

The History of Petroleum Exploration on Barbados, 1865-1985

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By

Sylvan Spooner

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To Amaru

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PREFACE

The subject of petroleum exploration was never one I considered at any great length when I first entered university. This history of petroleum exploration was the product of a session of brainstorming among colleagues at university as we discussed potential topics for post-graduate research. As ideas came and went, mention was made of a box of materials located at the Barbados Archives labeled “British Union Oil Company.” In a subsequent visit to that department I requested these files and what revealed themselves were fragments of the history of an industry which I quickly realized needed to be brought to public attention.

Filled with letters, telegrams, and production records from those tasked to manage the island’s petroleum industry from the 19th century, these charted the development of the industry as various competing interests, namely, local landowners, colonial government, and imperial authorities vied for control of the industry well into the mid-20th century. This book is geared toward an audience which is interested in the history of the island, primarily readers wishing to learn more about a Barbadian petroleum industry which has existed uninterrupted for 159 years.

Members of the public with an interest in manjak mining, which occurred within the island’s Scotland District, will have that curiosity sated in the chapter which details that industry. Readers interested in the sheer scope of the industry will learn that the Barbadian landowning elite and the early petroleum companies were complicit in its organization during the first decades of petroleum exploration on the island. The decision of the Grantley Adams-led government to nationalize the colony’s petroleum rights in the face of criticism from all quarters, local and foreign, and his son J.M.G.M “Tom” Adams’ completion of this agenda, with the formation of the Barbados National Oil Company (BNOC) 33 years later, will be of great interest to those readers interested in the island’s nationalization agenda

The intent of this book is to inform readers of a Barbadian history of industry and production other than those synonymous with agriculture,

sugarcane cultivation, and tourism. My objective here is to inform readers of the impact which the petroleum industry has had on the history, politics, and economy of the island. The purpose of this book is to highlight an industry which originated in the post-emancipation era, survived the post-colonial era, came into its own with the rise of a post-World War II nationalism and, following the two oil crises of the 1970's, became an industry of national, political, and economic significance.

ACKNOWLEDGEMENTS

I wish to thank Dr. Tara Inniss and Dr. Henderson Carter for their guidance and insight throughout my journey from undergraduate studies through to the submission of my dissertation from which this book evolved. I express gratitude to Ms. Tisha Clarke, Dr. Ayashah Johnson, and Mr. Dwayne Jordan who all provided invaluable support during the journey leading to the writing of this book. Similar gratitude is extended to my wife Stephanie and Ms. Krystle Gill as well as my children Kristan and Jeffrey for their patience and understanding. I acknowledge my mother Merlene and my sister Bridget who both facilitated me in myriad ways. I am thankful to the staff of the library of the University of the West Indies at Cave Hill and the staff of the Barbados Department of Archives who assisted me throughout.

CHAPTER ONE

INTRODUCTION

In spite of well over a century of petroleum exploration on Barbados, the history of the island's petroleum industry has remained unwritten. Nonetheless, this history of exploration, 1865-1985, occupies a unique place within Barbadian history, industry, and political economy. An Atlantic island fixed within a social, economic, and political network of territories, it was from the outset labeled an outpost of the British Empire. From indigo and tobacco cultivation in the early 17th century, to the social and economic behemoth that was sugarcane cultivation, industry quickly became the bedrock of the Barbadian economy. However, emancipation, the removal of enslaved labor from the estates, market disruptions following the introduction of the *Sugar Duties Act 1846*, and the influence of beet sugar meant that by 1865, the island was no longer a jewel in the British colonial crown. At the dawn of the 20th century, Barbados was very much a colony open to new investment opportunities. The introduction of petroleum exploration in 1865 signaled the arrival of an industry which would be forever shaped by the dominant social, political, and economic themes of subsequent decades. Between 1865 and 1950, conflict, rather than consensus, characterized the nature of relations within the industry. However, in the period after 1950 with the growing surge toward nationalism, consensus, rather than conflict was the dominant theme which guided the growth and development of the industry.

