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Hydrocarbons and human resources: histories of labor, social relations, and industrial culture in the oil and gas industry

Abstract

Human labor and knowledge has been central to the ability of companies and states to extract and produce energy. Workers, engineers, technocrats, and managers have played a central role in the development of the hydrocarbon industry. Overshadowed by the images of oil rigs, pipelines, and refineries which dominate the modern petro-imaginary, the men and women who have built the industry are often made invisible or reduced to stereotypes and characters promoted by the industry itself. Following the recent turn in the scholarship towards the study of what has been termed variously an ‘oil complex’ or ‘oil assemblage’, studies emphasizing the material structures and technical organization of the oil and gas industry are increasingly drawing attention to the social and labor histories of oil. This special issue of the *Journal of Energy History* presents recent research which places the human element at the heart of analyses of the history of the hydrocarbon industry in the 19th and 20th centuries. Drawing on materials in corporate archives and other collections and adopting the approaches of social and cultural history makes it possible to reconstruct and analyze the lived experiences of men and women in the hydrocarbon industry. By bringing together research addressing a variety of geographical areas and time periods, this special issue highlights different organizations, individuals, and social groups and critically analyzes their role in the extraction, production, distribution, and consumption of carbon energy. In particular, it demonstrates how the material structures and organizational forms that make up the oil and gas industry have both shaped and been shaped by processes of identity formation and professionalization, the entrenchment of structural inequalities, social activism and mobilization, the circulation of economic and technical expertise, and socio-environmental interactions.

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- Introduction
- The (de)humanization of the hydrocarbon industry: The scholarly literature and beyond
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- Conclusion

INTRODUCTION

- 1 Energy, whether electricity, oil, gas, or nuclear, has long been associated in our social imaginaries with gigantic industrial technologies and awe-inspiring modern machinery. Thinking about the oil and gas industry, in particular, often evokes images of drilling rigs floating in the desert sand, huge oil platforms anchored in the ocean, enormous oil tankers sailing to faraway continents, and the tall silhouettes of refining plants' torches burning day and night. These images, which have been circulated in the propaganda, advertising and communication campaigns of oil companies, industrial organizations and political institutions since the end of 19th century, have contributed to the construction of a petro-imaginary that has profoundly influenced our conception of modernity.¹ It is notable, however, that people - the engineers and technicians who design and operate these technical systems, the workers and executives who build and manage them - are rarely present in this petro-imaginary. Overshadowed by the image of oil rigs, pipelines, and refining plants, men and women have been made invisible or relegated to a secondary role as passive observers of a complex material system.

- 2 The dehumanization of the hydrocarbon industry has paradoxically gone hand in hand with a narrative of the development centered on the outsized contribution of a handful of oil executives, who are depicted as daring entrepreneurs and skilled industrial statesmen. Furthermore, this process has been accompanied by the development of a rhetorical and iconographical personification of the oil industry.² The early age of

this industrial sector is often associated with Colonel Edwin Drake, an American businessman who developed oil production in Pennsylvania in the 1850s. Presented as a founding father of the modern oil industry, Drake was certainly not the first man who used mechanical drilling techniques to commercially exploit an oil reservoir.³ Nevertheless, this idea has been widely diffused since the end of the Second World war thanks to the publication of books and comics for a general audience and the production of films financed by the American Petroleum Institute.⁴ Even if Drake's example remains unique, the personification process that took place in oil history has fostered the emergence of many "faceless" characters that are a product of specific industrial contexts. This has allowed companies and other organizations to associate the industry with the values of tenacity, innovation, and a pioneering spirit. During the 1950s, the beginning of the exploration of the Sahara Desert gave rise to the emergence of the myth of the *chercheur d'or noir* in France.⁵ Inspired by the symbolism of the American oil frontier (*fièvre de l'or noir*) and French colonial society, this character became

in Advertising: Using a Visual Metaphor to Trigger Anthropomorphism », *Journal of Advertising* 40, n° 1 (2011): 121-30.

³ Many scholars have showed that mechanical drillings were used in Europe and Asia many years before Drake's discovery Pierre M. Edmond Schmitz, *L'épopée du pétrole: enfance et destins d'un géant* (R. Pichon et R. Durand-Auxias, 1947) ; Mir-Yusif Mir-Babayev, "Brief History of the First Oil Drilling Wells in Baku Region, http://noema.crifst.ro/ARHIVA/2018_04_04.pdf (consulted on 11th March 2022) .

⁴ Edwin C. Bell, *History of Petroleum: Life of Col. Edwin L. Drake* (« The Bugle » Print, 1958); Pierre Morel, *La vie ardente de Drake le « colonel »: extraordinaire et lamentable histoire de Edwin Laurentine Drake qui, en allant chercher sous terre un nouvel or, le pétrole brut de la Pennsylvanie, devait donner le jour à la plus grande industrie du monde* (Sun, 1957); *The Dramatic Story of Colonel Drake* (Pennsylvania Refining Company, 1934); *La Course à l'or noir ... Le Secret du colonel Drake*. (G. Blanchong, 1946); Drake is the main character of different comics and *bandes dessinées* in the United States and in Europe: *The Story of Colonel Drake* (American Petroleum Institute, 1954) ; Morris et René Goscinny, *Lucky Luke, tome 18 : A l'ombre des derricks* (Marcinelle: Dupuis, 1987) .

