronin, “Politics of Debt,” 9.
157. *Ibid.*, 11, 17.
158. *Ibid.*, 14, 19.
159. Lambton, *Landlord and Peasant*, 19.
160. Najmabadi, *Land Reform and Social Change in Iran*, 45.
161. See Lambton, *Landlord and Peasant*, 183.
162. “Diary of HBM’s Consul for Khuzistan, Ahwaz, no. 2, for month of February 1929,” signed by R. G. Money Penny (HBM’s Consul for Khuzistan), L/P&S/11/290, IOR.
163. ?, 1935, no. 496, 482, L/P&S/12/3400, IOR. For example, a representative of Nizam-us-Saltaneh arrived to claim many properties in the bazaar quarter of Ahwaz, in Khuzistan Province, but was ordered by government authorities of the local Finance Department to leave.
164. See Najmabadi, *Land Reform and Social Change in Iran*, 45.
165. Peter J. Beck, “The Anglo-Persian Oil Dispute 1932–33,” *Journal of Contemporary History* 9, no. 4 (1974): 123–151.
166. “Persian Concession: 1932–1993,” n.d., 1–32, 70223, BP. See Article 4 in particular. Specific clauses within Article 4 also defined the procedure by which land would be acquired by the company. Lands belonging to the government would undergo valuation at prices “not to exceed the current price of lands of the same kind and utilized in the same manner in the district.” Lands not belonging to the government “shall be acquired by the Company by agreement with the parties interested, and through the medium of the Government.” The

government would not allow owners of such lands to “demand a price higher than the prices commonly current for neighbouring lands of the same nature” and with no regard to “the use to which the Company may wish to put them.”

167. Amin Banani, *The Modernization of Iran, 1921–1941* (Stanford, CA: Stanford University Press, 1961), 143. A new national mining law was finally passed in 1953, after the nationalization of the oil industry. See “Persian Mining Law 1953,” n.d., 71888, BP.

168. Democratic forms of control would have to involve local actors, claimants, and public opinion in the decision-making process to devise novel scenarios for the organization of oil operations, negotiating contracts, setting production rates, and pricing. As Mitchell says, processes of democratization have generally depended on “engineering such forms of vulnerability ... that render the technical processes of producing concentrations of wealth dependent on the well-being of large numbers of people” (Mitchell, *Carbon Democracy*, 146). On “technical democracy,” also see Callon, Lascoumes, and Barthe, *Acting in an Uncertain World*, 228.

169. One newspaper reported that AIOC was busy demolishing “2000 houses of the poor people in order to have a road,” questioning why 20,000 people should be made homeless for a road. In another instance, Braim village, designated as the site for the construction of residential areas for European workers, was represented by the company as the site of “extreme congestion and highly insanitary conditions,” a danger to public health and “in consequence, to the operations of the Refinery proper.” See Jacks to Iranian Department of Industry, Ministry of National Economy, November 19, 1931, pp. 64–66, 240–005548/102/36/(0–97), INA. The company proposed to the Iranian government that property owners in locations such as Braim be compensated. This was to occur “on the basis of a valuation to be fixed by the Governor-General of Khuzistan, whereafter they should be allotted fresh sites in a new area to be laid out.” The company agreed with local Iranian government authorities that after having compensated individual property owners such as Mullah Salman and Mullah Ghanem, the village should be “evacuated and the local residents transferred to Abadan Town and not to a new site adjacent to Braim village.” See Iranian Interior Ministry (Khuzistan) to Head of Finance Cabinet, 1932, pp. 2–3, 240–00548/102/36/(0–97), INA. The inhabitants had no choice but to transfer their possessions outside the company compound. The company proposed that dwellings at Braim village be demolished and the owners allotted sites in Ahmadabad to construct new dwellings at their own expense. There were 210 complaints by displaced and resettled people regarding the valuation of their homes by the Department of Industry. See “Ministry of Finance (at Khuzistan) Report on Braim Lands” by Yusef Mofakham Sane’ae (Head of Khuzistan Province Finance/Fiscal Affairs), August 23, 1934, pp. 22–29, 240–018256/329/37/(0–67), INA. The local government at Khuzistan argued that the right of ownership to the land belonged to the natives of the area, but at the time of the transaction, these rights were not recognized and the residents still had not been justly compensated to rebuild homes elsewhere. See Rouhani to Ministry of Finance (Department of Concessions, Petroleum, & Revenue from Mines), April 22,

1942, pp. 47–48, 240–003836/71/16/(0–50), INA. Also see Rouhani to Ministry of Finance, January 26, 1942, pp. 22–23, 240–004029/71/17/(0–56), INA; Davari to Department General of Concessions and Petroleum and Revenues from Mines, May 28, 1950, pp. 119–123, 240–003102/53/35/(0–176), INA; Reza Deeba to Ministry of Finance, 1328/11/7, 112, 240–02367/26/31/(0–132), INA; Davari to Controller of Finance (Ahvaz), January 28, 1950, pp. 127–128, 240–003102/53/35/(0–176), INA.

170. For claims made by the descendants of Khaz'al, see Jakins to Rupert Hay, March 24, 1951, no. 7, 371/91265, FO. For those of the Bakhtiyari khans, see for example Sultaneh Morad Montazem ad-Dowleh to Ministry of Finance (commission concerning Bakhtiyari affairs), 1941–1942, pp. 12–13, 230–001924/(0–93), INA.

171. Bayat (NIOC) to General Bureau of Petroleum, Concessions, and Fisheries, 1954, p. 10, 240–001708/21/55/(0–132), INA.

172. Timothy Mitchell, “The Properties of Markets,” in *Do Economists Make Markets? On the Performativity of Economics*, ed. Donald MacKenzie, Fabian Muniesa, and Lucia Siu, 244–275 (Princeton, NJ: Princeton University Press, 2007), esp. 267.

173. Bruno Latour, *Science in Action* (Cambridge, MA: Harvard University Press, 1987), 2, 131–132.

## Chapter 2: Petroleum Knowledge

1. Podobnik, *Global Energy Shifts*, 2, 67. As mentioned in the introduction, the invention of the internal combustion engine in the late nineteenth century had first brought oil into direct competition with coal, rather than serving as a complementary source of energy. Podobnik explains that the oil industry initially provided products to support the preexisting coal system. Kerosene lamps were used in coal mining and oil-based lubricants were consumed in coal-powered rail locomotives and ships (p. 49). Colonial campaigns in Africa and Asia commenced the deployment of oil-powered vehicles and diesel-powered ships for war. This global energy shift, with countries such as the United States emerging as pioneers in petroleum development, posed a threat to British imperial power, and it triggered British state intervention in potential oil sectors such as aviation as well as naval and automotive transport (p. 65). Also see R. J. Forbes and D. R. O'Beirne, *The Technical Development of the Royal Dutch / Shell 1890–1940* (Leiden: Brill, 1957), which usefully parallels various technological developments discussed here within a different context.

2. Paul Lucier, *Scientists and Swindlers: Consulting on Coal and Oil in America, 1820–1890* (Baltimore: John Hopkins University Press, 2008), 268.

3. Podobnik, *Global Energy Shifts*, 72. Forbes and O'Beirne explain that to deal with the sulfur problem, AIOC adopted the hypochlorite process on a large scale (Forbes and O'Beirne, *Technical Development of the Royal Dutch / Shell*, 362).

4. As discussed in the previous chapter, imperial interest in fuel oil, among other factors, eventually encouraged the British Admiralty to step in with the essential commercial backing to transform AIOC into a new government-corporate entity, providing capital, a guaranteed demand, and political protection from regional unrest in Khuzistan. In exchange, the British Admiralty won an unlimited supply of fuel oil far below market prices and a controlling share in the company of 51 percent. Forbes and O'Beirne also explain that the British Navy, which was used to the Penna quality of turbine oil, only became interested in giving AIOC's oil a trial when the Amsterdam Laboratory succeeded in making good Mexican and Venezuelan substitutes (Forbes and O'Beirne, *Technical Development of the Royal Dutch / Shell*, 425).

5. Ferrier, *History of British Petroleum*, 14. For the company history of Anglo-Iranian oil framed as a business history, see Ferrier, *History of British Petroleum*; Bamberg, *History of British Petroleum*.

6. According to a petroleum engineering book published in the 1930s, petroleum expertise is the product of a universal history encompassing theories of oil accumulation that could be applied to any local setting. Building on evidence from American journals, company data, oil industry experts, and his professional experience, Dorsey Hager's *Fundamentals of the Petroleum Industry* (New York: McGraw-Hill, 1939) describes the history of oil in terms of the history of his own discipline—petroleum engineering. For a similar treatment, see Forbes and O'Beirne, *Technical Development of the Royal Dutch / Shell*.

7. Mitchell, "Carbon Democracy," 31–32.

8. For example, the 1928 oil cartel, as Nowell has shown, was actually a broader hydrocarbon cartel because it involved an agreement not just to restrict the production of oil but to prevent access to patents that would allow the coal industry to move into the production of synthetic oils using hydrogenation technology. See Nowell, *Mercantile States*, and my discussion of the 1928 cartel in chapter 3.

9. Instead, most of the scholarship situates the history of the first three decades of the concession's existence within the larger geopolitical and socioeconomic context. This context includes the formation of the Iranian state and the ruling monarch's campaign to modernize it by directing oil revenues toward large-scale military and industrialization projects, campaigns against foreign influence, and the suppression of semiautonomous nomadic groups that often served as intermediaries, provided security, and were a source of labor in the oilfields.

10. Bowker, *Science on the Run*.

11. See Callon, "Some Elements of a Sociology of Translation," 67–94; Latour, *Reassembling the Social*.

12. John Enos, *Petroleum Progress and Profits: A History of Process Innovation* (Cambridge, MA: MIT Press, 1962); Harold Williamson, *The American Petroleum Industry: The Age of Energy, 1899–1959*, vol. 2 (Evanston, IL: Northwestern University Press, 1963). These studies portray the history of oil in terms of a kind of technological determinism of innovation and progress propelling the expansion of an inevitably capitalist system.

13. Located in the southwestern province of Khuzistan bordering the Persian Gulf, 60 percent of the Bakhtiyari district—defined as an administrative unit by Iran’s Qajar government—was mountainous. Given the relative inaccessibility of the region, it was usually beyond the direct control of the government. See Garthwaite, *Khans and Shabs*, 19.
14. Other geologists built on his finding, but the various theories on the nature and origins of the rock formations across the Zagros mountain range remained controversial. See, for example, Ernest Raymond Lilley, *The Geology of Petroleum and Natural Gas* (New York: Van Nostrand, 1928), 155; R. K. Richardson, “The Geology and Oil Measures of South-West Persia,” *Journal of the Institute of Petroleum Technology* 10 (1924): 1–3; Edgar Wesley Owen, *Trek of the Oil Finders: A History of the Exploration for Petroleum* (Tulsa, OK: American Association of Petroleum Geologists, 1975), 1257, 1262–1263.
15. Ferrier, *History of British Petroleum*, 272.
16. *Ibid.*, 191.
17. J. W. Williamson, *In a Persian Oil Field* (London: Ernest Benn, 1927), 63.
18. Ferrier, *History of British Petroleum*, 272.
19. *Ibid.*, 135. One early problem in refining was that the kerosene continued to have a yellow tinge and the benzene fraction had an unpleasant smell. See Ferrier, *History of British Petroleum*, 152.
20. *Ibid.*, 272.
21. *Ibid.*, 455.
22. Bowker, *Science on the Run*, 2, 110.
23. The viscosity of fuel oil plays a role in the quality of combustion inside a diesel engine and must be regulated to achieve adequate engine efficiency (Hager, *Fundamentals of the Petroleum Industry*, 342). Viscosity is the internal friction between molecules of oil measured by resistance to flow. On the API (American Petroleum Institute) scale, so-called light oils are indicated by the higher degrees and the heavy oils, such as Iran’s oil, by the lower degrees. Among the numerous uses of the various fractions of oil, the gas fraction (natural gas) was used for heating, gasoline for automobile engines, fuel and gas oil for ocean transport, kerosene for lighting lamps, lubricating oil for petrolatum jelly, and asphalt for tractors and industry.
24. Bamberg, *History of British Petroleum*, 189.
25. Ferrier, *History of British Petroleum*, 148.
26. *Ibid.*
27. Cadman to Lloyd, January 17, 1923, 71537, BP.
28. *Ibid.*
29. F. E. Smith, “Obituary Notices of Fellows of the Royal Society: John Cadman, Baron Cadman, 1877–1941,” *Royal Society* 3, no. 10 (1941): 915–928, esp. 917 On John Cadman’s early role in shaping what would eventually become the Department of Chemical Engineering at the University of Birmingham,

see A. J. Biddleston and J. Bridgewater, "From Mining to Chemical Engineering at the University of Birmingham," in *One Hundred Years of Chemical Engineering*, ed. N. A. Peppas, 237–244 (Dordrecht, The Netherlands: Kluwer Academic Publishers, 1989).

30. "Birmingham University's New Oil Building," *NAFT II*, no. 4 (July 1926): 24–30, cited in Michael E. Dobe, "A Long Slow Tutelage in Western Ways of Work: Industrial Education and the Containment of Nationalism in Anglo-Iranian and Aramco, 1923–1963," doctoral dissertation, Rutgers University, 2008, 47.

31. Ferrier, *History of British Petroleum*, 689. Cadman (1877–1941) had acquired early work experience in England's collieries. He was a leading advocate of the application of science in all operations tied to the oil industry. See Smith, "Obituary," 1941.

32. Donald MacKenzie, "Missile Accuracy: A Case Study in the Social Processes of Technological Change," in *The Social Construction of Technological Systems: New Directions in the Sociology and History of Technology*, ed. Wiebe E. Bijker, Thomas P. Hughes, and Trevor J. Pinch, 195–222 (Cambridge, MA: MIT Press), esp. 219.

33. Keddie, *Modern Iran*, 75.

34. Ferrier, *History of British Petroleum*, 27.

35. Owen, *Trek of the Oil Finders*, 1263.

36. Jones, *The State and the Emergence of the British Oil Industry*, 158n51. AIOC built its first chemistry laboratory in Abadan, Iran, in 1935.

37. Owen, *Trek of the Oil Finders*, 1257. For a history of consulting geologists in North America, see Lucier, *Scientists and Swindlers*.

38. AIOC's geologists, engineers, and chemists published mainly in the *Journal of the Institute of Petroleum* (in the early years, from 1918; a British journal), the *World Petroleum Congress Proceedings* (in 1933, the first issue), and in older American journals such as the *Bulletin of the American Association of Petroleum Geologists* (AIOC published here in the 1930s) and the *American Mining Engineering Bulletin*.

39. Owen, *Trek of the Oil Finders*, 1254. On Redwood's work in Nigeria, see Phia Steyn, "Oil Exploration in Colonial Nigeria, c. 1903–58," *Journal of Imperial and Commonwealth History* 37, no. 2 (2009): 249–274. Also see Ferrier, *History of British Petroleum*, 32; Jones, *The State and the Emergence of the British Oil Industry*, 95.

40. Jones, *The State and the Emergence of the British Oil Industry*, 97. As Jones explains, Redwood was a chemist by training who became involved in the petroleum industry after 1870 and made important technical innovations and inventions. He also published what was, as Jones explains, the "standard textbook on petroleum matters" until after World War I.

41. Owen, *Trek of the Oil Finders*, 1259; Jones, *The State and the Emergence of the British Oil Industry*, 98.

42. Owen, *Trek of the Oil Finders*, 1256. Ferrier says that Redwood was on the British government's fuel oil committee and most likely informed them of D'Arcy's difficulties in funding oil exploration (Ferrier, *History of British Petroleum*, 61).
43. Jones, *The State and the Emergence of the British Oil Industry*, 99. His advice, suggests Jones, is what convinced Pretzman, president of the Admiralty Oil Committee of 1903–1906, to “oppose the entry of ‘foreign trusts’ into the oilfields of the Empire, and to support smaller British companies such as Burmah Oil.”
44. *Ibid.*, 104.
45. *Ibid.*, 134.
46. *Ibid.*
47. Through their contacts with G. & J. Weir & Co., Burmah Oil also handled most of AIOC's first pipeline construction. Shaw Wallace & Co., Burmah's managing agents in India, provided a variety of services for AIOC in the early years and hired Strick Scott & Co., also former managing agents for Burmah Oil. *Ibid.*, 135.
48. Owen, *Trek of the Oil Finders*, 1260.
49. Ferrier, *History of British Petroleum*, 691. Garrow explained that “we are not dealing with a field similar to Burmah or other fields like it which draw their production from sand.” In fact, “our conditions here ... resemble more those of Mexico” (D. Garrow to Cadman, “Persian Notes,” October 1, 1924, 1–12, 72018, BP).
50. *Ibid.* On Baku, see Ferrier, *History of British Petroleum*, 8.
51. Cadman to Sir Francis Ogilvie, November 6, 1922, 71537, BP.
52. “Confidential File on Considerations for the Establishment of a Formal Geological Survey Department with Permanent Staff,” 1922–23?, 1–15, 71537, BP. Most geologists were in their late twenties with degrees in mining, oil geology, petroleum technology, or chemistry from Cambridge, Oxford, Edinburgh, or Birmingham as well as oil experience in Venezuela, Burma, Mexico, Africa, and Mesopotamia. See “Particulars of Geological Staff,” February 26, 1923, 71537, BP.
53. Owen, *Trek of the Oil Finders*, 1261.
54. Bowker, *Science on the Run*, 21–22. As Bowker explains, geological considerations provided some help because a geologist could to a certain extent say whether “it was possible for oil to be found in such and such an area, though they could not determine with certainty whether it could be.” The range of geophysical surface methods yielded additional data, and sometimes this data could be correlated with underground structures and sometimes those structures could be correlated with oil, but “no link in this chain was firm.”
55. A geological fold occurs when a flat surface or stack of surfaces, such as sedimentary strata, are bent or curved as a result of some sort of stress underground, due to a change in pressure or temperature, for example.