The conflict which permeated the Barbados petroleum industry from its inception in 1865, to the passage of the *Petroleum Act 1950*, originated within the system from which the industry was birthed. For centuries the domain of the island's planter class, wealth, or the potential for wealth, remained under the purview of private actors, namely, members of the merchant, political, and planter elite. Although historians have presumed a lack of interest in petroleum exploration by planters, the truth reflects a

differing reality. Indeed, with petroleum exploration heavily dependent on the granting of leaseholds, their involvement was necessary for the purpose of exploration. As a result, between 1865 and 1950, the major players involved in petroleum exploration on the island were the local landowning elite, the Barbados Government, the oil companies, and imperial authorities.

In 1865, the petroleum development model was heavily plantation-themed with emphasis on foreign ownership, export orientation, and the control of vast leaseholds. Although suitable for sugarcane cultivation which was seasonal, the unpredictable and result-oriented nature of petroleum exploration deemed it unsuitable for that purpose. Though this model necessitated a level of co-operation, the nature of relations between all parties was one of contention and ever-bristling tensions. As a result, numerous points of conflict came to the fore as each party jostled for control of the nascent industry. During the first half of the 20th century, local landowners constantly threatened the British Union Oil Company (BUOC), which had acquired leases in quantities it could not service, with termination of contract if their properties were not granted preference with regard to exploratory drilling.

The introduction of the *Petroleum Production and Control Bill 1947*, which proposed the nationalization of the island's petroleum rights, led to escalation in the level of animosity within the industry. With petroleum rights under the control of the landowners, the threat of them losing their ability to bequeath these rights to whomever they desired created an air of distrust directed at the Barbados Government. In addition, the vestrymen, representing the interests of the landowners, were sufficiently aggrieved that they complained vociferously to the British Government for urgent redress. Subsequent threats by the BUOC to disrupt supplies of natural gas threatened to bring a faltering petroleum industry to its knees and further soured relations with the Barbados Government. Threats from the imperial authorities that action would have to be taken against the Barbados Government for a proposal the former considered an affront to their authority was the capstone to a period of dysfunction.

In contrast to the challenges faced during the first 85 years of petroleum exploration, the bipartisan passage of the *Petroleum Act 1950* was a watershed moment for the Barbadian petroleum industry. It facilitated a period which, though not void of contention, was defined by a consensus

which was absent during the previous dispensation. The points of consensus following its passage and the subsequent passage of the *Natural Gas Act 1950*, which nationalized the natural gas industry, all coalesced to re-orientate the trajectory of the industry. The creation of the Natural Gas Corporation (NGC) in order to facilitate the management of the natural gas industry was a direct result of these two progressive acts. Their primary purpose was the development of the island's petroleum industry for the benefit of the state rather than for the benefit of foreign-based interests. Though it was by no means a fluid consensus, subsequent governments, in compromise with their political opposition, forged a path toward petroleum development.

The bipartisan agreement on financial compensation to landowners and the BUOC for the loss of their petroleum rights was further evidence that petroleum development on the island was by national consensus.¹ The Barbados Government's granting of exploration licenses to the U.S.-based Gulf Oil Company (GOC) in 1950 and the General Crude Oil Company (GCOC) in 1965 was a repudiation of British influence over the island's petroleum industry. In its aftermath, drilling quickly expanded beyond the exhausted oil beds of the Scotland District. Although Leader of the Opposition, Tom Adams, accused Prime Minister Errol Barrow of a lack of urgency in his response to the oil crisis of 1973, both parties communicated to the GCOC the urgent need to increase production. Having met with immediate success, both political parties adopted a foreign policy approach that was conducive to petroleum development. With its genesis the passage of the *Petroleum Act 1950* and its aim the repudiation of a petroleum policy framework² which favored accumulation of resources over crude oil production, the nationalization of the island's oil fields in 1982 was the industry's apotheosis.