⁵ Radouan Andrea Mounecif, « L'épopée du pétrole saharien : la fabrique du mythe de l'or noir français (1956-1962) », in *L'énergie à tous les étages: Autour d'Alain Beltran* (Descartes et Ci, 2022).

¹ Sheena Wilson, Adam Carlson, and Imre Szeman, ed., *Petrocultures: Oil, Politics, Culture*, (Montreal, Chicago: McGill-Queen's University Press, 2017); Ross Barrett and Daniel Worden, *Oil Culture* (University of Minnesota Press, 2014).

² For a definition and further discussion of uses of the term 'personification' see Tom McArthur, Jacqueline Lam-McArthur et Lise Fontaine, « Personification », in Tom McArthur, Jacqueline Lam-McArthur et Lise Fontaine (dir.), *The Oxford Companion to the English Language*, (Oxford: Oxford University Press, 2018); Marjorie Delbaere, Edward F. McQuarrie, et Barbara J. Phillips, « Personification

the custodian of France's ambitions to become energy independent through the exploitation of the Saharan resources. In the same period, the expansion of the Italian national oil company activity in Sicily contributed to the emergence of a new figure: the Italian oil technician. Trained in the technical institutes of Northern Italy, this pioneer is presented as an advocate of the economic and social progress of the backward South.⁶ Beside the expansion of this « mythology of the wildcatter », the second part of the twentieth century also saw the popularization of the figure of the gas station attendant. Also known as *pompiste*, *benzinaio* or *encargado de gasolinera*, this smiling and helpful character, almost ubiquitous in 1960s and 1970s TV advertising, has stood in as an agent of mass motorization and as a vector of consumerism in Western societies and in other parts of the world. In the absence of sustained investigation into the social and human dimensions of the oil industry and its history, such stereotypes and characters have come to dominate the petro-imaginary, flattening our understanding of the role of people, relationships, and social structures, and by extension, our carbon-centered contemporary world.

THE (DE)HUMANIZATION OF THE HYDROCARBON INDUSTRY: THE SCHOLARLY LITERATURE AND BEYOND

8 The 'dehumanization' of the oil and gas industry in scholarly and popular writing has resulted in part from dominant historiographical approaches, the scarcity of archival sources, as well as the place of the oil and gas industry and its history in contemporary socio-political debate. In laying the foundations of the history of oil and gas since the mid-twentieth century, scholars have prioritized the adoption of a top-down analysis, focused on macro-historical processes. In particular, the existing scholarly literature on oil has been dominated by three main approaches:

⁶ Carlo Verri, « L'isola del «Gatto selvatico». La Sicilia nella rivista dell'Eni (1955-65) », *Meridiana*, n° 98 (2020): 177-94; Daniele Auteur Pozzi, *Dai gatti selvaggi al cane a sei zampe: tecnologia, conoscenza e organizzazione nell'Agip e nell'Eni di Enrico Mattei* (Venezia: Marsilio, 2009) .

business histories of the oil corporation; the international diplomacy and geopolitics of oil; and the political economy of oil producing states. Some of the earliest histories of the modern oil industry were journalistic accounts based on interviews and personal recollections, or official narratives produced by company historians who were given privileged access to archives.⁷ These accounts have served to buttress the oil industry's own claims about its pioneering role in furthering technical progress and modernization. The human element is largely missing from these accounts, which focus instead on the technical and scientific improvement, the rationalization of management and organizational structures, and financial arrangements. A second notable approach to the study of oil has been taken by scholars in the fields of political science and international relations, who have treated the history of oil primarily as one of geopolitical struggle. These works have explored

⁷ Henry Longhurst, *Adventure in Oil : The Story of British Petroleum* (London : Sidgwick and Jackson, 1959); Roland W. Ferrier, *The History of the British Petroleum Company, Vol 1: The developing years, 1901-1932* (New York: Cambridge University Press, 1982); James H. Bamberg, *The History of the British Petroleum Company, Vol 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* (New York: Cambridge University Press, 2000); Thomas A. B. Corley, *A History of the Burmah Oil Company v.1-2* (London: Heinemann, 1984-88); Robert J. Forbes and Denis R. O'Beirne, *The Technical Development of the Royal Dutch/Shell: 1890-1940* (Brill Archive, 1957); Frederik Carel Gerretson, *History of the Royal Dutch v.1-4* (Leiden: Brill, 1953-57); Joost Jonker, Jan Luiten van Zanden, Stephen Howarth and Keetie Sluyterman. *A History of Royal Dutch Shell*. (Oxford: Oxford University Press, 2007); Ralph W. Hidy, Gibb, Knowlton et al., *History of Standard Oil Company (New Jersey), v1-3* (New York: Harper, 1955-71); Daniele Pozzi, "Entrepreneurship and Capabilities in a 'Beginner' Oil Multinational: The Case of ENI", *The Business History Review*, 84, no. 2, (2010): 253-74; Jean Rondot, *La Compagnie française des pétroles : du franc-or au pétrole-franc*, (Paris, Plon, 1962); André Nouschi, "L'État français et les pétroliers anglo-saxons: La naissance de la Compagnie Française des Pétroles (1923-1924)," *Relations Internationales*, no. 7 (Fall 1976): 241-59. Journalistic accounts of the industry include: Ken Silverstein, *The Secret World of Oil* (New York: Verso, 2014); Anthony Sampson, *The Seven Sisters: The Great Oil Companies and the World They Shaped* (New York: Bantam Books, 1991); Steve Coll, *Private Empire: ExxonMobil and American Power* (New York: Penguin Press, 2012).