56. Hager, *Fundamentals of the Petroleum Industry*, 138–139.
57. Owen, *Trek of the Oil Finders*, 1261.
58. *Ibid.*, 1266. The concept of a hydrostatic unit coincided with the notion of “unit control” of production, which encouraged single ownership of an oilfield to eliminate competitors in adjacent blocks.
59. Reynolds to Williams, May 30, 1909, 70275, BP.
60. W. H. Dalton to Boverton Redwood, July 12, 1904, 70275, BP.
61. Owen, *Trek of the Oil Finders*, 1261.
62. *Ibid.*
63. *Ibid.*
64. Bowker, *Science on the Run*, 83.
65. H. G. Busk and H.T. Mayo, “Some Notes on the Geology of the Persian Oilfields,” *Journal of the Institute of Petroleum* 5 (1918–1919): 3–26, esp. 7.
66. Busk and Mayo, “Some Notes on the Geology of the Persian Oilfields,” 3.
67. *Ibid.*
68. *Ibid.*, 5, 7.
69. *Ibid.*, 6. Each “series” consisted of a combination of clays, shales, and sandstone, while some also included limestone with the main oil zones.
70. *Ibid.*
71. Latour, *Science in Action*, 16.
72. Lucier, *Scientists and Swindlers*, 244.
73. Gabrielle Hecht, “Rupture-Talk in the Nuclear Age: Conjugating Colonial Power in Africa,” *Social Studies of Science* 32, nos. 5–6 (December 2002): 691–727, esp. 699. The inclusion of details of ethnic composition and relations in AIOC’s reports followed a long British colonial tradition, particularly prevalent in India, in which scientists recorded ethnographic, geological, archeological, and other information outside their own domains of interest.
74. Busk and Mayo, “Some Notes on the Geology of the Persian Oilfields,” 4.
75. *Ibid.*
76. Busk and Mayo, “Some Notes on the Geology of the Persian Oilfields,” 14.
77. See Cronin, “Politics of Debt.”
78. “APOC Concession in Persia: Policy of Geological Exploration in Persia,” Lister James to Cadman, February 23, 1923, 71537, BP.
79. Strunck, “The Reign of Shaykh Khaz’al Ibn Jabir and the Suppression of the Principality of ‘Arabistan,” 396.
80. Asef Bayat, “With or without Workers in Reza Shah’s Iran: Abadan, May 1929,” in *The State and the Subaltern: Modernization, Society and the State in Turkey and Iran*, ed. Touraj Atabaki, 111–122 (London: I. B. Tauris, 2007).
81. Bowker, *Science on the Run*, 10.

82. Michel Callon, "Society in the Making," 86. See note 38 for a list of international journals that company geologists, engineers, and chemists published their findings in.
83. "Admiralty Commission on the Persian Oilfields," April 6, 1914, no. 23–47, L/P&S/10/410, IOR.
84. *Ibid.*
85. Cadman on "Gas Pressure Problems on Maidan Naftun Field and Conservation of Resources," July 26, 1923, 70503, BP.
86. *Ibid.*
87. *Ibid.*
88. *Ibid.*
89. For example, the gradual fall in flowhead pressures, the relation of flowhead pressures to rock pressure, and the deductions to be drawn from pressure observations as to locations best calculated to give prolonged production.
90. The history of categories constructed for the estimation of oil reserves and lifespan is unclear in AIOC's case. On similar cases in the United States, see Shulman, "Science Can Never Demobilize," 376. Also see Gary Bowden, "The social construction of validity in estimates of US Crude Oil Reserves," *Social Studies of Science* 15, no. 2 (1985): 207–240.
91. Cadman on "Gas Pressure Problems on Maidan Naftun Field and Conservation of Resources," July 26, 1923, 70503, BP.
92. Terms included *rock pressure*, *flowhead pressure*, *datum pressure*, *normal oil*, *transitional oil*, *gas*, *transitional zone*, *rock elevation*, etc. Formulas included one to determine "Zero Level" at any given time; the "Normal Oil Level" of any proved gas dome; the difference in "Normal Oil Level" between any two gas domes; the relation between "Gas Reservoir Pressures" and "Gas Flowhead Pressures," and so on.
93. Bowker, *Science on the Run*, 33.
94. For a similar argument, see De Laet and Mol, "The Zimbabwe Bush Pump."
95. De Böckh was a Hungarian and former Under Secretary of State for Mines who was retained by AIOC to conduct surveys that were the beginning of a systematic program designed to map, on a one-fourth-inch to a mile scale, unexplored parts of the concession area. He recommended six anticlines for testing in Iran, four of which were proved giant fields! See Owen, *Trek of the Oil Finders*, 1262–1263.
96. "Preliminary Report on the Principal Results of My Journey to Persia," by Dr. H. de Böckh, May 15, 1924, 1–93, 70501, BP.
97. *Ibid.*
98. *Ibid.*
99. D. Garrow to Fraser, March 21, 1929, 72437, BP.
100. *Ibid.*

101. Barry, "Technological Zones," 249.
102. D. Garrow to Fraser, March 21, 1929, 72437, BP.
103. "M.I.S. Crude Oil Reserves," Garrow to Cadman, October 25, 1929, 72437, BP.
104. Comins to Jameson and Cadman, November 7, 1929, 72437, BP. Like "proved reserves," "unproved reserves" change over time. Unproved reserves refer to oil and gas underground that cannot be readily accessed because the infrastructure is not in place, or it does not make financial sense, or the presence of the oil or gas is assumed but not confirmed.
105. As Latour says, while a piece of technoscience is being developed, what counts as "nature" to be included in a theory and what counts as "background conditions" to be factored out are very much up for grabs. Once a new theory or technology is accepted, then nature itself is often reconfigured. "Technoscientists" will now claim that their theory had always described the way nature was. There was no way of saying a priori whether or not the bases for calculating reserve estimates were a better method. See Latour, *Science in Action*, 49.
106. Comins to Jameson and Cadman, November 7, 1929, 72437, BP.
107. Ibid.
108. Barry, "Technological Zones," 246.
109. "Report on Visit to Middle East Oilfields" by Dr. Nuttal (technical adviser to Petroleum Division), June 13, 1947, L/P&S/12/1195, IOR.
110. C. A. P. Southwell to Kemp, September 28, 1933, 8713, BP.
111. Other geological studies included were G. M. Lees, "Reservoir Rocks of Persian Oil Fields" and "Saltzgletscher in Persien"; J. V. Harrison, "The Geology of Some Salt-Plugs in Laristan (Southern Persia)"; J. A. Douglas, "A Marine Triassic Fauna from Eastern Persia" and "Contributions to Persian Paleontology."
112. Prior to the formation of this department as the central authority, the Ministry of Agriculture, Commerce, and Public Works (renamed the Ministry of Mines and Public Works after oil was first discovered in 1908) managed most problems organized around oil (e.g., property, exploration, geology surveys, the building and expansion oil facilities). See Agent for APOC to Minister of Mines and Public Works, June 5, 1911 (1329 lunar), 128, 240-014783/18/(0-217), INA; also see Agent for APOC to Ministry of Agriculture, Commerce and Public Works, April 3, 1924, 174, 240-014783/18/(0-217), INA. The organization of interests and concerns about oil at the state level occurred after Reza Shah came to power in 1926 and established the Bureau of Concessions and Oil within the Ministry of Finance. In the years immediately after the signing of the 1901 D'Arcy Concession until AIOC's establishment in 1909, most correspondence occurred directly between the First Exploitation Company and local political communities (e.g., Bakhtiyari khans, Shaykh Khaz'al), governors representing the central Qajar government, or ministers in Tehran.
113. "Memorandum on Jehangir, Petroleum Director," Elkington to London, October 25, 1933, 8713, BP.

114. Mayhew to Lefroy, October 11, 1933, 8713, BP.
115. Ibid.
116. Greenhouse to Fraser, January 27, 1934, 8713, BP.
117. "Information for the Persian Government: Article 13," Mayhew to ?, March 22, 1934, 8713, BP.
118. Ibid.
119. "Director Production Department's Conference: Exploration and Exploitation—Iran," July 1949, 44627, BP.
120. Ibid.
121. Bowker, *Science on the Run*, 36. The company pursued a similar strategy in organizing its labor regime along racial-technical lines. This would help limit the possibility of oil workers using their technical knowledge to disrupt the flow of oil from the wells, through the main pipeline, and out of the refinery.
122. Ibid., 46.
123. Ibid., 38.
124. A. E. Dunstan and George Sell, eds., *World Petroleum Congress Proceedings 1* (1933): xix.
125. Ibid.
126. Bowker, *Science on the Run*, 13.
127. Ibid., 12.
128. John Cadman, "Science in the Petroleum Industry," *World Petroleum Congress Proceedings 1* (1933): 563–570, esp. 563. Michael Faraday isolated "benzole (benzene)" in the course of studying gas from cracked oil (the breaking up of hydrocarbon molecules by heat application to produce lighter fractions). This technical invention was followed by James Dewar's work, which made possible the commercial extraction of helium and low-temperature rectification of liquefied gases.
129. Established in 1799 by British scientists, the Royal Institution in London was devoted to scientific education and research.
130. In chemical and petroleum engineering, "unit operation" refers to one converter or distillation column rather than to a transformation taking place in a single factory or facility.
131. Cadman, "Science in the Petroleum Industry," 564.
132. Ibid., 566.
133. Ibid., 569.
134. Ibid.
135. Bowker, *Science on the Run*, 14.
136. For details on AIOC's in-house circulation of production reports in Iran and London, see "Director Production Department's Conference: Exploration and Exploitation—Iran," July 1949, 44627, BP.

137. On the “anatomy of the claim to universality,” see G. Bowker, “How to Be Universal: Some Cybernetic Strategies, 1943–70,” *Social Studies of Science* 23 (February 1993): 107–127.

138. Mitchell, *Rule of Experts*, chap. 1, *passim*. Mitchell has demonstrated this for the case of Egypt as technical experts tried to learn from the failures of dam building and the construction of fertilizer plants.

### Chapter 3: Calculating Technologies in Crisis

1. Davar, the finance minister, made the announcement with the approval of the cabinet.

2. Ferrier, *History of British Petroleum*, 607.

3. *Ibid.*

4. Clive (British Legation, Tehran) to A. Henderson (FO), April 30, 1931, no. 4–16, enclosure no. 6–8 (translation), *Shafagh-i-Surkb*, April 24, 1931, L/P&S/12/3453, IOR.

5. Ferrier, *History of British Petroleum*, 642. Article 12 of the concession stipulated that “the workmen employed in the service of the Company shall be subjects of ... the Shah, except the technical staff such as the managers, engineers, borers and foremen.”

6. Ferrier, *History of British Petroleum*, 294.

7. Keddie, *Modern Iran*, 101.

8. Article 3 of the 1901 concession: “The above deduction (i.e. the refining and distributing allowances) shall be made from the total net profits of any Company ... and if such deductions more than absorb the whole of the profit then any deficiency so caused shall not be carried forward and ... shall not be set against the net profit in the case of any other Company.”

9. Other companies included the First Exploitation Company, Scottish Oils Ltd., Société Générale des Huiles de Pétrole, L'Alliance S.A. Belge, Commonwealth Oil Refineries Ltd. (Australia), and Det Forenede Oile Kompaniet A.S. (Denmark).

10. Beck, “The Anglo-Persian Oil Dispute,” 125.

11. Ferrier, *History of British Petroleum*, 605.

12. *Ibid.*, 601.

13. *Ibid.*, 602.

14. The 1928 figure was based on 1 shilling (s.) 10 pence (d.) royalty per ton, whereas the 1927 figure was 5s. 10d. Until 1971, the old British currency system used pounds (£), shillings (s.), and pence (d.). There were 12d. to the shilling and 20s. or 240d. to the pound. The adoption of decimal currency in February 1971 replaced the old system such that 100p = £1 or 100p = 240d.

15. “Royalty,” J. B. Lloyd, August 21, 1928, 1–4, 72176, BP.

16. Feroughi to Iranian minister, December 12, 1932, 88373, BP.
17. ?, 1928, 71074, BP.
18. Yergin, *The Prize*, 261.
19. Ibid. A price war was launched by William Deterding of Royal Dutch / Shell against Standard Oil of New York in retaliation for its purchases of Russian oil. AIOC also complained about the “phenomenally low freight rates and short routes” as well as the “most violent competition” between all the distributing companies for European markets, which made their position highly unstable. See Cadman to Teymouratche, August 7, 1931, in “Concession Revision and Royalty Negotiations, April 1929–May 1932,” 7, 88373, BP.
20. Yergin, *The Prize*, 263–264.
21. See Nowell, *Mercantile States*, 237–239. The I. G. Farben chemical industry made a collaborative deal with Standard Oil concurrently with the “As Is” oil negotiations. Fears over oil shortages before the mid-1920s were linked with attempts to convert coal/lignite to oil, using the Bergius process as licensed by BASF in Germany to American and British corporations.
22. The system relied on “antimarket” mechanisms to secure profits and maintain prices at “the relatively high price at which oil was produced and sold in Texas” (Mitchell, “McJihad,” 6, 8). To keep oil prices high, a state body known as the Texas Railroad Commission enforced a “system of rationing, by which the demand in any one month was shared among oil producers” (Sampson, *The Seven Sisters*, 76).
23. Yergin, *The Prize*, 204, 263–264. Sampson further explains that “the basis of the cartel was to be the maintenance of American prices.” World oil prices were set by the “Gulf Plus System,” which protected American oil by fixing the price of oil from “anywhere else ... at the price in the Gulf of Mexico,” from where most US oil was shipped abroad, “plus the standard freight charges for shipping the oil from the Gulf to its market.” The system was “a blatant device to keep up prices,” because American oil was threatened by cheaper oil from Iran and Venezuela. If AIOC sold cheap oil from Iran to a European country, for example, “the oil would be charged as if it came from the Gulf of Mexico ... and the saving would make a large profit for the company” (Sampson, *The Seven Sisters*, 73–74).
24. See chapter 1 for a discussion of this point.
25. Ferrier, *History of British Petroleum*, 582. See also Edward Peter Fitzgerald, “Business Diplomacy: Walter Teagle, Jersey Standard, and the Anglo-French Pipeline Conflict in the Middle East, 1930–1931,” *Business History Review* 67, no. 2 (1993): 207–245, esp. 207.
26. The new Iraqi government had first validated the oil concession claimed by TPC under the British mandate in March 1925.
27. Ferrier, *History of British Petroleum*, 585; Elwell-Sutton, *Persian Oil*, 46. Only after oil started to flow from southwest Iran did rivals such as Deutsche Bank pursue oil development in Mesopotamia (Mitchell, *Carbon Democracy*, 56).

28. In a joint venture with Gulf Oil, signed in 1934, AIOC gained a 50 percent share in the Kuwait Oil Company.

29. Ferrier, *History of British Petroleum*, 583. Consortium participants agreed that the British company should receive a 10 percent overriding oil royalty as compensation.

30. Iraqi oil was not exported until 1934. In March 1931, IPC renegotiated the 1925 agreement, granting itself an exclusive concession over the entire north-east of Iraq and tax exemptions in exchange for annual payments in gold until exports began. Oil revenues constituted 20 percent of government revenues on the signing of this agreement, compared to zero the previous year. See Charles Tripp, *A History of Iraq*, 2nd ed. (Cambridge: Cambridge University Press, 2002), 71.

31. On the role of technical devices, see Callon, "Some Elements of a Sociology of Translation," 67–94; also see Holm and Nielsen, "Framing Fish, Making Markets."

32. Beck, "The Anglo-Persian Oil Dispute," 126–127.

33. *Ibid.*, 133.

34. *Ibid.*, 147. The British government first became concerned with Anglo-Iranian relations in October 1932 in part because of its position in the Persian Gulf and the sanctity of international agreements, which, according to Beck ("The Anglo-Persian Oil Dispute," 147), "assumed far greater significance than oil interests." The shah was impatient with Britain's failure to acquiesce to his demands and began to search for a means of striking at British interests. AIOC interests offered an obvious target since the company constituted a British interest and the British government was the majority shareholder in the company. At the time, the shah was working to rid the Persian Gulf of British influence and this caused "friction with Britain" over Bahrain and Henjam. A series of "Persian notes" refusing recognition of the British protectorate over Bahrain and demanding British evacuation of Henjam resulted in "the Cabinet displaying an interest in Anglo-Persian relations." On November 2, 1932, prior to the cancellation decree, the British cabinet made the decision to adopt a firm line against Iran's demands on Bahrain and Henjam, while the company attempted to keep the two issues separate. On this latter point, see Beck, "The Anglo-Persian Oil Dispute," 127–128, 130. Also see no. 34128, "Copy in Translation. From the Persian Minister for Foreign Affairs Addressed to His Majesty's Minister, dated 21st Azer 1311 (12th December 1932)," 88373, BP.

35. Beck, "The Anglo-Persian Oil Dispute," 130–131.

36. *Ibid.*, 145.

37. *Ibid.*, 131–132.

38. Anghie, *Imperialism, Sovereignty, and the Making of International Law*, 209.

39. Beck, "The Anglo-Persian Oil Dispute," 133.

40. Under Optional Clause, Article 41 of the Statute. League of Nations Official Journal, *Annex 1419c: Memorandum by His Majesty's Government in the United Kingdom*, December 1932, 2299.
41. The Court was replaced by the International Court of Justice (ICJ) in 1946 when the United Nations was established.
42. Beck, "The Anglo-Persian Oil Dispute," 136.
43. *Ibid.*, 137.
44. *Ibid.*, 135–136.
45. League of Nations Official Journal, *Annex 1419c: Memorandum by His Majesty's Government in the United Kingdom*, December 1932, 2299–2308. Also, see "Notes on Points Raised by Persian Government—12.12.1932," December 1932, 88373, BP. AIOC was asked by the Foreign Office to address various points concerning Iranian government grievances as well as the potential for disturbances to arise to company property and personnel in the oilfields during the interim period of litigation between the two governments, with the notes intended for the use of British government representatives in Geneva.
46. *Ibid.*
47. *Ibid.* According to Ford, "it is an elementary principle of international law that a state has the right to protect its nationals when they have been injured by the internationally illegal conduct of another state." Further, "a state can interpose on behalf of a corporation incorporated under its own laws, the nationality of the corporation being derived from the place of incorporation." See Alan W. Ford, *The Anglo-Iranian Oil Dispute of 1951–1952: A Study of the Role of Law in the Relations of States* (Berkeley: University of California Press, 1954), 181.
48. League of Nations Official Journal, *Optional Clause Recognizing the Court's Jurisdiction as Described in Article 36 of the Statute*, January 1933, 17.
49. *Ibid.* The resolution referred to the *Optional Clause Recognizing the Court's Jurisdiction, as Described in Article 36 of the Statute*.
50. League of Nations Official Journal, *Annex 1422b: Memorandum from the Persian Government to the Secretary General of the League of Nations Regarding the Dispute between the United Kingdom and Persia in Connection with the Concession Held by APOC*, no. 2, January 1933, 288–302.
51. *Ibid.*
52. *Ibid.* In a letter to Teymourdash on royalty questions, Cadman wrote that "like you, I am anxious to avoid arbitration and very much prefer to settle all questions by mutual agreement." See Cadman to Teymourtache, August 7, 1931, in "Concession Revision and Royalty Negotiations, April 1929—May 1932," 9, 88373, BP.
53. League of Nations Official Journal, *Annex 1422b*, 295.
54. In this early period, the infrastructure, rules, and precedents of international law regarding concession contracts and the sovereignty of states were emerging

as a kind of metrological order, “a gigantic enterprise to make of the outside a world inside which facts and machines can survive” (Latour, *Science in Action*, 250–251).