1. These were critical to government's desire to move beyond both local planter influence and the influence of a British Government still smarting from the island's nationalization of its petroleum rights.

2. This "plantation" developmental framework will be discussed in detail during analysis of the theoretical framework which examines the island's petroleum industry prior to 1950.

GEOLOGICAL PROFILE OF THE ISLAND

Its historical development well established, an examination of the island's geological profile is central to understanding how its petroleum developed. With a total area of 166 square miles, a maximum length along its north-south axis of 21 miles and an east-west maximum width of 14 miles, Barbados has a unique geological character which sets it apart from its neighbors. The eastern-most island along the Lesser Antilles chain, and covered with a Pleistocene limestone cap, it is the only non-volcanic island among this group of islands. As a result of this distinctive set of characteristics, several geologists have examined the island's geological and physical development. A number of these unique features were identified by Richard Ligon who, though not a geologist, examined the island at length in 1647 and by Robert Schomburgk who, in 1848, wrote the seminal history of the island. However, in 1890, Professor Joseph Harrison and the geologist Alfred Jukes-Browne, published what for decades stood as the most complete geological profile of the island.

Their publication, *The Geology of Barbados*, provided the first detailed analysis of the island's geological footprint. Primarily a coral-limestone island, the geology of the Scotland District was found to be markedly different from what existed elsewhere. Extending from Pico Teneriffe in the parish of St. Andrew to Consett Point in the parish of St. John,³ this area remained the focal point of crude oil and natural gas extraction on the island until 1973. Accounting for 15 percent of the island's landmass, and consisting of tertiary sedimentary rocks of marine origin, the Scotland plateau occupies an area of 40 km. It stands at the pinnacle of an ancient marine mountain series which extends across the ocean floor from Trinidad and Tobago to Puerto Rico. This ridge, known geographically as the Barbados Accretionary Prism (BAP), was formed as a result of the subduction of the South American and Caribbean tectonic plates.⁴ It formed as a result of the accumulation and solidification of marine sediment from the surface of the South American Plate (at the subduction zone) as it slid

3. The Laws of Barbados, "Soil Conservation (Scotland District Act)" CAP 396. LRO, 1993.

4. Leonard Vacher, *Geology and Hydrogeology of Carbonate islands* (Amsterdam: Elsevier Science, 2004), 382.

beneath the Caribbean Plate. The Scotland District represents the only point where this submarine mountain range rises above the surface of the Atlantic Ocean.⁵

This Prism, identified as the geological source of all oil on the island, at 300 kilometers in length,⁶ is the largest known to date.⁷ Moreover, its thickness (20 km), slow plate convergence rate, and its association with proven oil-prone source rock make it the 20th century's most studied accretionary formation.⁸ In 1890, soon after their arrival on the island, Harrison and Jukes-Browne identified a number of geological parallels between its sandstones and a similar series of sandstones and clays located in both Trinidad and Venezuela.⁹ These similarities were later confirmed by Hill and Schenk who, through the analysis of numerous samples taken from the Woodbourne oil field in the eastern parish of St. Phillip, concluded that Barbados and Trinidad oil originated from a similar cretaceous source.¹⁰ Therefore, as the South American and Caribbean tectonic plates continue to compress, Barbados sits on the spine of the prism which carries its name and within which its petroleum future rests.

THEORETICAL FRAMEWORK

The research which informed the writing of this book would have sat within a vacuum without the appropriate framework through which it was presented for analysis. This was achieved by adopting an analytical framework which complemented the unique peculiarities germane to the development of the island. Given the island's transition from plantation slavery to colonial rule and subsequent independence, a political-economy

5. Jane Schooner et al, "Tectonic Implications of Illite/Smectite Diagenesis, Barbados Accretionary Prism," *Clays and Minerals* 34, no. 4 (1986): 465.