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foreign relations between oil producing and consuming states, the international diplomacy of ‘energy security’, and the intersection of oil and European imperial interests.⁸ Finally, scholarship on the political economy of oil-producing states has been shaped by the conceptual framework of the “rentier state”.⁹ This theory analyzes the effects of oil in terms of vast revenues accruing to the state and has given rise to an extensive ‘resource curse’ literature, which posits that states which draw large rents from mineral extraction possess an inherent tendency towards a weak economy, authoritarianism, conflict, and other undemocratic outcomes.¹⁰

11 As a recent edited volume has pointed out, in these approaches, oil is regularly taken as a stand-in for something else, like geopolitics or money.¹¹ The social and technical organization of the oil industry itself is rarely the primary object of analysis. As a result, the laborers and workers and human element of the industry are

⁸ The most prominent example is Daniel Yergin, *The Prize : The Epic Quest for Oil, Money, & Power* (New York: Free Press, 1991) which remains the authoritative history of oil. See also Stephen J. Randall, *United States Foreign Oil Policy since World War I : For Profits and Security* (Montreal: McGill-Queen’s University Press, 2005); William Engdahl, *A Century of War: Anglo-American Oil Politics and the New World Order* (Ann Arbor: Pluto Press, 2004); David S. Painter, “Oil and the American Century,” *The Journal of American History* 99, no. 1 (2012): 24–39; Fiona Venn, *Oil Diplomacy in the Twentieth Century* (Basingstoke, Hampshire: Macmillan, 1986). In contrast, see Robert Vitalis, *Oilcraft: The Haunting of U.S. Grand Strategy in the Gulf* (Stanford: Stanford University Press, 2020) which debunks the myths of ‘energy security’ that have been influential in US foreign policy in the Middle East for decades.

⁹ For the origin of the rentier state thesis see H. Mahdavy “The Patterns and Problems of Economic Development in Rentier States: the Case of Iran” in M. A. Cook, *Studies in the Economic History of the Middle East: From the Rise of Islam to the Present Day* (Psychology Press, 1970). For its application to Arab states see Hazem Beblawi, “The Rentier State in the Arab World.” *Arab Studies Quarterly* 9, no. 4 (October 1, 1987): 383–98.

¹⁰ Examples of the resource curse literature, which is voluminous, include: Thad Dunning, *Crude Democracy : Natural Resource Wealth and Political Regimes* (New York: Cambridge University Press, 2008); M. L. Ross, “Does Oil Hinder Democracy?” *World Politics* 53, no. 3 (2001): 325–61.

¹¹ Hannah Appel, Arthur Mason, and Michael Watts, *Subterranean Estates: Life Worlds of Oil and Gas* (Cornell University Press, 2015), 10.

also largely invisible. In contrast, scholars are increasingly thinking about oil in material terms as an ‘oil assemblage’ or ‘oil complex’ composed of an array of diverse actors, institutions, infrastructures, geographies, and socio-technical arrangements.¹² Timothy Mitchell’s *Carbon Democracy* is an important intervention in this regard. In a critique of the “resource curse” literature, Mitchell suggests that it is the apparatus of oil production, not oil money, that is responsible for engineering political outcomes and that “political possibilities were opened up or narrowed down by different ways of organizing the flow and concentration of energy.”¹³ Rather than focus on economic rents to explain undemocratic political systems, he suggests we would do better to “follow the oil” and the process by which it was produced, distributed, and transformed into energy.

Mitchell’s call to “follow the oil” has been taken up by a number of scholars. One outcome of this “material turn” in studies of oil is to place the emphasis on the physical qualities of petroleum and the material and physical worlds of oil, once again obscuring the lived experiences and contributions of the men and women whose work is necessary to build and maintain oil infrastructures. At the same time, as scholars have inquired into the ways in which oil’s transformative powers that go beyond its effects as a form of rent, they have paid closer attention to the set of wider social, spatial, cultural, political and economic relations and entanglements that the production and consumption of oil relies on and makes possible. Scholars have shed light on the role of oil in reshaping of cities and urban spaces,¹⁴ in producing violent environmental

¹² For the term oil assemblage see Michael Watts “A Tale of Two Gulfs: Life, Death, and Dispossession along Two Oil Frontiers,” *American Quarterly* 64, no. 3 (2012): 437–67.