55. Anghie, *Imperialism, Sovereignty, and the Making of International Law*, 204, 213. Anghie explains that “many of the controversies regarding the impact of new states on the rules of international law emerged in pointed form in disputes generated by the doctrine of state responsibility as related to the protection of foreign investment” (p. 209). Third World countries such as Iran argued that “nationalization was to be determined according to national rather than international standards, thus attacking ... the rules of state responsibility relating to foreign investment” (p. 213).

56. Beck, “The Anglo-Persian Oil Dispute.”

57. For a discussion of Latour’s approach to law as law by association, see Ron Levi and Mariana Valverde, “Studying Law by Association: Bruno Latour Goes to the Conseil d’État,” *Law & Social Inquiry* 33, no. 3 (2008): 805–825, esp. 806.

58. Latour, *Science in Action*, 254.

59. League of Nations Official Journal, No. 3215: *Dispute between the United Kingdom and in Regard to the Concession Held by the Anglo-Persian Oil Company*, February 1933, 198–199.

60. Ibid.

61. Ibid.

62. Ibid.

63. Ibid. For example, the Iranians had not taken any economic risks in exploiting the concession and it was a baseless accusation that the company was seeking to limit profitable production of oil in Persia, etc.

64. League of Nations Official Journal, No. 3215: *Dispute between the United Kingdom and in Regard to the Concession Held by the Anglo-Persian Oil Company*, February 1933, 201.

65. Robert Vitalis, *America’s Kingdom: Myth-Making on the Saudi Oil Frontier* (Stanford, CA: Stanford University Press, 2006), 19.

66. League of Nations Official Journal, No. 3215: *Dispute between the United Kingdom and in Regard to the Concession Held by the Anglo-Persian Oil Company*, February 1933, 205.

67. Ibid., 207.

68. Ibid., 208.

69. League of Nations Official Journal, No. 3206: *Dispute between the United Kingdom and Persia in Regard to the Concession Held by the Anglo-Persian Oil Company: Appointment of a Rapporteur*, no. 2, January 1933, 192.

70. League of Nations Official Journal, No. 3237: *Dispute between the United Kingdom and Persia in Regard to the Concession of the Anglo-Persian Oil Company (continuation)*, February 1933, 252–253.

71. Ibid.

72. Ibid., 253.

73. League of Nations Official Journal, No. 3284: *Dispute between the United Kingdom and Persia in Regard to the Concession of the Anglo-Persian Oil Company*, and *Letter from the Persian Government to the Secretary General of the League of Nations*, July 1933, 827–828, 996.

74. Anghie, *Imperialism, Sovereignty, and the Making of International Law*, 224.

75. Ibid., 209.

76. Beck, “The Anglo-Persian Oil Dispute,” 142.

77. It should be noted here that events on the ground in the oilfields were constantly changing in spite of the apparent stability of legal proceedings in the international arena. The company was increasingly anxious about the land around the Abadan refinery, as it feared a military response from the government. This in turn would provoke general disturbances on the island and endanger refining operations. See Elkington to London, January 27, 1928, 68419, BP. The recent completion of construction work at Abadan had also created the problem of unemployed surplus labor, leading to “mob action” and crowds gathering outside AIOC’s labor office with a “hostile attitude” and stoning the office. See Jacks to Teymourache, March 14, 1928, 68419, BP. There were rumors in March 1928 about the company’s intention to fire 10,000 Iranians and replace them with Indian and Iraqi laborers. As a result, more than 2,000 Iranian workers gathered in front of the company’s labor office in Abadan and threw stones at it. See Bayat, “With or without Workers in Reza Shah’s Iran,” 117. Also, disturbances among Arabic-speaking nomadic groups and local farmers, who inhabited and worked the land that was suddenly transformed into the oil regions, emerged in their refusal to pay taxes to the state on their date crops. See “Revolt in Persia,” *The Times*, January 19, 1928, 68419, BP.

78. “The Oil Prices in Persia,” Mostafah Fateh to APOC, 1932–33, enclosure A, 88373, BP.

79. Ibid.

80. “A Basis of Royalty Payments,” 1933, Appendix 3, 70223, BP.

81. Bamberg, *History of British Petroleum*, 47.

82. “A Basis of Royalty Payments,” 1933, Appendix 3, 70223, BP.

83. Ibid.

84. For illustrations of the other two schemes, see “A Basis of Royalty Payments,” 1933, Appendix 3, 70223, BP.

85. See “Scheme 1. Draft Clause,” “Scheme 2. Draft Clause,” and “Investigation of the Problem in General Terms,” n.d., 70223, BP.

86. Ibid.

87. Bamberg, *History of British Petroleum*, 45–47.

88. Ibid., 50.

89. By 1925, the new shah implemented his tribal policy to ethnically homogenize the state through a string of military campaigns against semiautonomous groups threatening his power, particularly in the oil regions of Khuzistan. He ousted Shaykh Khaz'al, confiscated oil shares controlled by the rival Bakhtiari confederation, and forced its chiefs to sell all their land and disarm. See Abrahamian, *Iran between Two Revolutions*, 120; Cronin, "Politics of Debt."
90. Latour, *Reassembling the Social*.
91. I am building on Michel Callon's concept of translation (see Callon, "Some Elements of a Sociology of Translation," 68).
92. Accounts of the concession crisis of 1932–1933 in Iran mention the dispute only in passing. See Katouzian, *The Political Economy of Modern Iran*; Keddie, *Modern Iran*; Abrahamian, *Iran between Two Revolutions*; Peter Avery, G. R. G. Hambly, and C. P. Melville, eds., *The Cambridge History of Iran*, Volume 7: *From Nadir Shah to the Islamic Republic* (Cambridge: Cambridge University Press, 1991), 643–648.
93. Hughes, *Networks of Power*, 33–34.
94. "Persian Concession, 1933–1993," 10, 70223, BP.
95. The Iranian parliament voted to reopen negotiations concerning Article 16 on Persianization, along with the rest of the terms of the 1933 concession, in 1947.
96. *Shafagh-i-Surkh*, April 22, 1931, and April 23, 1931, no. 12–16, L/P&S/12/3453, IOR.
97. "Persian Concession. Article 16—Personnel in Persia," November 16, 1933, 1–5, 52889, BP.
98. *Ibid.*
99. "Details Estimated Costs and Notes on the Company's General Plan," 1934, 52890, BP.
100. Or at least the recognition of common terms like *steam oil*, and the use of various measuring devices such as thermometers, hydrometers, gauges, and the operation of boilers and pumps. See "Persian Concession. Article 16—Personnel in Persia," November 16, 1933, 1–5, 52889, BP.
101. "D—Organization of the Oil Co. Apprentice Trainees" in "List of Proclamations and Pamphlets Published during the Recent Strike and Disturbances," March/April 1951, 68908, BP.
102. "Report on Matters Relevant to Article 16 Covering Period May 1933 to December 1934" by Elkington, 1934, 52885, BP.
103. Elkington to Gass, August 20, 1935, 52885, BP.
104. *Ibid.*
105. *Ibid.*
106. On the history of AIOC's racial organization of living and working conditions in the oil regions of southwest Iran, see chapter 4.
107. "General Plan (2 April 1936)," July 16, 1936, 126413, BP.

108. See graph, “Percentage of Foreign to Total Personnel,” in “General Plan,” July 16, 1936, 126413, BP. The graph shows an overall decline in the proportion of foreign personnel to total personnel (including unskilled labor) from 14 percent in January 1932 to about 8.5 percent in August 1935. Not including unskilled labor, the value shifts from approximately 27 to 17.5 percent for the same period.

109. Neveen Abdelrehim, Josephine Maltby, and Steven Toms, “Imperialism, Employment, and Racial Discrimination: The Anglo-Iranian Oil Company, 1933–51,” paper presented at the Business History Conference, University of Georgia, Athens, March 2010, <http://www.thebehc.org/annmeet/program10.html#E5>, 3, 7.

110. See “Report on Visit to Tehran 31st August to 26th October 1948,” 36, 126407, BP, cited in Abdelrehim, Maltby, and Toms, “Imperialism, Employment, and Racial Discrimination,” 30. The latter series of negotiations pressing for Persianization had occurred in the context of AIOC’s attempts to renegotiate its oil drilling rights with the ruling government.

111. As noted earlier, Reza Shah changed the country’s name from Persia to Iran in 1935. The terminology used in British archival documents after 1935 notes this shift by referring to “Persianization” as “Iranianization.” For consistency, I have kept the term as “Persianization.”

112. Abdelrehim, Maltby, and Toms, “Imperialism, Employment, and Racial Discrimination,” 31–32.

113. *Ibid.*, 33–34.

114. Timothy Mitchell, “Culture and Economy,” in *The Sage Handbook of Cultural Analysis*, ed. Tony Bennett and John Frow, 447–466 (London: Sage, 2008), esp. 458–459.

115. Social histories of Iran’s oil workers for this period focus on the question of unionization, political ideology, and degree of organization without considering how oil’s technical properties and the terms of the concession contract concerning Persianization shaped disputes. See for example, Bayat, “With or without Workers in Reza Shah’s Iran”; Fred Halliday, “Iran: Trade Unions and Working Class Opposition,” *MERIP Reports*, no. 71 (1978): 7–13. A conference paper has investigated more carefully the terms of Article 16 of the 1933 concession, but still reads the problem as a mere reflection of the “negative attitude” and “anti-Iranian” sentiment of AIOC managers (Abdelrehim, Maltby, and Toms, “Imperialism, Employment, and Racial Discrimination”). On the specificity of the oil worker as compared with coal workers and the consequences for democratic forms of politics, see Mitchell, “Carbon Democracy.”

116. On the work of technical devices see Michel Callon, Yuval Millo, and Fabian Muniesa, eds., *Market Devices* (Malden, MA: Blackwell, 2007). Also see Callon’s introduction in Callon, *Market Devices*. He discusses how economics helps format the world it claims to describe.

117. Mitchell, *Rule of Experts*, chap. 1, *passim*.

118. *Ibid.*, 34.

119. Callon, "Some Elements of a Sociology of Translation," 71, 74–75.

#### Chapter 4: What Kind of Worker Does an Oil Industry Require to Survive?

1. The majority of unskilled and skilled workers (excluding managerial and engineering staff who were British) were recruited locally from Arab nomadic groups in Khuzistan and from Bakhtiyari nomads of the surrounding mountains, or in the case of skilled workers, from Isfahan and Tehran. Technical and clerical workers were brought from India, especially in the early years. According to Halliday, who is citing Charles Issawi, oil production created the "first substantial section of the Iranian proletariat" from Iranian migrant workers in the oilfields and towns of the Caucasus in southern Russia at first, and subsequently in the oilfields of Iran. In 1915, there were 13,500 Iranians in the oil workforce of Russian Azerbaijan, and by 1920, 20,000 Iranians were employed by the oil company in southwest Iran (Halliday, "Iran," 9).
2. For national and local histories of Iran's oil workers in AIOC, see Danesh Abbasi-Shahni, *Tarikh-i Masjid Suleiman (History of Masjid Suleiman)* (Tehran: Hirmand Press, 1995); Touraj Atabaki, "Far from Home, but at Home: Indian Migrant Workers in the Iranian Oil Industry," *Studies in History* 31, no. 1 (2015): 85–114; Atabaki, "From 'Amaleh (Labor) to Kargar (Worker)"; Kaveh Bayat, "With or without Workers in Reza Shah's Iran"; Patrick Clawson, "Capital Accumulation in Iran," in *Oil and Class Struggle*, ed. Petter Nore and Terisa Turner, 143–171 (London: Zed Press, 1980); Kasravi, *Tarikh-i Pansad Sal-i Khuzistan*; Habib Ladjevardi, *Labor Unions and Autocracy in Iran* (Syracuse, NY: Syracuse University Press, 1985). For scholarship on oil workers in the Middle East, see Joe Stork, "Oil and the Penetration of Capitalism in Iraq," in *Oil and Class Struggle*, ed. Petter Nore and Terisa Turner, 172–198 (London: Zed Press, 1980); Vitalis, *America's Kingdom*.
3. Here, I build on Vitalis's definition of paternalism (Vitalis, *America's Kingdom*, 19–21).
4. On labor and race in the operations of firms, see Dobe, *A Long Slow Tutelage in Western Ways of Work*; Philip J. Mellinger, *Race and Labor in Western Copper: The Fight for Equality, 1896–1918* (Tucson: University of Arizona Press, 1995); Carlos A. Schwantes, *Vision & Enterprise: Exploring the History of Phelps Dodge Corporation* (Tucson: University of Arizona Press, Phelps Dodge Corporation, 2000); White, *Railroaded*.
5. T. A. B. Corley, *A History of the Burmah Oil Company 1886–1924* (London: Heinemann, 1983), 146–164.
6. Mitchell, "Carbon Democracy," 413. Mitchell is discussing the first set of connections between fossil fuels and democracy, in which the mobilization of new political forces—mass political movements—depended in part on the organization of the flow of unprecedented amounts of nonrenewable fossil fuels such

as coal and oil. To suggest that more democratic forms of energy production are possible, I am arguing that oil workers, oil-producing states, and public opinion, for example, would have a say in the decision-making process of designing the industry and its markets. Thus, the enormous amounts of wealth generated from technical operations of oil production, distribution, and marketing would be tied to the well-being of large numbers of people. See Mitchell, *Carbon Democracy*, 146.

7. Mitchell, "Carbon Democracy," 407–413.

8. Podobnik, *Global Energy Shifts*, 47–49.

9. *Ibid.*, 47.

10. Vitalis, *America's Kingdom*, 20.

11. Mark Crinson, "Abadan: Planning and Architecture under the Anglo-Iranian Oil Company," *Planning Perspectives* 12, no. 3 (1997): 341–359, esp. 342–343. The new neighborhood was built in 1912 and first named "Coolie Lane," then renamed "Sikh Lane," and finally changed to "Indian Lane." See Atabaki, "Far from Home," 102.

12. Williamson, *In a Persian Oil Field*, 14.

13. Crinson, "Abadan," 346.

14. *Ibid.*, 342.

15. *Ibid.*, 345–346.

16. Crinson, "Abadan," 342. Also see Mark Crinson, *Modern Architecture and the End of Empire* (Burlington, VT: Ashgate, 2003).

17. Cracking oil refers to a refining process that involves the physical and chemical breakdown of heavy carbon chains of crude oil into lighter fractions to produce multiple petroleum byproducts such as gasoline.

18. Crinson, "Abadan," 346.

19. Mitchell, *Colonising Egypt*, 163–164. As Mitchell has argued with regard to the colonial ordering of Cairo, both "economically and in a larger sense, the colonial order depended upon at once creating and excluding its own opposite."

20. "Economic Report No. 8: Persian Employees of the Anglo-Persian Oil Company" by B. Temple (Major, Commercial Secretary, HBM Legation, Tehran), March 11, 1922, L/P&S/11/224, IOR. See Trevor to Des Bray, October 18, 1922, *ibid.*

21. Atabaki, "Far from Home," 88–89. Shaw Wallace & Co. Ltd. was the agent recruiting labor in India for AIOC operations in Iran.

22. Secretary of Government of India (Foreign and Political Department) to Chairman of the Board of AIOC, November 25, 1920, 68731, BP. On the suspension and reinstatement of the Emigration Act, see Atabaki, "Far from Home," 92–93, 97–98.

23. *Ibid.*

24. *Ibid.*

25. "Appendix to Correspondence: Abadan Refinery Strike Commencing 14 March Terminating 22 March, 1922," n.d., *ibid.* Complaints of "ill-treatment" of Indian labor against the company triggered the Emigration Act's subsequent reinstatement. Garrow (AIOC) to Secretary of India, December 21, 1920, 68731, BP. The escalation of labor protests by Indian workers in 1922 triggered the decision to amend the Emigration Act "to end the practice of indentured labor, extensively practiced during the War." AIOC could only recruit migrant labor for a maximum period of one year, and this created labor shortages and costs (Atabaki, "Far from Home," 97).
26. See Dr. Ghore, "Indian Workers in Persia (Miserable Conditions)," *Bombay Chronicle*, January 10, 1922, in Trevor to Des Bray, March 15, 1922, enclosure 3, L/P&S/11/213, IOR.
27. General Committee of the Workmen (Indians) to L. F. Bayne (Joint Works Manager, AIOC-Abadan), March 10, 1922, L/P&S/11/213, IOR.
28. "Report by HBM's Consul H. G. B. Peel, Ahwaz" in Trevor to Des Bray, March 15, 1922, enclosure 5, L/P&S/11/213, IOR.
29. *Ibid.*
30. *Ibid.*
31. Cox to Lorimer, March 9, 1909, 71994, BP.
32. Kasravi, *Tarikh-i Pansad Sal-i Khuzistan*, 211.
33. Trevor to Des Bray, March 28, 1922, L/P&S/11/224, IOR.
34. The documents do not explain where the Chittagonian laborers came from, but the Chittagonian language is spoken today by people in southeastern Bangladesh. Perhaps it is safe to assume that they arrived in Iran from the northeast region of India known as Bengal. Touraj Atabaki explains that the majority of migrant workers recruited to the British-controlled oil industry in Iran from Burma were "Indians" employed by the Burmah Oil Company. These workers were "mainly Chittagonian Sunni Muslims" who had gained experience working in Burma's oil industry since the 1890s. Other workers included Punjabi Sikhs. See Atabaki, "Far from Home," 90, 96.
35. Cox to Lorimer, March 9, 1909, 71994, BP.
36. Trevor to Des Bray, March 28, 1922, L/P&S/11/224, IOR.
37. Nichols (Managing Director, AIOC) to General Managers at Strick, Scott, and Co., Ltd., March 28, 1922, 54496, BP.
38. Viceroy to Secretary of State, March 27, 1922, BP 54496.
39. Political Resident (Persian Gulf, Bushire) to Foreign Secretary of Government of India in Foreign and Political Department, March 27, 1922, no. 14, 54496, BP.
40. *Ibid.*
41. J. Rieu (Commissioner in Sind) to Secretary of Government of Bombay in Home Department, April 13, 1922, 54496, BP.
42. Bayat, "With or without Workers," 112.