6. W.L. Zhao. et al, "Origin of Convex Accretionary Wedges: Evidence from Barbados," *Journal of Geophysical Research* 91, no.10 (1986): 246-258.

7. R.C. Speed, et. al, "Geologic and Hydrocarbon Evolution of Barbados," *Journal of Petroleum Geology* 14, no. 2 (1991): 323.

8. See note 10 above.

9. Harrison and Jukes-Browne, 7.

10. Ronald J. Hill and Christopher J. Schenk, "Petroleum Geochemistry of Oil and Gas from Barbados: Implications for distribution of Cretaceous Source Rocks and Regional Petroleum Prospectivity," *Marine and Petroleum Geology* 22, no. 8 (2005): 933.

framework, as depicted in figure 1-1, was the lens through which the Barbadian petroleum industry was examined. However, the application of this framework required supporting perspectives. In order to analyze the development of an industry which has its origins within the remnants of plantation slavery, the utilization of Lloyd Best's plantation theory of economic development was critical to analyses of the function and organization of the first decades of the petroleum exercise.¹¹ In contrast, a nationalist-themed construct was used extensively in the analysis of the industry after the rise of an anti-imperial Barbadian political elite which subsequently adopted a proto-nationalist thought.

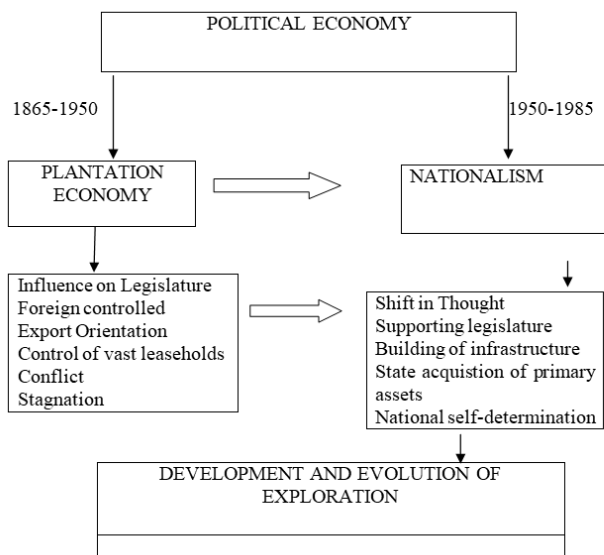


Figure 1-1. Graphical representation of theoretical framework. Source: Sylvan Spooner, "The History of Petroleum Exploration on Barbados, 1865-1985," PhD diss, The University of the West Indies, 2019, 21.

This analytical framework is uniquely tailored to the Barbados petroleum experience. When set within a context of imperialism, colonialism, global

11. Lloyd Best, "Outlines of a Model of Pure Plantation Economy," *Social and Economic Studies*, 17, no. 3 *Selected Papers from the Third West Indian Agricultural Economics Conference* (Mona, Jamaica, April 1-6, 1968), 283-326.

(and local) Post-Second World War nationalist thought, a picture emerged of an industry whose development waxed and waned with the currents of time and place. In the decades following 1865, the petroleum industry was heavily saturated with key elements of the plantation mode of organization. These included a well-established system of foreign ownership,¹² monopolization, control over vast leaseholds, and an entrenched system of planter influence with each maintained through agents within the political structure. Identified by the economic theorist Ida Greaves in 1959¹³ as core components of plantation organization, these tenets were later adopted and modified by Best,¹⁴ Beckford,¹⁵ and Girvan¹⁶ into a tool through which West Indian political and economic development could be analyzed. This plantation development model, which covers a near-century of petroleum exploration from 1865 to 1950, is the framework through which the development of the island's petroleum industry is examined until contact with the competing thought which accompanied the Petroleum bill in 1947.