¹³ Timothy Mitchell, *Carbon Democracy : Political Power in the Age of Oil* (New York: Verso Books, 2011), 7.

¹⁴ Nelida Fuccaro ed. Special Issue “Histories of Oil and Urban Modernity in the Middle East” in *Comparative Studies of South Asia, Africa and the Middle East* 33, no. 1 (January 1, 2013); Farah Al-Nakib, *Kuwait Transformed: A History of Oil and Urban Life* (Stanford: Stanford University Press, 2016); Arbella Bet-Shlimon, *City of Black Gold : Oil, Ethnicity,*

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upheaval and social dispossession,¹⁵ and as an instrument in the formation of political legitimacy and individual subjectivities.¹⁶ Scholars who have taken the socio-technical organization of oil as their focus of analysis have also provided compelling accounts of the labor policies and strategies of the multinational oil corporation, demonstrating how companies have used exclusionary practices and discriminatory norms to entrench racialized and hierarchical labor regimes and maintain control of oil extraction.¹⁷ Finally, scholars have also taken the formation and circulation of petro-knowledge

and the Making of Modern Kirkuk (Stanford: Stanford University Press, 2019); Kaveh Ehsani, "Social Engineering and the Contradictions of Modernization in Khuzestan's Company Towns: A Look at Abadan and Masjed-Soleyman," *International Review of Social History*, 48, no. 3 (December 2003): 361–99; C.M. Hein and Sedighi, S.M.A., "Iran's Global Petroleumscape," *Architectural Theory Review* 21, no. 3 (2017); Rania Ghosn and El Hadi Jazairy, "Hassi Messaoud Oil Urbanism / The Camp and the City" in Daniel Ibañez and Nikos Katsikis, eds. *New Geographies*, 6 (Cambridge Mass: Harvard Graduate School of Design, 2014).

15 Tyler Priest, "Shrimp and Petroleum: The Social Ecology of Louisiana's Offshore Industries," *Environmental History* 21, no. 3 (July 1, 2016): 488–515; Myrna I. Santiago, *The Ecology of Oil : Environment, Labor, and the Mexican Revolution, 1900–1938* (New York: Cambridge University Press, 2006); Hannah C Appel, "Walls and White Elephants: Oil Extraction, Responsibility, and Infrastructural Violence in Equatorial Guinea," *Ethnography* 13, no. 4 (December 2012): 439–65; Michael Watts, "Resource Curse? Governmentality, Oil and Power in the Niger Delta, Nigeria," *Geopolitics* 9, no. 1 (Winter 2004): 50–80; Suzana Sawyer, *Crude Chronicles: Indigenous Politics, Multinational Oil, and Neoliberalism in Ecuador* (Duke University Press Books, 2004); Amber Murrey, "Invisible Power, Visible Dispossession: The Witchcraft of a Subterranean Pipeline," *Political Geography* 47 (July 1, 2015): 64–76; Kaveh Ehsani, "Pipeline Politics in Iran: Power and Property, Dispossession and Distribution," *South Atlantic Quarterly* 116, no. 2 (April 1, 2017): 432–39.

16 Matthew T. Huber, *Lifeblood: Oil, Freedom, and the Forces of Capital* (Minneapolis: University of Minnesota Press, 2013); Toby Craig Jones, *Desert Kingdom : How Oil and Water Forged Modern Saudi Arabia* (Cambridge, Mass: Harvard University Press, 2010); Mandana Limbert, *In the Time of Oil: Piety, Memory, and Social Life in an Omani Town* (Stanford: Stanford University Press, 2010); Ciruce A. Movahedi-Lankarani, "The Domain of Gas: Energy Technologies and the Environment in Modern Iran, 1935–1995" (Ph.D., University of Pennsylvania, 2020).

17 Robert Vitalis, *America's Kingdom : Mythmaking on the Saudi Oil Frontier* (London: Verso, 2009); Katayoun Shafiee, *Machineries of Oil: An Infrastructural History of BP in Iran* (The MIT Press, 2018).

and expertise as their focal point of study. A number of intellectual and social histories of oil have traced the networks of oil experts, technocrats, and policy-makers across international and national institutions and organizations to understand the ways in which they challenged prevailing power structures of the oil industry and the international economic order.¹⁸ While this important literature on the wider impact of oil beyond oil revenues has included some discussion of the role of oil workers, engineers, and economists, the men and women who worked in and shaped the development of the industry is not always the primary focus of investigation.