43. I am drawing on Barry's concept of "technological zone" in his study of the global oil industry (see Barry, "Technological Zones," 239–253).
44. Dobe, *A Long Slow Tutelage in Western Ways of Work*, 36.
45. Young to Finlay, August 12, 1911, 159–161, 70335, BP.
46. H. E. Nichols to R. I. Watson, May 9, 1921, 54506, BP, cited in Atabaki, "Far from Home," 97.
47. Nichols to General Managers at Strick, Scott, and Co., Ltd., March 28, 1922, 54496, BP. AIOC officials prevented Indian laborers from getting rehired by other oil companies, such as the Burmah Oil Company in Rangoon.
48. "Appendix to Correspondence: Abadan Refinery Strike Commencing 14 March Terminating 24 March 1922," n.d., L/P&S/11/224, IOR.
49. Bayat, "With or without Workers," 112.
50. Crinson, "Abadan," 346.
51. *Ibid.*, 348.
52. Crinson, *Modern Architecture and the End of Empire*, 62–63.
53. The decision was made at the party's second congress, held in December 1927 (Bayat, "With or without Workers," 114). It must be noted that the Iranian government, led by Reza Shah, banned all trade unions starting in 1927. Many communist and socialist labor organizers were arrested in cities across Iran such as Abadan. See Abrahamian, *Iran between Two Revolutions*, 139.
54. Bayat, "With or without Workers," 115. Through the collaboration of the communist and socialist parties, the Central Council of Federated Trade Unions (CCFTU) was established in 1921 and successfully organized over thirty unions throughout Iran (Abrahamian, *Iran between Two Revolutions*, 129).
55. *Ibid.*, 115, 118.
56. Prior to Reza Khan's rise to power in the 1920s, it had been advantageous for AIOC to strengthen semiautonomous political communities in southwest Iran in the event of the ruling Qajar government's collapse. See Cox to Butler, 1908, no. 148, L/P&S/10/132, IOR. The British government dramatically shifted its strategy after 1921, engineering the installation of Reza Khan and a strong centralized government to suppress any further threats from Iran's provinces, especially Khuzistan. Formerly a Cossack Brigade member, Reza Khan changed his name to Reza Pahlavi and formalized the execution of the British-supported coup by ordering the constituent assembly to depose the Qajar government in 1925.
57. "'Note' Chairman's Folder on Labor Agitations," and "Telegrams Re Labour Agitations in Persia," May 28, 1929, 1–70, 68899, BP. Atabaki says there were approximately 9,000 workers (Atabaki, "Far from Home," 109).
58. Elkington to Greenhouse, May 4, 1929, 59010, BP.
59. Abadan to Chairman, May 4, 1929, 59010, BP.
60. *Ibid.*

61. "Extract from 'Hablul Matin' Paper No. 20 & 21: 'Strike in Abadan,'" June 4, 1929, 59010, BP. Also see Atabaki, "Far from Home," 109.
62. Abadan to Cadman, May 6, 1929, 59010, BP.
63. Abadan to Cadman, May 7, 1929, 59010, BP.
64. Jacks to Cadman, December 23, 1929, 59011, BP.
65. *Shafagh-i Sorkh*, Mordad 1309 (August 1929), Library of the Majlis (Iranian parliament).
66. "Report by Mohammad Hassan Bade'a to the Foreign Ministry on the Abadan Oil Workers' Agitation due to Discrimination amongst Them and the Indian Workers by way of the Anglo-Persian Oil Company," no. 36, 24 Ordibihisht 1308 (May 14, 1929), cited in *Naft Dar Durah-i Reza Shah* (Tehran: Sazman-i Chap va Intisharat-i Vizarat-i Farhang va Irshad-i Islami, 1378), 107–111.
67. "A Report by the Head of Khoramshahr's Post and Telegraph, Office on the Abadan Disturbances," no. 1026, 16 Ordibihisht 1308 (May 6, 1929), *Naft Dar Durah-i Reza Shah*, 99–100.
68. "Extract from 'Hablul Matin' Paper No. 20 & 21: Strike in Abadan," June 4, 1929, 59010, BP.
69. Ibid.
70. Ibid. Also see Cadman to Nichols, March 25, 1926, 72344, BP.
71. Kaveh Ehsani, "Social Engineering and the Contradictions of Modernization in Khuzestan: A Look at Abadan and Masjed-Soleyman," *International Journal of Social History* 48, no. 3 (2003): 361–399, esp. 385. Thus, as more Iranian labor was accommodated "inside" operations, there was continuity from the 1920s in terms of the racially segregated layout of facilities but also and simultaneously along technical (occupational) lines. The professionally planned layout of residential estates was introduced in the 1930s. See Crinson, "Abadan," 345.
72. Ehsani, "Social Engineering," 362.
73. Prior to the 1929 strike, AIOC's "Central Official Relations Department" served as the "final authority" on labor matters, managing disputes among employees and petitions and complaints to local authorities. The department ensured that "blacklisted men" were not reengaged in other oil operations abroad. A "Finger Print Bureau" worked to deter the employment of "undesirables," to identify and provide information on laborers previously engaged by the company at other centers, and to "bring deviant acts to the attention of local authorities" by monitoring labor movements, propaganda, and Soviet activities. The "Labor Department" was responsible for discharging labor, training artisans, testing workers into various grades, ensuring standard wages and accommodations for each class and grade of labor, and receiving petitions, complaints, and applications for work. See "Report on Relations between Company and Its Labour and Suggestions for Improvement of Existing System," May 1, 1929, 59011, BP.

74. Vitalis, *America's Kingdom*, 23. On petroleum advertising in the interwar years, see R. W. Ferrier, "Petrol Advertising in the Twenties and Thirties," *Journal of Advertising History* 9, no. 1 (1986): 29–51. On the first company film advertising AIOC's achievements in Iran and distributed to audiences worldwide beginning in the 1950s, see Mona Damluji, "The Oil City in Focus: The Cinematic Spaces of Abadan in the Anglo-Iranian Oil Company's Persian Story," *Comparative Studies of South Asia, Africa and the Middle East* 33, no. 1 (2013): 75–88.
75. Crinson, "Abadan," 347.
76. *Ibid.*, 346.
77. *Ibid.*, 347.
78. Crinson, "Abadan," 351. The architectural design of Bawarda was inspired by Lutyens's remodeling of the garden city in New Dehli (Crinson, *Modern Architecture and the End of Empire*, 66).
79. *Ibid.*
80. *Ibid.*
81. Crinson, *Modern Architecture and the End of Empire*, 67.
82. Crinson, "Abadan," 357.
83. *Ibid.* It is interesting to note that even after the establishment of an international oil consortium in 1954, British architectural work resumed, and in 1959, Fry, Drew, and Partners designed a new town at Gach Saran for the consortium. Wilson also returned to work for the consortium, but for political reasons, formed a joint practice with an Iranian architect, Aziz Farmanfarmanian, an aristocrat whose brother, Manouchehr, had worked as an engineer at AIOC (Crinson, *Modern Architecture and the End of Empire*, 71).
84. *Ibid.*, 349. Crinson says that the plan for these estates originated in the 1920s, when APOC addressed the threat of "social disorder posed by the overcrowded 'town.'" This "nuclei of small towns," rather than large townships, would help reduce political activism by creating distance between them and the center of town (Crinson, *Modern Architecture and the End of Empire*, 64–65).
85. "Visit to the Operations of the Anglo-Iranian Oil Company in Iran. Spring 1945," by A. Hudson Davies, July 4, 1945, LAB 13/519, BNA. The report was circulated to the Ministries of Labor and Fuel and Power.
86. *Ibid.*
87. *Ibid.*
88. *Ibid.*
89. *Ibid.*
90. See "Social and Municipal Development in Abadan and the South Persian Oilfields," Fraser to Chancellor Dalton, August 28, 1946, 43762, BP.
91. Dobe, *A Long Slow Tutelage in Western Ways of Work*, 63, 73. Over the course of nine years, enrollment in the degree program increased from 50 to 150 students.

92. Fraser to Jacks (extract), December 7, 1933, Article 16—Allocation of the Grant (Iran), 52887, BP, cited in *ibid.*, 66. Workers were not given “first class status” on their return from abroad and even the granting of “second class status” was considered dangerous.
93. “Visit to the Operations of the Anglo-Iranian Oil Company in Iran. Spring 1945,” by A. Hudson Davies, July 4, 1945, 13/519, LAB. The report was circulated to the Ministries of Labor and Fuel and Power.
94. *Ibid.* The British workers had their own groups that also expressed their grievances about lack of accommodations for spouses: the Abadan Shift Society, which was an association of men who worked on shift at Abadan, mainly in the Process Department. Another group was the Association of Scientific Workers, which included technical recruits from the United Kingdom, especially chemists (see “Notes on Other Abadan Organizations for Employees” from the Davies report “Visit to the Operations of the AIOC in Iran, February–May 1945,” no. 69–111, 371/45483, FO).
95. Halliday, “Iran,” 8. The initials in English were CCUTU but known in Farsi as *Shorayet Motahedi Markazi*. There were 400,000 members by 1945 with 186 unions affiliated with it.
96. Tehran to FO (Cabinet Distribution), May 7, 1946, 371/52713, FO.
97. Halliday, “Iran,” 8. On clashes with the British-backed Arab Union during the strike, see Ladjevardi, *Labor Unions and Autocracy in Iran*, 133–134.
98. Tehran to FO (Cabinet Distribution), May 7, 1946, no. 69–70, 371/52713, FO. Ladjevardi also says this event marked the first meeting between AIOC and the Khuzistan Workers and Toilers Union when Mehdi Hashemi-Najafi, correspondent for *Zafar* and *Rabbar* (Tudeh-backed newspapers), demanded a tour of operations and residential areas. When the company refused to negotiate with Hashemi-Najafi, the union decided to demonstrate on May Day. The strike ended May 6 when the company agreed to reinstate locomotive strikers and provide full pay for strike days. The union in turn agreed not to dismiss the British superintendent. See Ladjevardi, *Labor Unions and Autocracy in Iran*, 124–126.
99. “General Strike—Effect on Production,” 1946, 130264, BP.
100. See the document signed by Abdul Hussein Mukhless in “Miscellaneous Documents Relating to Strike, June 1946,” 130263, BP. Also see Ladjevardi, *Labor Unions and Autocracy in Iran*, 133.
101. “Miscellaneous Documents Relating to Strike, June 1946,” n.d., 130263, BP. (1) The Workers’ Commission should select a representative for each oil region by the oil workers of AIOC and not the company to deal only with the complaints and petitions of workers in a specific work region. (2) The AIOC had raised the wages from 14 to 35 rials without negotiating with the representative of the Workers’ Commission, and the ration coupons (daily value of 6 rials) were no longer provided. The council was against the pay raise because it did not benefit the wages of unskilled workers in real terms, and had to

establish a minimum wage. Another strike was therefore necessary to achieve this. (3) The Workers' Commission should supervise the food distribution center. (4) AIOC had no right to discharge, fine, or deport a worker without the approval of the commission. (5) Commission meetings should occur twice per week. (6) A map for laying out a railway to transport the workers from their homes to the oil regions would also be submitted to the commission. (7) Funds were necessary to organize the new contract laborers hired by the company. (8) The labor representative's request had led to the approval by the Workers' Commission of a 30 percent pay raise for contract workers until the Labor and Insurance Bill was implemented.

102. "Memorandum on Tudeh Party Activities amongst AIOC Labour March/ May 1946," by Elkington, n.d., no. 79–81, 371/52713, FO.

103. Le Rougetel to Foreign Office (Cabinet distribution), May 13, 1946, no. 73–74, 371/52713, FO.

104. Ibid. The party made the following demands on their behalf: (1) a 100 percent increase in wages, (2) double pay for overtime, (3) an annual one-month holiday with pay, and (4) a Friday holiday with pay. Also see Ladjevardi, *Labor Unions and Autocracy in Iran*, 131.

105. "Memorandum on Tudeh Party Activities amongst AIOC Labour March/ May 1946," by Elkington, n.d., no. 79–81, 371/52713, FO.

106. "Report on Delegation to Persia" by J. Jones, June 5, 1946, 16256, BP. Ladjevardi also explains that Jones, though unsympathetic toward Iranian labor, shared the minority view with the oil refinery manager, and the labor manager that the trade union movement emerged because of a lack of improvement in working conditions and was not inspired by outside (Soviet) influences, as the British government and company liked to claim (Ladjevardi, *Labor Unions and Autocracy in Iran*, 137).

107. Bevin to Sargent, June 23, 1946, no. 80–81, 371/52715, FO. It is interesting to note that Bevin was himself a socialist, one of the architects of the British welfare state, former head of the Transport and General Workers' Union, and the son of a mine worker. This may have shaped his somewhat critical view of AIOC, although did not do too much to improve his broader understanding of the problems of colonialism, as Louis points out (see William Roger Louis, *The British Empire in the Middle East, 1945–1951* (Oxford: Clarendon Press, 1984), 4–5, 48–50, 633–634).

108. "Report on Delegation to Persia" by J. Jones, June 5, 1946, 16256, BP.

109. Ibid.

110. British Members of Parliament to Bevin (Secretary of State for Foreign Affairs), June 19, 1946, 43762, BP. Also see Ladjevardi, *Labor Unions and Autocracy in Iran*, 137–138. Ladjevardi argues that AIOC officials were aware that they would receive little support from a Labor government for their repression of the oil workers' union "if they admitted that the union's demands were non-political." Thus, framing the workers' union as Soviet inspired was a calculated tactic deployed by AIOC managers. Ladjevardi also notes that the

Foreign Office based its analysis of the situation in the oilfields on misinformed reports spread by Colonel Underwood's informers at the British consul in Khorramshahr.

111. The law recognized the bargaining power of trade unions, but as Ladjevardi explains, the provisions of the law provided the government with the legal means to intervene in industrial relations, "reducing the influence of organized labor, and preventing it from representing the workers before the employers and the state." With the national government as spokesperson, this would eliminate the need for a militant trade union. See Ladjevardi, *Labor Unions and Autocracy in Iran*, 62.

112. "Labour Bill" enclosure, Northcroft to Jones, May 21, 1946, 53012, BP.

113. It also listed holidays and dealt with working conditions for children, contracts, hygiene, loss of employment, unions, wages, dispute settlement, and the appointment of a "high labor council" to supervise and draft labor laws. Clause 6 of the law stipulated that "if the employer does not pay his workmen wages for Fridays, he is bound to fix their weekly wages in such a manner that the wages paid them for six days shall be equivalent to wages for seven days." Clause 24 stipulated that "the minimum wages of a workman shall be determined in accordance with conditions in each different part of the country, in such manner as to meet the expenses of living of himself and his family. ... The minimum rate of wages in each part of the country shall be fixed by the Board mentioned in Article 34 at the beginning of each year for a period of one year, and shall be enforced with the approval of the High Labour Council." See "B. Diary of Events (14/18 July 1946)," July 1946, 130264, BP.

114. Cooke to Elkington, June 14, 1946, 16256, BP.

115. Further negotiations took place between Britain's visiting labor attaché and the Labor Department in Tehran, including CCUTU leaders and representatives. Ladjevardi says it is certain that the agreement reached on setting a minimum wage was reached without the participation and consent of the oil workers' union in Abadan (Ladjevardi, *Labor Unions and Autocracy in Iran*, 132).

116. Enclosure to "Aide Memoire: Tudeh Party Activities amongst AIOC Labor" by Elkington, June 11, 1946, 16256, BP.

117. "Note to Chairman" July 25, 1946, 16256, BP.

118. See "Report on Delegation to Persia" by J. Jones, June 1946, 1-14, 16256, BP.

119. The delegates visited the mud huts of "3rd class employees" in Ahmadabad as well. They spoke to an oil worker with thirty-seven years of experience. He had four children but was still living in a place that was "good only for dogs." Workers approached the delegates as they inspected the schools created for the workers' children. One worker asked, "Have you seen such a stable-like school in England?" The delegates then visited the home of Qarbali Ibrahim in Bahmashir, who was an older man of sixty years with thirty-five years of experience with the company. He lived in just one small room with his family. Next

door, another worker introduced his nine children and observed that he and his family thought their house looked “rather like a prison than a dwelling place.” The worker stated that he was paid only 65 rials per day. Another worker commented that not even “German prisoners of war were being kept in such dirty places.” See “Report on MP’s (J. Jones) Visit to Persia,” June 1946, 16256, BP.

120. Cooke (Ministry of Fuel and Power) to Pattinson, June 29, 1946, 16256, BP.

121. *Ibid.*

122. *Ibid.*

123. “Report on Delegation to Persia” by J. Jones, June 1946, 1–14, 16256, BP.

124. “Pay-E Kalam Delneshine Sagha,” *Peyk-e Naft* (Bahman 1367 (1989)): 52–53. In this interview, Gholi-Ghanavati also recalls the years of nationalization of the oil industry and the arrival of American supervisors in the oilfields thereafter. He describes in detail the main forms of violence and humiliation suffered by Iranian workers at the hands of their American supervisors. Young men, viewed as potential employees and so as a threat to British and American domination of the workforce, were sometimes lured or forced onto trailers pulled by cars driven by Americans. The men were driven at high speed, which would cause many to fall off and even get run over. When a worker was punished, he was dumped in a barrel and hot tar was poured over him. Others were dragged along the road with their legs tied to a jeep driving at high speed.

125. *Ibid.*, 52.

126. Tehran to FO, June 12, 1946, no. 89, 371/52714, FO.

127. FO to Tehran, June 15, 1946, 371/52714, FO.

128. Tehran to FO, June 21, 1946, no. 65–66, 371/52715, FO.

129. As Ladjevardi explains, the formation of the Ministry of Labor marked “the beginning of organized and systematic suppression of the labor movement by the governments” (Ladjevardi, *Labor Unions and Autocracy in Iran*, 67).

130. The Indian workers, like the Iranians, had grievances concerning the hierarchical distribution of benefits and other biased treatment. The Union of Indian Workers informed AIOC of its intent to strike outside the new labor office. In a letter from the union to the British Consulate at Khorramshahr, the workers (approximately 1,400 to 1,500 Indian artisans) complained of “misbehaviour, ill-treatment, and victimization by their Employers.” Grievances concerned the Indian Club, welfare, general treatment, accommodations, transportation, food, medical aid, and a demand for formal recognition of the Indian Workers’ Union by including one of its representatives in the newly established labor office. In another petition signed by over 1,300 Indian artisans, the union demanded the replacement of the labor and welfare officers responsible for representing the grievances and claims of Indian workers to AIOC management. The governor of Abadan immediately expelled M. A. Faruki, the leader of the union, and the

demonstration was called off. See Khorramshahr to Tehran, June 28, 1946, no. 71, 371/52716, FO; M. A. Faruki to Willoughby (British Consulate, Khorramshahr), June 26, 1946, no. 50, 371/52719, FO.

131. H. J. U. (General Manager Staff) to General Manager at Abadan, July 19, 1946, 130264, BP. The commission, set up by the Iranian government, involved meetings between representatives of the company, the CCUTU and the Iranian government.

132. Ladjevardi, *Labor Unions and Autocracy in Iran*, 129.

133. Halliday, "Iran," 8.

134. *Ibid.* There were over 150 casualties, 50 deaths, and many arrests of labor leaders, Tudeh Party organizers, and other alleged strike agitators whose cases were submitted before a military court. Also see Ladjevardi, *Labor Unions and Autocracy in Iran*, 129.

135. Extract of letter from Prince Firouz to AIOC, "B. Diary of Events (14/18 July 1946)," July 1946, 130264, BP. The major stipulations: (1) Friday wages of all company workmen must be paid as of the day the national labor law went into effect (in May 1946). (2) The wages of company workmen must be paid according to the standard set by the new labor law. (3) The company would fully cooperate with the Iranian government's progressive, reform agenda in enforcing the law and providing a comfortable, hygienic standard of living for the workers.