In his research on the impact of this theoretical construct on West Indian industry and development, Winston Nicholls commented that:

A plantation economy constitutes a single part of a much wider system...it is the set of specific relationships-legal, political and economic that link hinterland to metropolis which may be called the institutional framework within which each part of the system operates...the metropolis is the industrial centre...it is the centre of government for the whole system-the economic and political decision maker.¹⁷

Not only is an understanding of these "specific relationships" crucial to evaluating the nature of this conceptual framework, but more importantly, it gives reason to later-examined efforts to subvert this system with regard to petroleum exploration.

12. George Beckford, *Persistent Poverty, under development in Plantation Economies of the Third World* (Oxford: Oxford University Press, 1972), 13-14.

13. See Ida Greaves' "The Plantation in World Economy," *Seminar of Plantation Systems in the New World* (Washington: Pan American Union, 1959): 1-4.

14. Lloyd Best, "Outlines of a Model of Pure Plantation Economy," 283-326.

15. George Beckford, *Persistent Poverty*, 7-13.

16. Norman Girvan, "Dependence and Under-Development in the New World and the Old," ed. Norman Girvan. *Social and Economic Studies* 22, no. 1 (1973): 1-34.

17. Winston Nicholls, *A Case Study of the Plantation Economy* (masters thesis, McGill University, 1969), 4-6.

Further modified by Clive Thomas as well as Karl and Kari Levitt during the late 1970's, the theory that "the plantation" diffused into post-emancipation and non-sugar industries is one pillar on which this research rests. Although Karl Marx sheds considerable light on the nature of the relationship between the ownership of resources and exploitation, a strict application of Marxism is not applied here. In applying Best and Levitt's view of the region as a "hinterland of exploitation,"¹⁸ their typology of the region as an outpost of imperial endeavor is utilized to identify key factors which contributed to the structure and function of the early Barbadian petroleum industry. However, unlike the war of 1914-1918, the Second World War was a conflict powered by petroleum. As a result of systemic global shortages experienced throughout that conflict, in its wake there emerged alternative models of petroleum development driven by the desire of petroleum producing nations to control their fossil fuel resources for the national good.

Therefore, in the light of global shifts in thought, conflicting frameworks for natural resource ownership were embraced by a significant number of petroleum producing states. In this, Barbados was no exception and a number of theoretical approaches, each with a common nationalist thread, are utilized in order to examine the island's post- Second World War petroleum development. One such approach, namely, Ernest Gellner's nationalist-industrialism model, is used during the examination of the island's post-war thrust toward the nationalization of petroleum.¹⁹ His theorizing on the correlation between the desire of a state to promote industrial development by means of nationalism and the nationalization of its resources is examined in order to identify similar local trends and patterns of development. In addition, Lenin's theory of "commanding heights," later in-part absorbed into Keynesian economic theory and adopted by Yergin and Stanislaw²⁰ in their analysis of post-Second World War global

18. Lloyd Best and Kari Levitt, *Externally Propelled Growth and Industrialization in the Caribbean: Selected Essays* (Montreal: McGill University, 1967), 18-19.

19. Ernest Gellner, *Nations and Nationalism* (Oxford: Blackwell Publisher, 1983), 35- 45.

20. Daniel Yergin and Joseph Stanislaw in: *The Commanding Heights: The Battle between Government and the Market Place*, defined the commanding heights as the most important elements of a nation's economy, namely, transport, fossil fuels, banking, finance, etc.

economies, was also relevant. This theory, which posits that a state's control over its primary economic sectors is key to its development, was used as a guide to examine the prominence given to petroleum nationalization by the Barbados Government.

Likewise, in the wake of the global oil crises of the 1970's, a number of theoretical frameworks were introduced in order to explain increases in the number of petroleum producing nations which nationalized foreign-owned oil companies. For example, Guriev and Kolotilin, in their research on nationalizations within the oil industry between 1960 and 2006, developed a framework which identified a series of determinants for state nationalization of petroleum. These determinants, which factor the level of political instability within the producing state as well as the price of oil within international markets as pre-requisites for nationalization, are employed within this research in order to identify linkages and similarities between global and local petroleum development. Other academics, such as Paasha Mahdavi, would later introduce additional determinants and these too are juxtaposed against local trends to identify those patterns which led to government seeking control over its petroleum resources. Given the absence of a written history on petroleum exploration on the island, this framework, dual and dialectic, provided the theoretical supports necessary to achieve the objectives of this book.