In addition to this scholarly work, oil companies have also continued to write and diffuse their own narrative, revealing their ambivalent relationship to the past. The companies have presented themselves as benevolent entities, which have made and continue to make significant contributions to social and economic development as dominant players in the international economic and political systems. At the same time, oil companies have encouraged present and former employees to share their stories, in order to reinforce the corporation's collective memory and identity. This has resulted in the publication of celebrative corporate history materials written by companies' communication officers¹⁹ and even some oil novels and memoirs.²⁰ In addition, oil companies' public relations

18 Christopher R. W. Dietrich, *Oil Revolution : Sovereign Rights and the Economic Culture of Decolonization, 1945 to 1979* (New York: Cambridge University Press, 2017); Giuliano Garavini, *The Rise and Fall of OPEC in the Twentieth Century* (Oxford: Oxford University Press, 2019); Nelida Fuccaro, "Oilmen, Petroleum Arabism and OPEC: New political and public cultures of oil in the Arab world, 1959–1964" in Dag Harald Claes and Giuliano Garavini, *Handbook of OPEC and the Global Energy Order : Past, Present and Future Challenges* (New York: Routledge, 2020); Rüdiger Graf, *Oil and Sovereignty: Petro-Knowledge and Energy Policy in the United States and Western Europe in the 1970s* (New York: Berghahn Books, 2018).

19 Tristan Gaston-Breton et Erik Préfacier Orsenna, *Total, un esprit pionnier* (Paris, Textuel, 2019).

20 For example, TotalEnergies has financed the publication of different oil novels that present the "adventures" of their former employees. Cf Willy Bruderer, *La Chasse aux bougies : né avec le siècle, un géologue pétrolier raconte l'aventure de sa vie* (Paris : ILEM, 1985) ; Étienne Dalemont, *Pélerinage à*

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departments have published numerous stories in newspapers, journals, and blogs. Until recently, it was not surprising to find an article in a local newspaper in Europe, for example, describing the “adventurous story” of “oil pioneers”.

- 23 Since the beginning of the 21st century, the coexistence of “scholarly history” and “corporate storytelling” has created a fragmentation in the emerging field of energy history. Companies and other institutions have limited the diffusion of historical information and documentation in order to protect their image, while scholars have been limited in their choice of research topics by the issue of the availability of source material. At a time when there is growing social dissent against energy companies and their activities, scholarly research based on corporate historical sources has sometimes been perceived as a major risk by the top executives of the major companies. In this way, one of the main obstacles to the emergence of a social history of oil has been access to primary sources. The existing lack of legal obligations for companies to make their archives accessible has certainly hampered the definition of transparent and coherent policies on “open archives” which has occurred in other industrial sectors²¹. In fact, today, the majority of international oil companies do not allow access to their historical records.²² Furthermore, the strengthening

travers le XXe siècle: souvenirs et témoignages, 4 vol. (Neuilly-sur-Seine : Dalvor, 2005) ; Patrice Teisserenc, *Mon aventure pétrolière: Le témoignage d'un géologue en Afrique et au Moyen-Orient (1955-1975)* (Paris : L'Harmattan, 2019).

²¹ In France, the *Code du Patrimoine* (the national legislation on archives) imposes on companies the obligation to preserve their historical records on the basis that this documentation is considered to be part of the country's national heritage. As a result, many private companies in the banking, communication, transport, retail, and construction sectors have created their own services for archiving historical documents. In the energy sector the situation is different. Even if Electricité de France (EDF) and TotalEnergies have followed suit in creating their own archives, a culture of secrecy persists in this industrial sector.

²² European oil companies like French TotalEnergies and Italian ENI have opened their historical records to national and international scholars. While the BP archive can be consulted at the University of Warwick Modern Records Centre in the UK, in Norway oil companies' records are held

of international laws regulating data protection has also complicated the access to individual records, contributing further to the lack of the archival sources. Historians and social scientists interested in human relations, sociability, and industrial cultures in the history of hydrocarbons often have to base their research on interviews, or audiovisual, and iconographic collections. This process has contributed to the creation of new historical sources. In the last few years, the collection of hundreds of interviews of former oil company workers have contributed to the development of a number of oral history projects.²³ Today, digitization and new technologies have opened new possibilities for the appreciation and exploitation of these alternative sources.

Despite the involvement and work of scholars, 28 unveiling and creating original sources has not been enough to bring about the adoption of a social history approach to studies of the oil industry. The emergence of Energy Humanities and the popularization of the notion of the Anthropocene has reshaped the historical perception of relations between human societies and nature. Furthermore, as awareness of the effects of fossil fuel extraction on the environment and climate and the need to transition away from carbon energy has increased, this has raised a set of ethical problems for scholars working on the history of the hydrocarbon industry: If oil and gas companies are responsible for the main social, economic, and environmental challenges we face in the 21st century, what stance should historians take in relation to these organizations? In France, some notable scholars have questioned whether it is appropriate to engage with the main actors of the energy sector and have been highly critical

in the Norwegian Oil and Gas Archives, a collection in the National Archives.

²³ Since 2003, the University of Aberdeen and the British National Library Oral have carried out an oral history project « Lives in the Oil Industry » which has collected stories of the lives and careers of more than 200 British oil industry workers in the North Sea: <https://www.abdn.ac.uk/oillives/about/programme.shtml>. In Canada, the “Petroleum Industry Oral History Project”, co-financed by Canadian oil companies, has collected more than 400 interviews between 1981 and 2013. <http://petroleumhistory.ca/oralhistory/>

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of the collusion between academic institutions and energy companies in the field of social sciences. In particular, they have raised awareness about the risk of *tentation hagiographique* that could result from writing about energy history from the “inside”.²⁴ Nevertheless, the adoption of this hard-line position towards the companies has foreclosed any opportunity to build a productive dialogue between companies, scholars, and civil society. Indeed, the lack of dialogue has contributed to making oil industry history a sort of intellectual wasteland - forgotten, abandoned and neglected.