136. Crinson, "Abadan," 348.

137. *Ibid.*, 347.

138. *Ibid.*, 357. This unreformed "point system" "continued to ensure an implicit apartheid with a few token exceptions."

139. Gass to Fraser, November 29, 1947, 80908, BP.

140. Around this time, labor worked 44.5 hours per week in the winter and 45 hours per week in the summer. Overtime was paid in accordance with the new labor law at the rate of 35 percent above straight time. Shift work was eight hours per day, six days per week. In terms of education, eleven additional schools were added until 1945, with 6,000 pupils attending since 1938. World War II brought a setback in general education in the province, but the company agreed in 1943 to provide all teachers at schools in its areas an allowance equal to 75 percent of their basic salaries. See "Social and Municipal Development in Abadan and the South Persian Oilfields," Fraser to Chancellor Dalton, August 28, 1946, 43762, BP.

141. Gass to Fraser, December 2, 1947, 80908, BP.

142. Gobey to Gass, August 23–24, 1948, 80908, BP.

143. Gobey to Gass, August 24–25, 1948, 80908, BP. This interview was circulated to all AIOC directors.

144. *Ibid.* See the next chapter for a detailed discussion of the role of the Majlis in nationalization.

145. *Ibid.*

146. Mitchell, *Carbon Democracy*, 77–78. Along with Article 22, which created the system of mandates in the Middle East and Africa, Article 23 represented traces of the demands of the British left and their attempts to propose new instruments for a democratized international order that were ultimately “reduced to appendages,” representing instead the “consent of the governed,” not any real democratization.
147. “Labour Conditions in the Oil Industry in Iran” by the International Labor Office, 1950, no. 4, 129288, BP.
148. Ibid.
149. Ibid.
150. Elkington to Northcroft (marked personal and confidential), August 9, 1950, BP 71068.
151. According to Abrahamian, Fateh was a “veteran of the early labor movement” who had studied economics at Columbia University. After thirty years at AIOC, he was appointed deputy director of labor relations (Abrahamian, *The Coup: 1953, the CIA, and the Roots of Modern U.S.-Iranian Relations*, 73).
152. “Note on Talk with Mr. Finch, American Labor Attaché” by F. W. Leggett, November 20, 1950, 71068, BP.
153. “Minutes of Meeting Held at Britannic House on Wednesday, 24 September, 1947,” 79663, BP.
154. Ibid.
155. Ibid.
156. Ibid.
157. Telegram from Gobey to Jones, April 24, 1948, 72327, BP. For a comparative study of training and education programs for the replacement of foreign labor with domestic labor at Aramco and AIOC/BP, see Dobe, *A Long Slow Tutelage in Western Ways of Work*.
158. Nationalization was formalized in May 1951.
159. Halliday, “Iran,” 10.
160. According to Halliday, there were more than 200 strikes over economic issues in the 1951–1953 period (Halliday, “Iran,” 10).
161. Ibid. In 1952, unions fell in line with Mosaddiq and while he did not lift the ban on the CCUTU, Halliday says it was able to revive its activities in a “semi-legal manner.”
162. Ibid., 9.
163. “Diary of Strike Situation at Abadan/Bandar Mashur 1951,” n.d., 9932, BP. All loadings were suspended with only two out of four berths in use the following day. If old-scale allowances were not restored, the shift drivers threatened not to report to work, followed by process men in the tank farm due to work later in the evening. See Drake to Northcroft/Elkington, March 25, 1951, 66248, BP.

164. This included the provision of a cemetery, but no promise was made about the restoration of allowances.

165. Davies to Fowler, May 25, 1951, 68908, BP.

166. Le Page to Drake/Elkington, March 25, 1951, 1–26, 66248, BP.

167. “D-Organization of the Oil Co. Apprentice Trainees,” in “List of Proclamations and Pamphlets Published during the Recent Strike and Disturbances,” March/April 1951, 68908, BP. As in 1946, the apprentices demanded, in a written declaration, that they be trained under experienced teachers; that students whose average scores on final exams fell below a particular standard be allowed to continue with their studies for one more year; that all trainees who completed the second educational year be promoted to junior status; that staff passes for use of the swimming pool and club be issued; that all trainees be eligible for night classes at the Education Department; that the present means of transportation on industrial buses be replaced by staff buses; and that a Society of the Students of the Technical Institute be formed immediately.

168. Le Page to Drake/Elkington, March 25, 1951, 1–26, 66248, BP. The workers demanded a 1.80 percent increase in wages, cancellation of required rent for housing, cash compensation for unhoused labor, and the cancellation of the company code of disciplinary action so that workers could only be punished with the consent of workers’ representatives.

169. *Ibid.* They also complained about a lack of housing facilities, missing shelters over cooking stoves, and a lack of electric lights and fans.

170. *Ibid.* Grievances concerned the (1) cut in outstation allowances, (2) cut in annual increases, and (3) inadequate or problematic housing, water, electricity, minimum wages, and cost of living.

171. Ladjevardi says that the labor law, for all intents and purposes, made strikes illegal (Ladjevardi, *Labor Unions and Autocracy in Iran*, 83).

172. Le Page to Drake/Elkington, March 25, 1951, 1–26, 66248, BP. By April 9, only 3 percent of laborers at Agha Jari were collecting their pay.

173. Elkington to Drake, April 18, 1951, 71068, BP.

174. Drake to Elkington/Seddon, April 18, 1951, 71068, BP. By mid-April, all major units of the refinery were closed down due to a lack of manpower. Throughput was reduced from 18.1 to 4.5 gallons per day. The production of one million gallons per day of export crude also ceased.

175. Drake to Elkington, April 14, 1951, 71068, BP.

176. Elkington to Drake, April 18, 1951, 71068, BP.

177. Smith to Snow, April 27, 1951, 66248, BP. Also see “Record Note: General Effect of the Recent Strike on Abadan Refinery,” H. L. to Brown, May 9, 1951, 91032, BP.

178. “Notes on Meeting Held at Britannic House on 20th April 1951 to Discuss Refinery Throughput” by Hoffert, April 30, 1951, 91032, BP. The quality would change in terms of viscosity, flash point, and T.E.L. content of motor gasoline.

179. Mitchell, "Carbon Democracy," 409.
180. Podobnik, *Global Energy Shifts*, 49.
181. Shahriari (Managing Body of Abadan Strikers Workers Representative) to Industrial Relations Department, April 19, 1951, Appendix XII, 68908, BP.
182. "List of Proclamations and Pamphlets Published during the Recent Strike and Disturbances," March/April 1951, 68908, BP. April 23 marked a turning point in the strike when 11,000 men returned to work and throughput rose to 9 million from 4.6 million gallons per day. In what it called a "gesture of good will," the company had issued its own proclamation to the workers to make payment equivalent to the loss of their wages to workmen absent from work during the strike. "Proclamation to All the AIOC Workers of Khuzistan," in "General Strike—Abadan," April 1951, 1–14 plus appendixes, 68908, BP. Payment of allowances to workers at all oil production sites would be continued until settlement of the question and other requests submitted to the commission could be examined and implemented "if required by Law."
183. Enclosure of "Noor-e-Islam," 68908, BP. The minimum wage of oil workers should be based on a changeable minimum cost of living, and this should be determined in conjunction with the legitimate representatives of the workers. Suitable houses must be built for all workmen. AIOC's police, which had taken the form of a "Government in this country," must be disbanded immediately.
184. "General Strike—Abadan," April 1951, 68908, BP.
185. Snow to Heath Eves, May 18, 1951, 66248, BP.
186. Mitchell, "Carbon Democracy," 410. Here Mitchell is citing Hanna Bata-tu, *The Old Social Classes and the Revolutionary Movements of Iraq: A Study of Iraq's Old Landed and Commercial Classes and of Its Communists, Ba'athists, and Free Officers* (London: Saqi Books, 2004).
187. *Ibid.*, 412. On the Mexican oil workers and nationalization, see Santiago, *Ecology of Oil*.
188. Bowker, *Science on the Run*, 82, 91.
189. As mentioned in chapter 2, AIOC sponsored the training of Iranians in petroleum engineering at the University of Birmingham's Department of Petroleum Technology, founded by Cadman in the 1920s. Article 16 (IV) of the 1933 concession stipulated that "the company shall make a yearly grant of £10,000 sterling in order to give in Great Britain, to Persian nationals, the professional education necessary for the oil industry."
190. Works in subaltern studies tend to assert the inner mental, rational, or cultural autonomy of the modern subject in making his or her own history (rather than being subjugated to the history of the bourgeois nation-state). This overlooks the modern techniques of power at work, the collectives of people, knowledge, technologies, and coercion that do not respect the divide between the mind and body of the modern political subject (or the natural versus the social world) but help produce this divide. See Partha Chatterjee, *Nationalist Thought and the Colonial World: A Derivative Discourse* (London: Zed Books,

1986); Ranajit Guha and Gayatri Chakravorty Spivak, eds., *Selected Subaltern Studies* (New York: Oxford University Press, 1988).

## Chapter 5: Assembling Intractability: Managing Nationalism, Combating Nationalization

1. For example, see Ervand Abrahamian, "The 1953 Coup in Iran," *Science and Society* 65, no. 2 (2001): 182–215; James E. Bill and William R. Louis, eds., *Musaddiq, Iranian Nationalism, and Oil* (Austin: University of Texas Press, 1988); William Roger Louis, "The Persian Oil Crisis," in *The British Empire in the Middle East, 1945–1951: Arab Nationalism, the United States, and Postwar Imperialism*, 632–690 (Oxford: Clarendon Press, 1984); William Roger Louis, "Britain and the Overthrow of the Mosaddeq Government," in *Mohammad Mosaddeq and the 1953 Coup in Iran*, ed. Mark J. Gasiorowski and Malcolm Byrne, 126–177 (Syracuse, NY: Syracuse University Press, 2004); Homa Katouzian, *Musaddiq and the Struggle for Power in Iran*, 2nd ed. (New York: I. B. Tauris, 1999).
2. Mary Ann Heiss, "The United States, Great Britain, and the Creation of the Iranian Oil Consortium, 1953–1954," *International History Review* 16, no. 3 (1994): 441–600. See chapter 6 on the formation of the Iranian oil consortium.
3. See Ferrier, *History of British Petroleum*; Bamberg, *History of British Petroleum*; Bamberg, *British Petroleum and Global Oil*; Elm, *Oil, Power, and Principle*; Mary Ann Heiss, "The International Boycott of Iranian Oil and the Anti-Mosaddeq Coup of 1953," in *Mohammed Mosaddeq and the 1953 Coup in Iran*, ed. Mark J. Gasiorowski and Malcolm Byrne, 178–200 (Syracuse, NY: Syracuse University Press, 2004).
4. Marsh says that the oil majors were "extremely useful tools of government policies." But they were "far from compliant" and could often reshape the policies of the American and British governments, which used the companies to manage the Anglo-American relationship. Anglo-American policies toward the Iranian oil crisis were a "fine blend of Cold War strategy, commercial calculation, and an unusually pronounced periodic dependence on non-state actors" (Steve Marsh, "Anglo-American Crude Diplomacy: Multinational Oil and the Iranian Oil Crisis, 1951–53," *Contemporary British History* 21, no. 1 (2007): 25–53, esp. 39, 45).
5. For the text of the nationalization laws (nine articles), see *Asnad-e Naft (Documents on Oil)* (Tehran: Iranian Ministry of Foreign Affairs Publications, 1951), 68–69.
6. Louis, "Britain and the Overthrow of the Mosaddeq Government," 141.
7. This legislation was backed by Mosaddiq, who was elected to the Majlis in 1944 and, as Elm says, had two aims: to end Iran's subjection to foreign powers and to establish parliamentary rule so that representatives of the people, not a single sovereign ruler, would control affairs of state (Elm, *Oil, Power, and Principle*, 59).

8. Ibid. Some other important points included: (1) AIOC had not abided by the gold guarantee clause in the 1933 concession (Article 5). The royalty figure in 1933 was 4 shillings per ton, representing one-eighth of the price of Iran's crude oil, whereas in 1947, considering the gold guarantee, it represented less than one-sixteenth. Thus, Iran's royalties in relation to the price of oil exported had dropped from 33 percent in 1933 to 9 percent in 1947. (2) Iran should not have been subjected to the limitations set by the British government on the distribution of dividends, which resulted in a major part of Iran's share being held in AIOC's general reserves. (3) AIOC had concluded agreements with the British Admiralty and American oil companies, selling oil products at high discounts and refining a major portion of Iranian oil abroad. (4) AIOC had let gas go to waste in its operations, paying no attention to Iran's demands to either retain the gas in wells or construct gas pipelines to cities.

9. Fraser was himself "born into oil," having "inherited from his father the biggest company in the ... Scottish oil-shale industry, and later merging it with six other companies into BP, to provide them with Scottish outlets" (Sampson, *The Seven Sisters*, 113).

10. Elm, *Oil, Power, and Principle*, 55. The Iranian government had originally asked for £1 per ton and considered the company's offer unacceptably low. Fraser refused to improve the company's offer and called for the matter to be referred to arbitration. In the meantime, Golshayan reported to the government that the AIOC proposals did not respect Iran's rights, but the shah instructed his cabinet to accept AIOC's offer of £12/6 per ton with no rights to revise the concession.

11. Northcroft to Rise, December 3, 1949, 80908, BP.

12. Heiss, "The United States, Great Britain, and the Creation of the Iranian Oil Consortium," 512.

13. Ibid.

14. Bin Cheng, "The Anglo-Iranian Dispute," *World Affairs* 5 (1951): 387-405, esp. 389.

15. Elm, *Oil, Power, and Principle*, 56.

16. Enclosure aide-mémoire from Persian Prime Minister to British Secretary of State, Chadwick (FO) to Young (Treasury), October 19, 1949, no. 43c-f, T 236/2818. Also see "Some Background Notes on Persian Oil," July 23, 1951, 142642, BP.

17. Galpern, *Money, Oil, and Empire in the Middle East*, 87.

18. Elm, *Oil, Power, and Principle*, 62. Also see *Asnad-e Naft (Documents on Oil)*, 41.

19. Stephen Kinzer, *All the Shah's Men: An American Coup and the Roots of Middle East Terror* (Hoboken, NJ: Wiley, 2008), 69.

20. Elm, *Oil, Power, and Principle*, 63.

21. Ibid., 65.

22. Ibid. Razmara's negotiating points were as follows: (1) A ten-year program devised by AIOC to train Iranians for technical jobs and reduce British and Indian workers. (2) Permission for Iran to examine company books and check its oil exports to settle allegations that the company was exporting more oil than it claimed. (3) Transparent information on the quantity and price of Iranian oil products sold to the British Admiralty and others at high discounts. (4) Advance payments from AIOC to the Iranian government on the basis of the draft Supplemental Agreement to help the country's development plan and to encourage the Majlis to ratify the agreement.
23. Vitalis, *America's Kingdom*, 130.
24. Washington to British Foreign Office (Franks), April 11, 1951, 371/91470, FO.
25. Elm, *Oil, Power, and Principle*, 67.
26. Vitalis, *America's Kingdom*, 130.
27. See "Origins of the 50–50 Oil Profits Split," December 5, 1957, 1–3, Box 56, Reports 1957, Walter J. Levy Papers, Collection Number 082428, American Heritage Center (AHC), University of Wyoming.
28. On the 50–50 principle in Saudi Arabia, see Irvine H. Anderson, *Aramco, the U.S., and Saudi Arabia: A Study of the Dynamics of Foreign Oil Policy 1933–1950* (Princeton, NJ: Princeton University Press, 1981). Also see Irvine H. Anderson, "The American Oil Industry and the Fifty-Fifty Agreement of 1950," in *Musaddiq, Iranian Nationalism, and Oil*, ed. James A. Bill and William R. Louis (Austin: University of Texas Press, 1988), 143–159; Louis, *The British Empire in the Middle East*; and Mitchell, "McJihad."
29. Vitalis, *America's Kingdom*, 130.
30. "Some Background Notes on Persian Oil," July 23, 1951, 142642, BP.
31. Elm, *Oil, Power, and Principle*, 184.
32. Heiss, "The International Boycott of Iranian Oil and the Anti-Mosaddeq Coup of 1953," 183.
33. Louis, "Persian Oil Crisis," 646; Galpern, *Money, Oil, and Empire in the Middle East*, 93.
34. See Walden, "The International Petroleum Cartel in Iran—Private Power and the Public Interest," *Journal of Public Law* 11 (1962): 64–121, esp. 80. Also see Memorandum of Meeting of the Foreign Ministers of the United States and United Kingdom at the Department of State, January 9, 1952, no. 142 in *Foreign Relations of the United States 1952–54, Iran 1951–54: Volume 10* (Washington, DC: US Government Printing Office, 1989), 312–313. The British refused to convert Iran's sterling balances into dollars for repayment of the loan.
35. Elm, *Oil, Power, and Principle*, 72. Also see the Oil Committee's report in *Asnad-e Naft* (Documents on Oil), 51. Five members of the Majlis Oil Committee advocated nationalization, while the remaining thirteen called for new negotiations to take place.
36. Ibid., 73.

37. Cheng, "The Anglo-Iranian Dispute," 394. It should be recalled that, according to the Iranian position, the royalty figure in 1933 was 4 shillings per ton, representing one-eighth of the price of Iran's crude oil, whereas in 1947, considering the gold guarantee, it represented less than one-sixteenth.

38. Elm, *Oil, Power, and Principle*, 73–74.

39. Cheng, "Anglo-Iranian Dispute," 388. In the meantime, the Oil Committee instructed Razmara to study the problems of nationalization with a panel of experts, whom he ordered to conclude that nationalization would be catastrophic. First, Iran lacked the requisite financial or technical facilities to run the industry; second, it would be illegal; third, a compensation of between £300 million and £500 million would have to be paid. Razmara's controversial oil proposals were made public and the National Front accused him of wanting to establish a military dictatorship and not demanding enough from Britain. Kashani also encouraged all Muslims and patriotic citizens to fight against the enemies of Islam and Iran by joining the nationalization struggle (see Abrahamian, *Iran between Two Revolutions*, 266–267). After the contents of Razmara's offensive report were made public, a member of the *Feda'iyān-i Islam* assassinated the prime minister on March 7.

40. Ford, *Anglo-Iranian Oil Dispute*, 51.

41. Cheng, "Anglo-Iranian Dispute," 387.

42. *Ibid.*, 389–390.

43. Ford, *Anglo-Iranian Oil Dispute*, 56.

44. *Ibid.*, 50.

45. *Ibid.*, 58.

46. *Ibid.*

47. *Ibid.*

48. *Ibid.*, 59.

49. *Ibid.*

50. *Ibid.*, 60.

51. *Ibid.*, 61.

52. "Application Instituting Proceedings," by Eric Beckett, May 26, 1951, Anglo-Iranian Oil Company Case (United Kingdom v. Iran), 12–13, International Court of Justice (ICJ). (1) The Iranian government was not entitled to refuse to submit the dispute to arbitration as provided for in Article 22 of the 1933 concession. (2) The Iranian government had effected a unilateral annulment or alteration of the concession terms, contrary to Articles 21 and 26 of the 1933 concession. (3) "In so purporting to effect a unilateral annulment, or alteration of the terms of the 1933 concession," contrary to the said articles, "the Iranian government thereby committed a wrong against the Anglo-Iranian Oil Company, Limited, a British national." (4) The Iranian government was attempting to deny AIOC the legal remedy provided for in the concession (to seek arbitration provided by Article 22).

53. Ibid.
54. Ibid.
55. Ford, *Anglo-Iranian Oil Dispute*, 180.
56. "Application Instituting Proceedings," by Eric Beckett, May 26, 1951, Anglo-Iranian Oil Company Case (United Kingdom v. Iran), 13, International Court of Justice (ICJ).
57. Ibid.
58. Ibid.
59. Ibid.
60. Ford, *Anglo-Iranian Oil Dispute*, 181.
61. Ibid.
62. On the history of the corporation in British colonial India, see Stern, *The Company State*.
63. Ford, *Anglo-Iranian Oil Dispute*, 181.
64. O'Connell concludes that "the juridical situation presented to us constitutes a challenge to traditional modes of reasoning. Because precedent is virtually non-existent" (D. P. O'Connell, "A Critique of the Iranian Oil Litigation," *British Institute of International and Comparative Law* 4, no. 2 (April 1955): 267–293, esp. 293). Also see Homayoun Mafi, "Iran's Oil Concession Agreements and the Role of the National Iranian Oil Company: Economic Development and Sovereign Immunity," *Natural Resources Journal* 48 (2008): 407–430, esp. 412–414.
65. Ibid., 61.
66. Ibid., 62.
67. Ibid.
68. Basil Jackson, deputy chair of AIOC's board of directors, Sir Thomas Gardiner, one of the two government-appointed members of AIOC's board, N. A. Gass, negotiator of the Supplemental Agreement in 1949, and E. H. O. Elkington, well known for his role in past labor and concession disputes, headed the mission.
69. Ford, *Anglo-Iranian Oil Dispute*, 66–77.
70. Ibid. The distribution business within Iran would also be transferred to an entirely Iranian owned and operated company.
71. According to Ford, there were only two cases prior to this in which the ICJ indicated interim measures of protection (Ford, *Anglo-Iranian Oil Dispute*, 85).
72. "Request for Interim Measures of Protection," June 22, 1951, 46, ICJ. This damage included but was not limited to: (1) a loss of skilled personnel; (2) interference with management; (3) consequences of disrupting an integrated enterprise; (4) loss of markets and goodwill. See p. 49.
73. Ibid., 51.

74. *Ibid.*, 52. The British government's request for interim measures of protection included the following points: (1) To produce and sell petroleum without interference calculated to impede operations by the Iranian government, their servants, and/or agents; (2) oblige the Iranian government not to, by any executive or legislative act or judicial process, sequester or seize the property of AIOC including property it had already purported to nationalize or otherwise to expropriate; (3) oblige the Iranian government not to seize or sequester any monies earned by AIOC; (4) oblige the Iranian government not to attempt to dispose of monies of (3) other than in accordance with the 1933 concession or measures of the Court; (5) oblige the Iranian government to ensure that no steps were taken to prejudice the right of the British government to have a decision of the Court in its favor on the merits of the case; and (6) oblige both the Iranian and British governments to ensure that no step was taken to aggravate or extend the dispute submitted to the Court and that the Iranian government should abstain from all "propaganda calculated to inflame opinion in Iran" against AIOC and the United Kingdom.

75. "Oral Proceedings," June 30, 1951, 408, 417, ICJ. Soskice argued that the two issues were separate and should be judged accordingly, even though he was requesting that the Court indicate "precisely measures for the protection of the rights thus asserted in the Application."

76. Ford, *Anglo-Iranian Oil Dispute*, 78. Ford says that Soskice's argument deals with three basic questions that confront every application for the indication of interim measures: (1) whether the Court can properly indicate such measures without having previously determined that it has jurisdiction to try the case on its merits; (2) whether the request can be granted in light of general principles governing interim measures; and (3) whether interim measures are necessary—that is, "whether irreparable damage will result, or the position of either party be prejudiced, or the dispute extended, if the measures are not indicated before the Court makes its final judgment on the case's merits."

77. Also present were Hossein Navab (envoy), Mosaddiq, N. Entezam (ambassador, former minister), and H. Rolin (professor of international law in Brussels).

78. Ford, *Anglo-Iranian Oil Dispute*, 74–75.

79. Anghie, *Imperialism, Sovereignty, and the Making of International Law*, 223. Known as "transnational law," Anghie explains that this novel legal framework was particularly relevant for "Third World states because it was precisely in those states that the activities of these corporations generated new and complex problems that required legal resolution."

80. "ICJ Order Indicating Interim Measures of Protection," July 5, 1951, 2, ICJ.

81. "Dissenting Opinions by Judges Winiarski and Badawi Pasha," 96–97, ICJ.

82. *Ibid.*

83. *Ibid.*

84. *Ibid.*

85. Ibid.

86. Ibid.

87. Ford, *Anglo-Iranian Oil Dispute*, 88–89. As Ford explains, the declaration had by its terms bound Iran to recognize the compulsory jurisdiction of the Court for a period of six years and thereafter, until notice was given of its abrogation, which effectively happened here.

88. For a discussion of legal metrology, see chapter 3.

89. Recall that AIOC's submission to the ICJ is "deferred," and this makes the dispute a state-to-state issue, even though the Iranian government rejects this framing and argues that this is a domestic issue to be resolved between itself and a private company.

90. "Economic Sanctions against Persia" by HM Treasury, May 5, 1951, 142642, BP.

91. "Economic Sanctions against Persia" by HM Treasury, May 5, 1951, 142642, BP. The British government would: (1) block Iran's sterling balances (£25 million as of May 1, 1951), of which £9 million was already committed and the remainder was required as currency backing, which could be accomplished under the Exchange Control Act; (2) denounce the memorandum of understanding between the two countries' central banks and remove the dollar convertibility; (3) cut off Iran's supplies of essential materials from the United Kingdom through an administrative act; (4) deny Iran in the future such credit facilities as British banks, etc.; (5) refuse import licenses for Iranian goods other than oil, cutting off about one-eighth of Iran's remaining trade.

92. Heiss, "International Boycott of Iranian Oil," 180.

93. "B," June 4, 1952, 118974, BP.

94. Ibid.

95. Heiss, "International Boycott of Iranian Oil," 180.

96. Galpern, *Money, Oil, and Empire in the Middle East*, 107–114. The Abadan refinery produced about twenty million tons of chemicals annually, helping to satisfy the bulk of the Eastern Hemisphere's (Indian Ocean area's) postwar demand by producing items such as heating oil, gasoline, airplane fuel, and bitumen, a substance used in road surfacing.

97. Ibid.

98. Heiss, "International Boycott of Iranian Oil," 182.

99. Ibid., 185.

100. Ibid., 187.

101. Walden is citing specific court cases concerning antitrust law (Walden, "The International Petroleum Cartel in Iran," 102n203).

102. "Memorandum: Supplying Petroleum to Free World without Iran," Petroleum Administration for Defense, July 12, 1951, in Replacement Problem, Supply and Distribution Subcommittee, 1951, Box 16, Folder 2, Walter J. Levy Papers, Collection Number 082428, AHC.

103. Ibid. Also see Walden, "The International Petroleum Cartel in Iran," 104.

104. For the specific details and risks of the arrangement, see "Memorandum: Supplying Petroleum to Free World without Iran," Petroleum Administration for Defense, July 12, 1951, in Replacement Problem, Supply and Distribution Subcommittee, 1951, Box 16, Folder 2, Walter J. Levy Papers, Collection Number 082428, AHC.

105. Walden, "The International Petroleum Cartel in Iran," 97–98. Walden is citing "1951 PAD, Report to the Secretary of the Interior and Petroleum Administrator for Defense on the Foreign Voluntary Aid Program from the Assistant Deputy Administrator, Foreign Petroleum Operations," 9–10. Walden remarks that when "analyzed in its true light," the arrangement "presented an anomalous picture of the mobilization by both Britain and the United States of all their economic power to prevent any oil from escaping Iranian shores to any markets in the world, and at the same time the taking of drastic anti-competitive action which they justified on the ground that the defense efforts of the free world had become endangered by the iniquitous acts of the Persians!"

106. Ibid.

107. Walden, "The International Petroleum Cartel in Iran," 103. "From the very beginning," Walden argues, American policy in Iran "paralleled the interests of the international petroleum cartel."

108. Elm, *Oil, Power, and Principle*, 124. Also see *Asnad-e Naft (Documents on Oil)*, 172.

109. Ford, *Anglo-Iranian Oil Dispute*, 99. Mosaddiq also requested that the Majlis authorize a public bond issue of two billion rials and approve the acceptance of a \$25 million loan from the US Export-Import Bank. The former but not the latter was approved, authorizing the government to withdraw £14 million from its sterling balances in London toward relieving the shortage of foreign exchange by financing essential imports.

110. As the nationalization bill was passed in the Majlis, Nemazee formally recommended Levy as consultant and assistant to the Iranian government. See Levy to Nemazee, March 8, 1951, Box 15, Folder 3, Walter J. Levy Papers, Collection Number 082428, AHC. Earlier, in August 1948, Nemazee had provided Levy with a memorandum to justify the Iranian case for a revision of the existing concession. He believed that once "the big stumbling block" of the financial and commercial dispute was eliminated, an atmosphere would be created that would enable a settlement of "the somewhat different character" of "the social and political differences" between the government and the company. These he said could only be settled by direct negotiations (Levy to Nemazee, February 21, 1951, Box 15, Folder 3, Walter J. Levy Papers, Collection Number 082428, AHC).

111. Levy to Nemazee, February 21, 1951, Box 15, Folder 3, Walter J. Levy Papers, Collection Number 082428, AHC.

112. "Memorandum," Levy, Butler, Willoughby, July 28, 1951, RG 59, Box 5505A, 888.2553/8–3151, NARA.

113. Harriman to Secretary of State, August 12, 1951, RG 59, Box 5505A, 888.2553/8-1251, NARA.
114. Harriman to President and Secretary of State, July 24, 1951, RG 59, Box 5505A, 888.2553/7-2451, NARA.
115. Nemazee to Levy, April 2, 1951, Box 15, Folder 3, Walter J. Levy Papers, Collection Number 082428, AHC.
116. *Ibid.* Nemazee also commented that Iran's mining law of February 7, 1939, guaranteed that subsoil resources belonged to the nation and that the transfer of property rights to a national Iranian corporation was possible without involving any payments as compensation. Nemazee calculated, however, that the fair compensation value of the company's installations in Iran (considering the book value of AIOC's assets after deducting them from the value of its interests in Kuwait and Iraq concessions, as well as the value of its interests in the tanker fleet and subsidiary companies) would not exceed about £35 million or \$100 million. After providing for compensation installments, the net revenue to the Iranian government over the period of the sale contract would be at least \$120 million per annum, an amount, Nemazee calculated, that a 50-50 division would produce. Levy disagreed with Nemazee on whether Iran's mining law of 1939 stipulated that subsoil deposits did or did not belong to the owner of the surface land. The law was clear, however, in giving the right to exploit petroleum exclusively to the government. Levy argued that the Iranian constitution did authorize the transfer of the right to exploit petroleum (with Majlis approval) "as it had done with the Anglo-Iranian concession of 1933."
117. "Summary of Conversation with Engineer Hassibi, Under Secretary of Ministry of Finance and Mr. Salah, Chairman of National Oil Commission," July 16, 1951, 1-9, Box 16, Folder 5, Walter J. Levy Papers, Collection Number 082428, AHC.
118. *Ibid.*
119. *Ibid.*
120. *Ibid.* The complex organization would provide the "technical knowledge and complex equipment required for the production and refining of oil." Such an energy system must also be responsible for the availability and scheduling of tankers to lift the oil from the Port of Abadan to the worldwide markets. Import and export schedules were necessary to facilitate the production of oil and its products in the correct quantities and qualities required by consumers. Further, the complex organization must provide a distribution system in various importing countries to bring the oil "from the port to the smallest village."
121. *Ibid.* It must make arrangements for the conversion of money it received from consumers into "those currencies which are needed to pay for the production, local expenses, for transportation, etc."
122. "Summary of Conversation with Engineer Hassibi, Under Secretary of Ministry of Finance and Mr. Salah, Chairman of National Oil Commission," July 16, 1951, 1-9, Box 16, Folder 5, Walter J. Levy Papers, Collection Number 082428, AHC.

123. Ibid.

124. Callon, "Some Elements of a Sociology of Translation," 70.

125. "Summary of Conversation with Engineer Hassibi, Under Secretary of Ministry of Finance and Mr. Salah, Chairman of National Oil Commission," July 16, 1951, 1–9, Box 16, Folder 5, Walter J. Levy Papers, Collection Number 082428, AHC.

126. Ibid.

127. Ibid.

128. Ibid.

129. See Heiss, "The United States, Great Britain, and the Creation of the Iranian Oil Consortium," 199.

130. "Second Levy-Hassibi Conversation," July 20, 1951, 1–8, Box 16, Folder 5, Walter J. Levy Papers, Collection Number 082428, AHC.

131. Ibid.

132. Ibid.

133. Ibid.

134. Ibid.

135. The only means of solving these interrelated problems was with the continued availability of British technicians and Iran's use of the substantial tonnage owned or chartered by the major oil companies. Harriman also encouraged Iranian officials to "establish satisfactory relations with the world oil industry or face very serious consequences" (see "Mr. Harriman's Meeting with the Joint Oil Committee," July 20, 1951, Box 16, Folder 5, Walter J. Levy Papers, Collection Number 082428, AHC, UW). Americans present were: Walter Levy, Harriman, William M. Rountree (US Department of State), and C. H. Walter Howe (US Embassy). Iranian members of the Joint Oil Committee present were: Morteza Bayat (senator), Ahmad Matin Daftari (senator), Rezazadeh Shafaq (senator), Mohammad Soruri (senator), Nasr Qoli Ardalan (deputy), Mohammad Moazami (deputy), Seyid Ali Shayegan (deputy), Kazem Hassibi (undersecretary of the ministry of finance). The three major problems facing the Iranian oil industry were: (1) maintaining the technical competence essential for the production of oil and the operation of the Abadan refinery; (2) obtaining the necessary tankers for the transportation of oil from Iran to the customers; (3) finding customers for Iranian crude oil and products in foreign countries.

136. Ibid.

137. Ibid.

138. Ford, *Anglo-Iranian Oil Dispute*, 100–101. The negotiating terms put forward by the Iranian government were as follows: (1) The Iranian government was prepared to enter negotiations with representatives of the British government on behalf of the former AIOC, in the event that the British government, on behalf of AIOC, recognized the principle of nationalization of the oil industry. (2) Before sending any representatives to Tehran, the British government must

make a formal statement of consent to the principles of nationalization of the oil industry on behalf of the former AIOC. (3) The principle of nationalization referred to the proposal approved by the Special Oil Committee and confirmed by law on March 20, 1951. (4) The Iranian government was prepared to negotiate the manner in which the law would be carried out insofar as it affected British interests.

139. "Memorandum of a Telephone Conversation between Mr. Walter Levy and Mr. Howard Page," July 28, 1951, Box 16, Folder 5, Walter J. Levy Papers, Collection Number 082428, AHC; "Meeting with Mr. John Walker, Commercial Counselor for British Embassy and Mr. Walter J. Levy—July 27, 1951," Box 16, Folder 5, Walter J. Levy Papers, Collection Number 082428, AHC.

140. *Ibid.*

141. *Ibid.*

142. "Memorandum of Conversation," July 28, 1951, Box 16, Folder 5, Walter J. Levy Papers, Collection Number 082428, AHC. Also see "Summary of a Conversation at the Ministry of Fuel and Power," July 29, 1951, 1–9, Box 16, Folder 5, Walter J. Levy Papers, Collection Number 082428, AHC.

143. The British government could not be a direct participant or majority shareholder in the operating company in Iran, without affecting its interest in AIOC's other activities. The operating company might include AIOC's customers and some Dutch and Belgian companies.

144. *Ibid.*

145. *Ibid.*

146. *Ibid.*

147. *Ibid.*

148. Nathan J. Citino, "Defending the 'Postwar Petroleum Order': The US, Britain and the 1945 Saudi-Onassis Tanker Deal," *Diplomacy & Statecraft* 11, no. 2 (2000): 137–160, esp. 139.

149. Mitchell, "Carbon Democracy," 408.

150. *Ibid.* As Mitchell explains, "Prices in Texas ... following the passage of the Texas Market Demand Act of 1932 were protected by production quotas set by a state body, the Texas Railroad Commission, and later by federal import quotas." This US government regulation combined with the 1929 agreement to divide the world's oil resources among the major oil companies and to limit production to maintain prices "prevented the emergence of a competitive market and thus assured extraordinary profits to those who controlled the cheaply produced oil of the Middle East." The pursuit of an antimarket arrangement based on an artificial scarcity and exclusive control of oil production by major oil companies occurred at a particular moment, beginning in the 1930s. This is the fourth feature of the (twentieth-century) political economy of oil, in which "old methods for producing global antimarkets—colonialism—were in the process of collapse" (Mitchell, "McJihad," 6–8).

151. See “Memorandum of Conversation,” July 28, 1951, Box 16, Folder 5, Walter J. Levy Papers, Collection Number 082428, AHC, UW. Also see “Summary of a Conversation at the Ministry of Fuel and Power,” July 29, 1951, 1–9, AHC. Flett of the British Treasury asked Levy whether the arrangements envisaged American participation in the operating company. Levy responded that although he told the Iranians that no responsible American company would be willing to participate and that he, along with Harriman, had discouraged further American participation, perhaps a 5 or 10 percent American interest “might be helpful” from the British point of view. The Iranians had expressed the desire to conclude an operating contract immediately with a responsible American company. Flett agreed with Butler that such a minority US interest was a possibility, pointing to Standard Oil of New Jersey as a qualified participant, since it was a large customer of AIOC. The point of contention, Flett noted, was between AIOC and British government interests. AIOC would offer “stiff resistance” to bringing in any other companies, to which Levy reiterated that a group of interests forming an operating company would be the best solution and that the British government should not be involved because AIOC was seen as an instrument of the government. Finally, Flett expressed his government’s concerns about how the balance-of-payment issue would be affected by any new arrangement in Iran. Levy explained his attempt to persuade Iranians that they would be better off under the present convertibility arrangement with the United Kingdom. Flett agreed that it was very important for oil to be distributed and sold for sterling, and Levy concurred that the operating company should be able to sell oil for sterling worldwide.