32 This wasteland now needs to be rehabilitated in order to enhance our understanding of the recent past. Shifting the focus to the social dimensions of the industry is a way not only to humanize the history of oil and gas, but also to center the agency and experience of the men and women who work to produce and extract oil. Furthermore, it gives the opportunity to reassess the place of corporate structures, financial arrangements, and management systems in the history of the oil and gas industry. The recent work of Elisabetta Bini, Touraj Atabaki, Kaveh Ehsani, Miguel Tinker Salas is at the forefront of these efforts to analyze the impact and role of labor and class relations in the oil industry.²⁵ This renewed interest in the labor history and class analysis of oil workers follows a decades-long gap since Petter Nore and Terisa Turner’s edited volume on oil and class struggle was published in 1980.²⁶ However, a new wave of

scholarship has shown oil production to be a historically significant site of labor activism and agency.²⁷ In recent years, a number of important publications on the social history of the oil industry have resulted from international conferences.²⁸ This special issue also has its origins in an international conference, “Hydrocarbons and societies: labor, social relations and industrial culture in the 19th and 20th centuries”. Held on 5th February 2021, the conference brought together established and early career scholars that are working on this topic, creating a dialogue between energy companies, archivists, and students.²⁹ The papers presented at this conference, some of which are published in this special issue, clearly demonstrated the rich intellectual possibilities of this approach and how this scholarship can contribute to ongoing historiographical debates on energy history.

Building on the discussions and papers presented at this conference, this special issue aims to present and bring into conversation recent research which examines the role of men

that highlights the experiences of workers and labor regimes implemented in the oil industry see Albert Y. Badre, *Manpower and Oil in Arab Countries* (Beirut: Economic Research Institute, American University of Beirut, 1960).

²⁷ Peyman Jafari, “Linkages of Oil and Politics: Oil Strikes and Dual Power in the Iranian Revolution,” *Labor History* 60, no. 1 (January 2, 2019): 24–43; Zachary Davis Cuyler, “Tapline, Welfare Capitalism, and Mass Mobilization in Lebanon, 1950–1964,” in *Working for Oil*, ed. Touraj Atabaki, Elisabetta Bini, and Kaveh Ehsani (Cham: Springer International Publishing, 2018), 337–68; Tyler Priest and Michael Botson, “Bucking the Odds: Organized Labor in Gulf Coast Oil Refining,” *The Journal of American History* 99, no. 1 (2012): 100–110.

²⁸ Touraj Atabaki, Elisabetta Bini, and Kaveh Ehsani, eds., *Working for Oil: Comparative Social Histories of Labor in the Global Oil Industry* (New York, NY: Springer Berlin Heidelberg, 2017); Elisabetta Bini and Francesco Petrini eds., “Labor Politics in the Oil Industry: New Historical Perspectives,” *Labor History* 60, no. 1 (January 2, 2019).

²⁹ The conference “Hydrocarbons and societies: labor, social relations and industrial culture in the 19th and 20th centuries” was initially planned to take place in May 2020 at the TotalEnergies headquarters in La Défense, Paris. Due to the global Covid-19 pandemic, the conference was postponed and held remotely in February 2021. The conference was co-organized by Sorbonne Université (UMR Sirice), TotalEnergies and the Comité d’histoire de l’électricité et de l’énergie de la Fondation (EDF) and scholars from different European universities.

²⁴ Céline Pessis, Sezin Topçu et Christophe Bonneuil, *Une autre histoire des Trente Glorieuses* (Paris, La Découverte, 2016).

²⁵ Notable exceptions are: 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): 159–75; Stephanie Cronin, “Popular Politics, the New State and the Birth of the Iranian Working Class: The 1929 Abadan Oil Refinery Strike,” *Middle Eastern Studies* 46, no. 5 (2010): 699–732; Myrna Santiago, “Women of the Mexican Oil Fields: Class, Nationality, Economy, Culture, 1900–1938,” *Journal of Women’s History* 21, no. 1 (Spring 2009): 87–110, 192; Miguel Tinker Salas, *The Enduring Legacy: Oil, Culture, and Society in Venezuela* (Durham, NC: Duke University Press, 2009).

²⁶ Petter Nore and Terisa Turner, eds., *Oil and Class Struggle* (London: Zed Press, 1980). For an earlier study

and women in the hydrocarbon industry with the view to creating a common background for an emerging social history of energy. The works collected together here deconstruct the image of men and women as presented in the materials circulated by the oil industry's communication and public relations teams. Instead, this special issue seeks to highlight different organizations, individuals, and social groups and critically analyze their role in the extraction, production, distribution, and consumption of carbon energy.