152. Louis, “Persian Oil Crisis,” 677.

153. *Ibid.*, 676.

154. Ford, *Anglo-Iranian Oil Dispute*, 105, 107. See also *Asnad-e Naft (Documents on Oil)*, 377–379.

155. Ford, *Anglo-Iranian Oil Dispute*, 112–114.

156. In the view of the US government, the Iranian government had confiscated foreign-owned property without paying prompt and adequate compensation, or working out an arrangement mutually satisfactory to the foreign owner and governments. This, Harriman explained, constituted “confiscation” rather than nationalization.

157. “Memorandum of Conversation,” August 17, 1951, Box 16, Folder 5, Walter J. Levy Papers, Collection Number 082428, AHC.

158. See for example Louis, “Persian Oil Crisis,” 680–681. Abrahamian also discusses this framing (see Abrahamian, *The Coup*, 98–108).

159. Louis, “Persian Oil Crisis,” 682. Instead, they would pursue individual contracts with AIOC’s former customers and permit them to hire AIOC or one of its subsidiaries as a carrying agent. The British government would pay market price plus carrying charges from the Iranian port.

160. Ford, *Anglo-Iranian Oil Dispute*, 115.

161. "W. A. Harriman (Special Assistant to the President) to Walter J. Levy, September 14, 1951," Box 16, Folder 6, Walter J. Levy Papers, Collection Number 082428, AHC, UW.

162. On British arguments for and against the use of force as well as the consequences of a military intervention in Abadan, see Louis, "Persian Oil Crisis," 686–687. If force was not used, some officials argued, Egypt might take action to end its military threat and nationalize the Suez Canal. If force was used, others argued, the British bargaining position would be weakened by losing the support of the United Nations, and this would further encourage South American and Asian governments to back the US government position, which strongly opposed military intervention.

163. Shams al-Din Amir-Alai, *Khaterat-e Man (My Memoirs)* (Tehran: 1984), 126–128. In a speech to the local business community of Abadan, Amir-Alai expressed his concerns about the harsh living conditions he had witnessed. The workers and poor people had constructed their homes using old tin (*halabi*). In another area, Hasseer Abad, paper was everywhere and had been used to construct homes comparable to chicken coops. The dwellings also lacked basic necessities such as water, even though the "former oil company" was collecting 90 rials per month as rent on each tent and the total cost of the tents was not more than 1,000 rials each.

164. "The Effect of the Withdrawal of British Staff on Producing and Refining Operations in Persia," from Hedley-Miller (Treasury), June 1, 1951, 100738, BP.

165. *Ibid.*

166. *Ibid.*

167. *Ibid.*

168. *Ibid.*

169. *Ibid.*

170. See Louis, "Persian Oil Crisis," 687. Louis is quoting Clement Attlee, the British prime minister, in Cabinet Minutes 60 (51), September 27, 1951, 128/20, CAB.

171. Heiss, "International Boycott of Iranian Oil," 180.

172. *Ibid.*, 182.

173. "The Effect of the Withdrawal of British Staff on Producing and Refining Operations in Persia," from Hedley-Miller (Treasury), June 1, 1951, 100738, BP. Pipelines depended on the operation of three pumping stations driven by a steam turbine. The continued safe operations of the steam boilers required water treatment to be kept within "narrow limits," the failure of which would quickly lead to the boilers becoming inoperable. "Water treatment," as the report revealed, "is one of the specialist operations carried out solely by the British staff ... While operating staff in the Pumping Stations are largely Persian, the technical control is British."

174. Heiss, "International Boycott of Iranian Oil," 183.

175. Sampson, *The Seven Sisters*, 118.

## Chapter 6

1. Walden's account of the legal aspects of the consortium arrangement is perhaps the only study we have that identifies the overwhelming success of the British and the "catastrophic defeat" suffered by Iranian aspirations for national control. See Walden, "The International Petroleum Cartel in Iran."

2. See Heiss, "The United States, Great Britain, and the Creation of the Iranian Oil Consortium." Also see Elm, *Oil, Power, and Principle*. Elm discusses Iran's nationalization and its aftermath, but summarizes the final form that the international consortium takes in relation to the nationalization crisis, which takes up the bulk of the study. There is no careful discussion of the technical details (e.g., meetings, negotiations, legal battles, organizational forms) of the process through which the consortium's final shape was constituted.

3. Ford, *Anglo-Iranian Oil Dispute*, 122–123.

4. *Ibid.*, 124.

5. On the work of translation in STS, see Callon, "Some Elements of a Sociology of Translation"; Latour, *Reassembling the Social*. More specifically applied to law, see Levi and Valverde, "Studying Law by Association."

6. See Cheng, "Anglo-Iranian Dispute."

7. Ford, *Anglo-Iranian Oil Dispute*, 124–125.

8. *Ibid.*, 126.

9. *Ibid.*, 128.

10. *Ibid.*

11. *Ibid.*

12. Mitchell, *Rule of Experts*, 56.

13. Anghie, *Imperialism, Sovereignty, and the Making of International Law*, 225.

14. See Mitchell, *Rule of Experts*, 56, 78–79, on the discussion of the rule of private property and twentieth-century jurisprudence. Mitchell says that "the principle of abstraction on which the order of law depends can be generated only as the difference between order and violence ... the universal and exceptional." But the violent and the exceptional, "all of which the law denounces and excludes, ruptures itself from and supersedes, are never gone. They make possible the rupture, the denunciation, and the order. They are the condition of its possibility."

15. Anghie, *Imperialism, Sovereignty, and the Making of International Law*, 212, 216. This principle embodying the link between sovereignty and natural resources was formally established in the UN General Assembly Resolution 1803 of 1962.

16. Ibid.
17. Anghie, *Imperialism, Sovereignty, and the Making of International Law*, 197.
18. Cheng, "Anglo-Iranian Dispute," 390.
19. Ibid., 391.
20. Ibid., 392. Regarding expropriation proceedings affecting the property of aliens, Cheng explains that: (1) The measure must be for public utility, which means that nationalization is "certainly a legitimate object of expropriation." (2) Compensation must be paid, and the Iranian Law of Implementation of May 1 "clearly provides for compensation." (3) The measure must not be "discriminatory against foreigners," which the British government had argued was precisely the case in its request for interim measures of protection.
21. Cheng, "Anglo-Iranian Dispute," 393. Anghie explains that nationalization was legitimate, according to the West, "provided that a number of conditions were met, the most significant of these being payment of compensation according to internationally determined standards." National standards and laws "asserted by the Third World lacked any such legal foundations." See Anghie, *Imperialism, Sovereignty, and the Making of International Law*, 214.
22. Ibid., 394.
23. Ford, *Anglo-Iranian Oil Dispute*, 129.
24. "British Memorial," October 10, 1951, 64, ICJ.
25. Ibid., 85. The British memorial made the following points: (1) The cancellation of the 1933 concession was a violation of an "express renunciation of the right of unilateral termination." (2) Iran's nationalization laws were directed exclusively against a foreign national, AIOC, and not shown to be necessary for the security of any "vital public interest." (3) The expropriation of the property of foreigners was unlawful unless in the public interest and of vital importance.
26. Ibid.
27. Ibid., 65–66.
28. Ibid., 74.
29. Anghie, *Imperialism, Sovereignty, and the Making of International Law*, 232–235.
30. Ibid.
31. "British Memorial," October 10, 1951, 75, ICJ.
32. Ibid., 76–78.
33. Ibid.
34. I am following Latour's account of "law by association" and considering its implications for politics. See the discussion in chapter 3.
35. Ford, *Anglo-Iranian Oil Dispute*, 134.
36. The provision that former customers of AIOC should have the right to purchase at current prices the same quantities of oil that they previously imported from Iran.

37. Ford, *Anglo-Iranian Oil Dispute*, 134.

38. *Ibid.*

39. *Ibid.*, 135.

40. Anghie, *Imperialism, Sovereignty, and the Making of International Law*, 222.

41. Ford, *Anglo-Iranian Oil Dispute*, 137–138, 149. He noted that the power given to the Security Council by Article 94 of the Charter to recommend or decide on measures to be taken to give effect to a judgment of the ICJ was limited to cases in which the judgment was both final and binding. The provision in paragraph 2 of Article 41 that the ICJ shall notify the Council of measures indicated by the Court had been designed, Saleh argued, to further cooperation between the two organs of the UN. Article 2, paragraph 7 limited the jurisdiction of the Council and the ICJ when a dispute was found to arise out of a matter by which *international law was solely within the domestic jurisdiction of that party*, and the statute of the Court was not exclusively concerned with the rights and duties of the ICJ and could not confer powers on the Security Council by implication.

42. *Ibid.*, 306. Hossein Navab, representative of the Iranian government, made the case for the incompetence of the Court and his government's refusal of its jurisdiction. Navab argued that the United Kingdom had forced the dispute into "international organs," even though his government rejected their competence.

43. "Preliminary Objection; Ruling That the Court Has No Jurisdiction," July 22, 1952, 93, ICJ. The claims of the British government were based on treaties concluded between Iran and other powers the benefit of which could be invoked only by the British application of the "most favored nation" clause. This clause appeared only in the treaties concluded between Iran and the United Kingdom in 1857 and 1903—that is, prior to the ratification of the Iranian Declaration, or upon the exchange of notes, which did not possess the character of a treaty or convention (dated May 10, 1928). This occurred prior to the ratification of the Iranian Declaration.

44. *Ibid.* With regard to the alleged tacit agreement between the two governments in connection with the renewal of the 1933 concession, Navab denied such an agreement existed. He further claimed that the British government's "prima facie examination" sufficed to show that the British claims had no relation to the treaties or alleged treaties invoked, as they did not possess the scope that the British state attributed to them. AIOC had not yet exhausted all local remedies provided by Iranian law, particularly concerning the amount of compensation due to AIOC. Finally, that Iran and the United Kingdom had reserved questions in their declarations that "according to international law are within the exclusive jurisdiction of States," must be understood as extending to questions that were "essentially within the domestic jurisdiction of States." Alternatively, Navab asked to place on record for the Iranian government its declaration that it availed itself of the right reserved in its declaration to require the suspension of the proceedings, since the dispute before the Court was submitted to the Security Council and was under examination by that body.

45. "Summary of the Judgment of the Court," July 22, 1952, 1–2, ICJ. The Court's judgment referred to the principle according to which "the will of the Parties is the basis of the Court's jurisdiction." The jurisdiction for this case also depended on "the Declarations accepting the compulsory jurisdiction of the Court," made by Iran and the United Kingdom under Article 36, paragraph 2, of the Statute.

46. Anghie, *Imperialism, Sovereignty, and the Making of International Law*, 230.

47. The declarations contained the "condition of reciprocity, and as that of Iran is more limited," the judgment ruled, "it is upon that Declaration that the Court must base itself." According to Iran's declaration, the Court had jurisdiction when "a dispute relates to the application of a treaty or convention accepted by Iran." Iran argued that jurisdiction was limited to treaties signed "subsequent to the Declaration." Contrary to the United Kingdom's view that earlier treaties could also be considered, the Court judged that both contentions could "strictly speaking be regarded as compatible with the text." However, the Court could not base its judgment on a "purely grammatical interpretation," and must seek a ruling with regard to the intention of Iran at the time it formulated the declaration. The "natural and reasonable way of reading the text," ruled the Court, was that only treaties subsequent to the ratification of the declaration came into consideration.

48. On the United Kingdom's claim to treatment under the "most favored nation" clause signed between Iran and other countries in subsequent treaties to the declaration, the Court ruled that the United Kingdom's only legal connection to these relied on its participation in treaties signed prior to the ratification of the declaration (e.g., 1857 and 1903). Furthermore, Iranian law by which the Majlis approved the declaration confirms Iran's intention that "the treaties and conventions which come into consideration are those which the Government will have accepted after the ratification." Therefore, it could not rely on the treaties anterior to the declaration.

49. "Summary of the Judgment of the Court," July 22, 1952, 1–2, ICJ.

50. *Ibid.*

51. Heiss, "The United States, Great Britain, and the Creation of the Iranian Oil Consortium," 195.

52. *Ibid.*

53. Louis, "Britain and the Overthrow of the Mosaddeq Government," 153.

54. Under the Truman administration, the Americans refused to provide budgetary assistance to Iran in the absence of an oil settlement. This policy, which was continued under the Eisenhower administration, went against Mosaddeq's hopes for American financial assistance to support Iran's national budget and help offset the loss of foreign exchange that accompanied AIOC's boycott. As Heiss points out, however, "US policymakers attributed far more importance to oil revenues as a percentage of the Iranian national budget than was really the case." In 1950, for example, oil royalties totaled only 12 percent of government

revenue and only 4 percent of national income. Thus, “the bulk of Iran’s income was coming from non-oil sources.” Iran did make some sales to Italian and Japanese buyers, but total oil exports during 1952 and the first six months of 1953 amounted to only 118,000 tons compared to 31 million tons in 1950, the last complete year of AIOC’s Iranian operations. See Heiss, “The United States, Great Britain, and the Creation of the Iranian Oil Consortium,” 189, 195, 198.

55. Amy Staples, “Seeing Diplomacy through Bankers’ Eyes: The World Bank, the Anglo-Iranian Oil Crisis, and the Aswan High Dam,” *Diplomatic History* 26, no. 3 (2002): 397–418. Also see Anghie, *Imperialism, Sovereignty, and the Making of International Law*, 192.

56. *Ibid.*, 397.

57. Anghie, *Imperialism, Sovereignty, and the Making of International Law*, 204.

58. Staples, “Seeing Diplomacy through Banker’s Eyes,” 398, 400–401.

59. *Ibid.*, 402.

60. *Ibid.* Also see the text of the letter from Gardner to Mosaddiq, December 28, 1951, and Mosaddiq’s reply to Garner, January 3, 1952, 129–133, cited in Hossein Maki, *Ketab-e Seeyah (Black Book: Years of Nationalization from Azar 1330 to Shahrivar 1330)*, vol. 6 (Tehran: Amir Kabir, 1363 (1984–1985)).

61. Staples, “Seeing Diplomacy through Bankers’ Eyes,” 403. Staples says that the British government and AIOC were anxious that any interim pricing schedule established by the bank not exceed a 50–50 profit split as this had been the basis of AIOC’s abortive final offer to the Mosaddiq government.

62. Mosaddeq to Garner, January 3, 1952, 118975, BP.

63. Louis, “Britain and the Overthrow of the Mossadeq Government,” 153.

64. Oliver Franks (FO) to ?, January 1952, 118975, BP. This consisted of a small mixed board of “neutral” Iranian directors; a supply of free oil to AIOC for five years; a discounted sale contract to AIOC for fifteen years; and an agreement negotiated through the World Bank as intermediary.

65. Staples, “Seeing Diplomacy through Bankers’ Eyes,” 403.

66. Gardener to Mosaddiq, December 28, 1951, 130, cited in Maki, *Black Book*.

67. Staples, “Seeing Diplomacy through Bankers’ Eyes,” 403. As Gardner had suggested in his initial letter to Mosaddiq, the bank fully intended to rehire much of the former AIOC staff, including British nationals, because they were the most familiar with Iranian operations and could enable an immediate resumption. To avoid the possibility of political disputes, the bank also agreed to provide complete information on Iranian operations to both parties, to make concessions AIOC had refused to make, and above all, to give the Iranian government responsibility for providing social and municipal services to the employees of the fields and refinery.

68. *Ibid.*

69. *Ibid.*

70. Staples, "Seeing Diplomacy through Banker's Eyes," 404.
71. Abrahamian, *The Coup*, 161–163.
72. Staples, "Seeing Diplomacy through Bankers' Eyes," 405.
73. Levy to Garner, January 29, 1952, Box 15, Folder 6, Walter J. Levy Papers, Collection Number 082428, AHC.
74. *Ibid.*
75. Staples, "Seeing Diplomacy through Bankers' Eyes," 407.
76. In his personal account of the oil nationalization crisis, Maki concluded that the American government was not interested in providing technical aid or pursuing friendly relations with his country. During his visit to the United States, Maki also met with the Mexican ambassador, who advised him to follow Mexico's successful attempt at nationalization of its oil industry. He urged Maki to reduce Iran's reliance on oil revenues by making cuts in other parts of the national budget. The ambassador warned that as long as Iran showed itself dependent on oil revenues, it would remain caught in Britain's economic trap. Maki recalled his meeting with the head of the American government's Point IV program as well. He concluded that political motives shaped this program in Tehran after nothing came of his requests for economic and technical assistance for the construction of a dam and the development of farming tools and factories in Khuzistan (Maki, *Black Book*, 11–12, 20).
77. For a discussion of the role of Bretton Woods Institutions such as the UN, the IMF, and the World Bank in undermining "Third World" sovereignty, see Anghie, *Imperialism, Sovereignty, and the Making of International Law*, chap. 5.
78. On the Suez Canal crisis, see Staples, "Seeing Diplomacy through Bankers' Eyes."
79. "Persia," April 10, 1952, 118974, BP. Alternative political outcomes included the following: (1) A successor government would either reopen negotiations directly with the British, or (2) a successor government would opt for additional time to convert public opinion into pro-British sentiment that would enable the World Bank to resume negotiations.
80. "Note of Interview with Sir William Fraser Who Was Accompanied by Mr. Gass on 15 July 1952," July 15, 1951, 118974, BP. Fraser feared that if new proposals were agreed on with Americans at the current stage, Tehran would find out, and this would provide the Iranian government with a basis for demanding further concessions and preventing a quick settlement. He indicated a willingness to accept the idea of a "purchasing contract" to purchase Iranian oil at a price that would include compensation, although the amount to be purchased and marketed in the current situation would require "careful consideration." He expressed no objection to a "managing agency" composed of leading British and American oil companies operating in the Middle East. There was a danger, however, that the leading American companies would not want to participate and AIOC would strongly oppose the participation of "second or third rate American companies." The complete exclusion of AIOC from participation in a managing agency would have serious effects on AIOC throughout the Middle East and serious ramifications for its commercial prestige.