HYDROCARBONS AND SOCIETIES: A MULTI-FACETED HISTORY

37 The articles in this special issue address a number of important topics and themes in their exploration of the human and social dimensions of the hydrocarbon industry. Firstly, a number of the authors examine the relations that emerge between states, oil companies, and workers in the formulation and contestation of corporate labor practices and strategies, focusing in particular on the agency and labor activism of workers. In his analysis of Romania's oil industry, one of the earliest areas of exploration and production in the development of the international oil industry, Gheorghe Calcan suggests that the "human factor cannot be taken out of the equation of the productive process", demonstrating how concerns about the training and wellbeing of workers was central to the development of the industry from its beginnings. In particular, Calcan traces how the treatment of workers reflected broader shifts in Romanian political and social life. He considers how the Romanian state, oil companies, and workers contributed to the establishment of social and industrial policy during the interwar period. In particular, he highlights the agency of workers, stressing that in a largely agrarian country where there were few other existing industries, the oil industry represented a powerful concentration of industrial workers who were capable of pressuring the government and companies through strikes and demonstrations.

37 The articles by Gemma Jennings and Mattin Biglari and Rowena Abdul Razak also consider the social reproduction and activism of

workers, focusing on the Algerian Sahara and Iran's Abadan oil refinery respectively. The oil industry's development has long been recognized to have gone hand in hand with the extension of European colonial and imperial interests. However, scholars are only beginning to examine more precisely the ways in which corporate labor policies and the discipline of workers were central to the apparatus of control and dominance that oil companies were building in colonial contexts abroad. Biglari and Abdul Razak demonstrate the central place of labor and industrial politics in Britain's continued efforts to maintain influence over oil matters in the south of Iran. As part of a reformist agenda following the 1952 nationalization 'crisis' and the subsequent control of Iran's oil by an international oil consortium, Britain and Anglo-Persian placed labor at the heart of the political arrangements it pursued to ensure a "frictionless flow of oil". Biglari and Abdul Razak also shed light on the role of labor activism in shaping both oil operations and Iranian national politics. Their article highlights that despite a retreat from investment in urban planning and welfare schemes, the presence of an unusually large workforce and a lack of automation at the Abadan refinery lent workers considerable political power.

A second thematic topic this special issue discusses is the role of oil workers, engineers, economists, and technocrats in challenging colonial structures and the arrangements of power that sustained the industry's control of oil. In doing so, a number of articles contribute to our understanding of decolonization not only as a transfer of political power, but also as an ongoing and highly contested political, social, and economic process involving both state and non-state actors. In particular, oil workers and working conditions were central to negotiations over sovereignty in the era of decolonization. Jennings demonstrates the unique place of the Algerian oil industry in the transition away from colonial rule and in defining the political-economic space of the Algerian nation. In particular, she argues that oil workers shaped and mediated claims to sovereignty in the Sahara as economic agents and combatants and through their labor activism

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and organization, investigating the uneven and messy transition away from colonial rule and the disconnect that emerged between formal political independence and economic realities on the ground. The relationship among oil, struggles for sovereignty, and anti-imperialist ideas is the subject of Philippe Pétrait's contribution. Through an examination of the thought of oil expert and activist, 'Abdullah al-Tariqi, Pétrait reveals the popularization and circulation of technical knowledge and debates over oil economics to have been central to anti-imperialist movements and popular mobilizations in the 1960s and early 1970s.

42 The third theme addressed in this special issue is that of the social divisions and hierarchies that are created or entrenched in the process of oil extraction and production. More specifically, the articles by Chao Ren, Mark Boxell, and Sarah Kunz analyze the questions of class, race, and gender in the oil and gas industry. In a paper on oil drillers in colonial Burma, Chao Ren traces the life stories of three American technicians that migrated from the Allegheny region in Pennsylvania to Yenangyaung. Thanks to a creative use of US official records – especially census data, passport applications, consular registration, and death reports – Ren presents the unique location occupied by this professional group in the social and racial landscape of the oil-labor complex. This study of the issue of class, status, and racial relations in the colonial oil industry shows how a prosopographical approach can shed light on structural phenomena like the circulation of labor, migration processes, and the formation of social hierarchies in a colonial context. Mark Boxell examines the early 20th century workforce in the mid-continent oil region of the United States through the lens of race relations. The paper demonstrates the pervasiveness of a racial paradigm among oil workers, arguing that racial violence and white masculinity can be considered as a structural characteristic of the oil industry. Drawing on oral history and autobiographies of former oil workers, Boxell shows the importance of racial domination in the social relations of the oil industry. Furthermore, he demonstrates the involvement

of oil workers in white supremacist organizations and their active participation in the 1921 Tulsa Race Massacre, one of the darkest episodes in American History. Introducing the issue of gendered relations in Royal Dutch Shell, Sarah Kunz questions the role of women's work in the oil industry. Examining the case of women executives, "Shell wives", local staff, and domestic workers, Kunz argues that the physical, emotional, social, and symbolic work rendered by women played a constitutive role in the development of oil companies and the industrial sector. This paper contributes to the development of a gendered perspective in energy historiography and reveals the scarcity of archives as a major challenge. Sarah Kunz shows her ability to address this problem by consulting a variety of sources uncovered through extensive transnational archival research.

The last thematic aspect presented in this special issue concerns the ways in which different stages of industry – especially the refining and distribution sectors – impact the construction of identities, produce specific social dynamics, and shape human interactions with the natural environment. The case studies presented by Timothée Dhotel and JoAnna Poblete each examine a stage of the hydrocarbon industry from different temporal and geographical vantage points: Dhotel focuses on the retail and oil distribution network in rural France, and Poblete on the refining industry in US Virgin Island territory. Combining approaches from both environmental history and the history of consumption, Dhotel gives an account of the development of the petroleum distribution system in the Côte d'Or region in France, from the creation of the first petroleum retail stores at the end of the 19th century, to the spread of gas stations, and the emergence of the first service station in the 20th century. Despite focusing on territorial aspects of petroleum distribution, the place of the human element is not secondary in this paper. On the one hand, Dhotel elaborates on the process of professionalization that took place in the distribution oil sector in this period. On the other hand, he shows how the creation of a new technical and commercial infrastructure had a

major impact on the perception of the environmental health and safety of local communities. The main topic of the second paper is the impact of oil industry activities on the socio-environmental health of local communities. Focusing on the downstream sector, JoAnna Poblete presents the case of HOVENSA, one of the world largest oil refineries situated in the United States Virgin Islands. Considering the particularity of the Virgin Islands' territorial status, the author analyzes the "social trauma" of local communities, highlighting the consequent social cost of extractive energy processes in this specific context. Using oral history interviews, Poblete retraces local responses to environmental degradation, showing the importance of women-led community activism and social mobilization against oil companies.

CONCLUSION

50 Taken together, the articles in this special issue point to the myriad ways in which the material structures and organizational forms that make up the oil and gas industry have both shaped and been shaped by social relationships, personal and political identities and subjectivities, and socio-environmental interactions. While the hydrocarbon industry is often perceived as a 'faceless' abstraction of gargantuan rigs, buried pipes, and silent flows of oleaginous substances, fuels, and chemicals, human labor and knowledge has been central to the ability of companies and states to extract and produce energy. As a number of articles in this issue demonstrate, concerns about the social reproduction of the labor force and the desire to minimize the potential for the disruption of the flows of oil and profits have impacted the strategies adopted by international companies and national policy-makers. At the same time, local political and economic orders, cultural contexts, natural environments, and the material apparatuses of oil production have shaped the experiences and impact of men and women in the industry and have created the conditions of possibility for processes of identity formation and professionalization, the eruption of racial violence and entrenchment

of structural inequalities, social activism and mobilization, and the circulation of economic and technical expertise.

The articles in this special issue point to the varied sources, archives, and institutions scholars have consulted and the methodologies they have utilized to reconstruct and analyze the lived experiences of men and women in the hydrocarbon industry. By drawing together these diverse approaches, it is hoped that this special issue will not only stimulate possibilities for future research but also further a dialogue between archives, institutions, and scholars. In particular, by publishing together a number of research papers on human labor in the hydrocarbon industry that address varied and distinct geographical areas and time periods, we hope that this special issue will go some way towards the identification of a set of common themes and historiographical concerns that can shape the development of the social history of energy. In future, we hope that connections and parallels can be made across the energy humanities more broadly, opening up the arena of discussion beyond oil and gas, to encompass other forms of energy production. By putting this work on the social history of the oil and gas industry into conversation with other scholars who have examined the circulation of technical knowledge, methods of labor control, instances of labor militancy and violent repression, and the everyday lives of workers in coal mining, nuclear energy, and electrification,³⁰ we might better concep-

30 Thomas G. Andrews, *Killing for Coal: America's Deadliest Labor War* (Cambridge: Harvard University Press, 2008); Donald Quataert, *Miners and the State in the Ottoman Empire: The Zonguldak Coalfield, 1822-1920* (New York: Berghahn Books, 2006); On Barak, *Powering Empire: How Coal Made the Middle East and Sparked Global Carbonization* (Stanford: University of California Press, 2020); Alain Beltran et Jean-Pierre Williot, *Gaz: du gaz en France à Gaz de France, deux siècles de culture gazière* (Paris: Cherche midi, 2009); Alain Beltran, *La vie électrique. Histoire et imaginaire (XVIIIe-XXIe siècle)* (Humensis, 2017); Gabrielle Hecht, *Being Nuclear: Africans and the Global Uranium Trade* (Cambridge, Mass: MIT Press, 2012); Charles-François Mathis, *La civilisation du charbon: En Angleterre, du règne de Victoria à la Seconde Guerre mondiale*, Illustrated édition (Paris: Editions Vendémiaire, 2021); Fredrik Meiton, *Electrical Palestine: Capital and Technology from Empire to*

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tualize what is distinctive or unique about the social relations that emerge from oil and gas production. By doing so, we hope that an understanding of the social history of the industry might also inform our understanding of the potential transitions away from hydrocarbon energy and the possibilities for new, more equitable, social relations of energy to emerge.