81. Louis, "Britain and the Overthrow of the Mosaddeq Government," 153.
82. *Ibid.*, 154.
83. *Ibid.*, 157.
84. *Ibid.*, 151.
85. *Ibid.*, 152.
86. *Ibid.*, 134–135.
87. *Ibid.*, 139–140.
88. *Ibid.*, 145.
89. *Ibid.*, 156.
90. ? to the Chairman (AIOC), "Joint HMG/USA Proposals," August, 11, 1952, 91032, BP. Eden agreed with Acheson's assessment of the threat of communism in Iran, the extent to which Mosaddiq could be regarded as a barrier against it, and the effects on British interests elsewhere in the world. But Eden urged that neither his government nor the US government should rush into "hasty action in going to Mossadeq's aid." Eden expressed his government's willingness to join in an offer based on Acheson's proposals but subject to modifications: (1) US financial aid must be conditional on the Iranian government's agreement to arbitration on acceptable terms. (2) The conclusion with AIOC of suitable arrangements for taking stocks of oil. (3) AIOC would not be asked to abandon its right to take legal action against illicit purchasers of Iranian oil before the conclusion of a final settlement.
91. Butler (Ministry of Fuel and Power), "Persia," August 16, 1952, 91032, BP. The British government would offer to progressively relax some restrictions placed on exports to Iran and on the use of Iranian sterling. Within British government circles, the view was that a "disguised 50/50" was the only way for AIOC to achieve adequate compensation while avoiding "disastrous repercussions elsewhere." The only solution, Butler argued, was for AIOC to negotiate the purchase of oil to which it claimed to have rights, or alternatively, to enroll an international bank as an arbitrator and buy oil from Iran on the basis of a price at which Iran could sell it to AIOC, "who are really the only practicable distributors of the oil."
92. Louis, "Britain and the Overthrow of the Mosaddeq Government," 158.
93. *Ibid.*, 129.
94. Abrahamian, *The Coup*; Abrahamian, "The 1953 Coup in Iran"; Louis, "Britain and the Overthrow of the Mosaddeq Government."
95. After the overthrow of the Mosaddiq government, "the last covert interventions by US agencies in oil-producing states during the era when a handful of companies still managed worldwide price and supply stability, an era that was coming to an end, were under the Kennedy administration in Iraq in 1963 and the Johnson administration in Indonesia in 1965" (Vitalis, *America's Kingdom*, 14).
96. Mitchell, *Carbon Democracy*, 121–122.

97. See note 37.

98. Memorandum of Conversation, May 14, 1951, RG 59 Box 5514, 888.2553-AIOC/5-1451, US (N)ational (A)rchives and (R)ecords (A)administration. Representatives from Standard of Oil of New Jersey, Aramco, and the Gulf Oil Company participated in this meeting.

99. See the testimony of David I. Haberman, attorney-at-law in the Antitrust Division of the Department of Justice, in *Transnational Oil Corporations and U.S. Foreign Policy: Report Together with Individual Views to the Committee on Foreign Relations, United States Senate, by the Subcommittee on Transnational Corporations* (Washington, DC: US Government Printing Office, 1975), part 7, 16–17.

100. *Ibid.*, 25–27.

101. Memorandum by the Assistant Secretary of State for Economic Affairs (Thorp) to the Secretary of State, March 31, 1952, in *Foreign Relations of the United States, 1952–54, General: Economic and Political Matters*, vol. I, part 2, 1259–1261.

102. Sampson, *The Seven Sisters*, 123. Put together by a “radical economist,” John M. Blair, the 400-page report published the details of the cartel arrangements of the “Seven Sisters” starting with the Achnacarry and Red Line agreements of 1928 and analyzed the complex sharing arrangements of the largest transnational oil corporations around the world. The findings revealed that the seven companies controlled all the “principal oil-producing areas outside the United States, all foreign refineries, patents, and refining technology: they divided the world markets between them, and shared pipelines and tankers throughout the world; and ... they maintained artificially high prices for oil.”

103. *Ibid.*

104. Memorandum, April 11, 1952, RG 59, Box 5508A, 888.2553/4-1152 NARA.

105. Secretary of State (Dean Acheson) to Chairman of the FTC (Meade), April 25, 1952, in *Foreign Relations of the United States, 1952–54, General: Economic and Political Matters*, vol. I, part 2, 1261.

106. *Ibid.*

107. *Ibid.*

108. Consequences of the Future Revelation of the Contents of Certain Government Documents, May 6, 1952 (attachment), *FRUS*, vol. I (1952–54), 1272.

109. President Truman to FTC (Mead), August 15, 1952, *FRUS*, vol. I (1952–54), 1281.

110. Byroade (NEA) to Under Secretary of State, October 2, 1952, RG 59, Box 5509 888.2553/10-252 NARA.

111. Memorandum by Deputy Assistant Secretary of State for Economic Affairs (Linder) to Acting Secretary of State, December 16, 1952, *FRUS*, vol. I (1952–54), 1289.

112. Memorandum by Assistant Legal Adviser for Economic Affairs (Metzger), *FRUS*, vol. I (1952–54), 1304–1305. Report to the NSC by the Departments of State, Defense, Interior, and Justice, January 6, 1953, “Report by Department of State, Defense and the Interior on Security and International Issues Arising from Current Situation in Petroleum,” *FRUS*, vol. I (1952–54), 1318–1328.

113. Draft Aide-Mémoire to British, October 7, 1952, RG 59, Box 5509, 888.2553/10–752 NARA.

114. See Emmerglick’s testimony, which contains Truman’s note to Attorney General McGranery on January 12, 1953, in *Transnational Oil Corporations and US Foreign Policy*, 102. In his testimony, Emmerglick explains that the criminal proceeding would have shortened the process to a matter of months rather than the four to eight years required by a civil action against international cartel arrangements. Only Congress, not the president, could have made the kind of determination about whether national security overrides civil criminal action because Congress had established antitrust laws as the primary instrument of public policy involving international trade.

115. *Ibid.*, 107.

116. Memorandum of Discussion at the 140th Meeting of the NSC on April 22, 1953, *FRUS*, vol. I (1951–54), 1351. The success of US oil companies in framing their strategy in terms of “national security” has been reproduced in the scholarship. For example, see Stephen D. Krasner, *Defending the National Interest: Raw Materials Investments and U.S. Foreign Policy* (Princeton, NJ: Princeton University Press, 1978).

117. See Haberman’s testimony in *Transnational Oil Corporations and US Foreign Policy*, 30–32.

118. On this point, also see Sampson, *The Seven Sisters*, 134. He explains that the case against the cartel continued to be built, but it was not until 1961, under the Kennedy administration, that a case was put forward against the five American “sisters.” As in the complaints made eight years prior, the US antitrust chief argued the existence of monopoly power. However, the Iranian consortium ensured that the prosecution’s case was less concerned with the joint production agreements, “which were the heart of the collusion.” Exxon, Texaco, and Gulf agreed to a settlement without admitting guilt, and the two other cases against Mobil and Socal were “later dismissed without prejudice.”

119. On the history of intergovernment-business cooperation in the context of the oil cartel case, see Burton I. Kaufman, *The Oil Cartel Case* (Westport, CT: Greenwood Press, 1978).

120. David Bruce (Acting Secretary of State) to John Foster Dulles, December 2, 1952, RG 59, Box 5510, 888.2553/12–252 NARA.

121. Memorandum of Discussion at the 181st Meeting of the National Security Council, January 21, 1954, *FRUS*, vol. X (1952–54), 907–911. Representatives of the Texas Oil Company expressed concern over the impact of such a solution on Saudi Arabia, the currency problems involved should Iranian oil be marketed as dollar oil instead of sterling oil, and the threat of antitrust action. The

representative of the Socony-Vacuum Company, Charles Harding, argued that it might be easier for the American oil companies to take the lead in negotiations, “provided it were pursuant to a request from the State Department in which section 708 of the Defense Production Act was referred to.” See Memorandum, November 21, 1952, RG 59, Box 5510, 888.2553/11–2152 NARA.

122. Ibid.

123. Memorandum, December 11, 1952, RG 59, Box 5510, 888.2553/12–1652 NARA.

124. Linder to Chapman (Petroleum Administrator for Defense), December 17, 1952, RG 59, Box 5510, 888.2553/12–1752 NARA.

125. Ibid.

126. Minutes of Meeting in Secretary’s Office, December 9, 1952, RG 59, Box 5510, 888.2553/12–952 NARA.

127. John Jernegan (NEA) to Secretary of State, February 28, 1953, RG 59, Box 5511, 888.2553/2–2853 NARA.

128. AIOC played no role in the actual execution of the coup events. See Louis, “Britain and the Overthrow of the Mosaddeq Government.”

129. “The Iranian Situation,” September 5, 1953, RG 59, Box 511A, 888.2553/9–253 NARA.

130. September 11, 1953, RG 59, Box 5511A, 888.2553/9–1153 NARA.

131. Memorandum of Discussion at 162nd Meeting of the National Security Council, Washington, September 17, 1953, no. 367, *FRUS*, vol. X (1952–54), 794–796.

132. Secretary of State to Embassy in Iran (signed by Dulles; same message drafted by Hoover and signed by Byroade), September 23, 1953, RG 59 Box 5511A 888.2553/9–2153 NARA.

133. “Proposed Iranian Consortium Plan,” January 1954, RG 59, Box 5512, 888.2553/1–253 NARA.

134. Memorandum of Conversation, September 26, 1953, Box 5511A, 888.2553/9–2653 NARA.

135. Ibid.

136. Henderson to Secretary of State, October 22, 1953, RG 59, Box 5511A, 888.2553/10–2253 NARA.

137. This was not entirely the case as the giant Abqaiq field in Saudi Arabia was suffering from the problem of overproduction.

138. See Howard Page’s testimony in *Transnational Oil Corporations and US Foreign Policy*, 289–290.

139. Memorandum of Conversation, November 24, 1953, RG 59, Box 5512, 888.2553/11–2453 NARA.

140. Memorandum by the Legal Adviser (Phleger), December 8, 1953, RG 59, Box 5512, 888.2553/12–853 NARA. Also see Memorandum of Conversation, December 7, 1953, *ibid.* (Koegler of Standard Oil of New Jersey, Foster of

Socony-Vacuum, Phleger, and Jernegan present). For Hoover's discussion with representatives of AIOC and the British Foreign Office, see Hoover to Department of State, December 4, 1953, 848 (601.4188/12-453).

141. Attorney General (Brownell) to the NSC, January 20, 1954, RG 59, Box 5509, 888.2553/1-2054 NARA.

142. Memorandum of Discussion at the 178th Meeting of the National Security Council, December 30, 1953, *FRUS* vol. X, 858-861.

143. The act authorized government officials to consult with business and other groups to encourage voluntary action to carry out national defense objectives: "The President may request members of an industry to enter into a voluntary agreement or program, upon a finding that it is vital to the national defense. No act or omission to act pursuant to any such voluntary agreement, the Act provides, shall be construed to be within the prohibitions of the antitrust laws while the Act is in effect." See Memorandum of Discussion at the 223d Meeting of the National Security Council, November 9, 1954, *FRUS*, vol. I (1952-54), 1375-1378.

144. Citino, Defending the "Postwar Petroleum Order," 138.

145. With regard to the question of oil and the coup, Mitchell, *Carbon Democracy*, and Abrahamian, *The Coup*, both make this point.

146. Heiss, "The United States, Great Britain, and the Creation of the Iranian Oil Consortium," 515.

147. *Ibid.*, 513.

148. *Ibid.*, 514.

149. "Draft for Discussion: Outline of Corporate Set-Up for Oil Purchases from Iran by a Consortium," January 14, 1952, 91032, BP.

150. FO to Washington, August 23, 1953, no. 395, 11/726, PREM.

151. FO to AIOC (?), "'Skeleton' Memorandum on Middle East Oil," July 31, 1953, 1-6, 91032, BP.

152. See Irene Gendzier, *Notes from the Minefield: United States Intervention in Lebanon, 1945-1958*, 2nd ed. (New York: Columbia University Press, 2006).

153. FO to AIOC (?), "'Skeleton' Memorandum on Middle East Oil," July 31, 1953, 1-6, 91032, BP.

154. Enclosure "Document Handed to Hoover and Ambassador Henderson by Persian Foreign Minister, Entezam, on 1 November 1953 (Translation from the Persian)," in Belgrave to Beeley, November 4, 1953, 371/104616, FO.

155. Entezam also expressed his government's wishes that the World Bank act as an intermediary in the conclusion of the consortium arrangement to examine accounts and supervise the agreement's enforcement. It is important to note here that in January 1953, the Iranian government approved a "Persian Mining Law," to be managed by the Ministry of National Economy, and replacing the annulled mining law of 1938-1939. AIOC studied the law carefully. The articles stated that petroleum was the absolute property of the government and that exploration and exploitation of these mines could be effected only by

the government. According to AIOC, “There appears nothing in this 1953 Act, which will prohibit the employment by the Government or by NIOC of foreign concern to operate the industry.” See “Persian Legislation Affecting Negotiations with the Persian Government or NIOC,” December 15, 1953, appendixes A–F, 58252, BP.

156. “Telegram from Washington to London,” March 5, 1954, no. 341, 79661, BP.

157. Heiss, “The United States, Great Britain, and the Creation of the Iranian Oil Consortium,” 519.

158. Washington to FO, February 19, 1954, no. 232–235, 11/726, PREM.

159. “Conclusions Minute 3,” February 22, 1954, no. 225, 11/726, PREM.

160. FO to Washington, March 2, 1954, FO to Washington, no. 210–211, 11/726, PREM.

161. Heiss, “The United States, Great Britain, and the Creation of the Iranian Oil Consortium,” 522.

162. *Ibid.*, 523.

163. Mitchell, “Carbon Democracy,” 408.

164. *Ibid.*, 531.

165. Memorandum of Conversation, January 12, 1954, RG 59 Box 5512, 888.2553/1–1254 NARA. Also on the formulation of APQ to avoid an oil glut, see Sampson, *The Seven Sisters*, 131.

166. See Fereidun Fesharaki, *Development of the Iranian Oil Industry: International and Domestic Aspects* (New York: Praeger, 1976), 54–55.

167. Mitchell, “McJihad.”

168. Iricon Agency Ltd. grouped six American oil companies that together held the remaining 5 percent of the consortium arrangement: 1/6 each to American Independent Oil, Getty Oil, and Charter Oil; 1/3 to Atlantic Richfield (Arco—later owned by BP); and 1/12 each to Continental (Conoco) and Standard Oil of Ohio. The signing of the agreement on October 29, 1954, marked this increase in (American) participants from eight companies to fourteen. Walden has a slightly different breakdown: 3/12 to Richfield Oil Corp., 2/12 to American Independent Oil Co., 2/12 to Signal Oil Co., 1/12 to Standard Oil Co. (Ohio), 1/12 to San Jacinto Petroleum Corp., 1/12 to Getty Oil, 1/12 to Tidewater Oil Co., 1/12 to Atlantic Refining Co. See Walden, “The International Petroleum Cartel in Iran,” 111n239.

169. Fesharaki, *Development of the Iranian Oil Industry*, 54–55.

170. See Levinson’s reply to Shafer in *Transnational Oil Corporations and US Foreign Policy*, 254–256.

171. Fesharaki, *Development of the Iranian Oil Industry*, 54–55.

172. *Transnational Oil Corporations and US Foreign Policy*, 264. To elaborate, Shafer explains that, “... unfortunately, each participant will not have the same requirements normally year to year to off-lift crude oil. So they must have some

sort of an arrangement between themselves for fixing the basic levels and which lifting will be determined. So that each participant has equal use of the facilities and the capital input that he has made into developing the property.”

173. “Notes on Interview,” May 15, 1954, 371/110061, FO. Also see FO to Baghdad, May 28, 1954, 371/110061, FO.

174. *Transnational Oil Corporations and US Foreign Policy*, part 7, 269.

175. Memorandum of Conversation, May 17, 1954, RG 59, Box 5512, 888.2553/5–1754 NARA.

176. Ambassador in Iran (Henderson) to Department of State, June 30, 1954, *FRUS*, vol. X (1952–54), 1033.

177. Ambassador in Iran (Henderson) to Department of State, July 6, 1954, *FRUS*, vol. X, 1038.

178. *Ibid.*

179. Henderson to Secretary of State, September 29, 1954, RG 59, Box 5513, 888.2553/9–2954 NARA.

180. Henderson to Secretary of State, October 1, 1954, RG 59, Box 5513, 888.2553/10–154 NARA.

181. The final agreement saw CFP, the French company, settling for a 6 percent share, 14 percent to Shell, and 40 percent each to AIOC and the group of five US oil majors. The British and American governments agreed that AIOC should receive a sum on the order of £100 million as compensation.

182. See note 153.

183. On the battle between the American oil independents and oil majors for a percentage share in the consortium, see Ralph Davies of American Independent Oil Co. to J. F. Dulles (Secretary of State), October 15, 1954, and Page’s testimony in *Transnational Oil Corporations and U.S. Foreign Policy*, 249–251, 295.

184. Heiss, “The United States, Great Britain, and the Creation of the Iranian Oil Consortium,” 532.

185. See Mitchell, “Carbon Democracy,” 419, 421, for a discussion of the sociotechnical mechanisms that tied together democracy in the West, oil, and the US dollar. As he explains, the commercialization of weapons exports from the United States was “made possible by establishing a series of linkages between the Western import of oil from the Middle East, the flow of dollars to producer countries” such as Iran and Saudi Arabia, “the production of political vulnerabilities and military threats to the further flow of oil,” and finally, “the use of petrodollars to purchase arms from the West as a protection against those threats.”

186. Walden says that “viewed from any standpoint,” the Iranian consortium “represented a resounding triumph for the British and a catastrophic defeat for the national aspirations of Iran.” The arrangement was particularly remunerative for American interests, seeing as how most of the net income from operations in Iran would be tax free (Walden, “The International Petroleum Cartel in Iran,” 112–113).

187. Sampson, *The Seven Sisters*, 135. Unlike the consortium arrangements in Iraq and Saudi Arabia, all seven sisters were involved in limiting oil production from Iran through the Iranian consortium. Two or more of the seven were in control of each of the major oil-producing countries of the Middle East. Four of the partners of Aramco were also in Iran.

## Conclusion

1. MacKenzie, "An Equation and Its Worlds," 252.
2. For a technical study of how STS can be used to explore the devices through which politics and policy are done, see Jan-Peter Voss and Basil Bornemann, "The Politics of Reflexive Governance: Challenges for Designing Adaptive Management and Transition Management," *Ecology and Society* 16, no. 2 (2011): 9. Lucy Suchman proposes the device of "configuration" as a "method assemblage" for recovering "heterogeneous relations that technologies fold together," which captures what I am doing by following the construction of sociotechnical devices in the reconfiguration of politics (Lucy Suchman, "Configuration," in *Inventive Methods: The Happening of the Social*, ed. Celia Lury and Nina Wakeford, 48–60 (London: Routledge, 2014)).
3. Barry, "Technological Zones," 250.
4. Sampson, *The Seven Sisters*, 163. OPEC succeeded in preventing further reductions in the posted price of oil and loss of control to the oil corporations over the unilateral fixing of prices. However, OPEC members could not agree on how to fix prices or restrict production on their own. According to Robert Mabro, the posted price of oil refers to a statement of the oil price announced by a firm indicating what it will pay for the oil or the price at which it will sell it. It is circulated publicly. In the 1950s and 1960s, they were "used to indicate a company's selling price." For a discussion of the formulas, see Robert Mabro, *On Oil Price Concepts* (Oxford: Oxford Institute for Energy Studies, 1984), 6.
5. See "How We Organized Strike That Paralyzed Shah's Regime: First-Hand Account by Iranian Oil Workers," in *Oil and Class Struggle*, ed. Petter Nore and Terisa Turner, 293–301 (London: Zed Press, 1980).