METHODOLOGICAL CONSIDERATIONS

The methodological process which serviced the writing of this book included a number of proven research methods and techniques necessary for a thorough investigation of the history of petroleum exploration on the island. In order to address the principal thesis of this book, both primary and secondary sources were evaluated using the tenets of the fore-mentioned research framework as a guide for analysis. This, in addition to a number of secondary objectives were achieved primarily through the application of a mixed methodological approach using quantitative and qualitative data extracted from both primary and secondary sources. It involved the location, examination, interpretation, and analysis of sources that met the criteria necessary for the chosen approach and which remained closely linked to the analytical framework.

The archival method was used extensively and remained a central component of the methodology employed. Given the important and urgent nature of this research, the necessity for primary materials was paramount. Therefore, in spite of E. Sreedharan's view that historians in the process of their research are faced not with past events "but only some remnants and ideas of them,"²¹ a number of archives, each with delicate "remnants," were visited during research for this book. Indeed, the view held by Alexis Ramsey that "while all archives are repositories, not all repositories are archives"²² add considerable justification for the use of this method. Though other repositories were consulted and held data worthy of analysis, the quality of material and the state of preservation coupled with the fact that they were deemed worthy of conservation hinted at their value. In their method of analysis, these "remnants" of history, i.e. telegrams and letters, all valuable given their contemporaneous relationship to the period(s) of petroleum exploration, were examined and interpreted within the appropriate social, economic, and political context and then reinterpreted using the analytical framework identified.

In recognizing that by definition each "remnant" retrieved from history deems "history" incomplete, a verification of each was necessary to ascertain their value. The strength of the archival approach relied on its ability to withstand robust external criticism. As that part of the historical method which determines authenticity, the source, according to the *Catholic Historical Review*, is "like the prisoner at the bar" (who) "must be tested where possible"²³ and localized in place and time. The adoption of this research method did much to address the question of external criticism since countless primary sources held seals and signatures which authenticated them. The quality of indexing performed by Michael Chandler, the island's first archivist, contributed greatly to this confidence. In his *A guide to Records in Barbados*, Chandler meticulously documented the private and state channels through which a huge portion of primary sources consulted in the writing of this book came into archival possession. Select material for

21. E. Sreedharan, *A Manual of Historical Research Methodology* (Kerala: Centre for South Indian Studies, 2007), 147.

22. Alexis Ramsey, *A Critical Methodology for Archival Research in Rhetoric and Composition* (Indiana: Purdue University, 2008), 5-6.

23. "Historical Criticism," *The Catholic Historical Review* 3, no.3 (1917): 368-71.

the decades following Chandler's publication was received directly from the institutions responsible for petroleum operations. Therefore, with their historicity established, these documents were well-placed to accurately inform this book.

In addition, a number of oral histories contributed considerable depth to the writing of this petroleum history; these were sourced with the primary objective of gaining access to the private and political realities of the Barbadian petroleum experience. Within this book, the oral history, considered by Paul Thompson as the area of historical methodology most likely to "open new areas of inquiry,"²⁴ focused primarily on individuals affected by local and global petroleum policy. As a key component of the methodology adopted, these histories were particularly advantageous in that they gave voice to the experiences of players outside traditional and established power structures. The adoption of a binary approach to the writing of this book enhanced both the qualitative and quantitative aspect of the mixed methodological approach through the capture of histories from both ends of the spectrum.

Therefore, by extricating live-voice from script, considerable gaps were filled. It was at this junction that the view which posited that elite narrative, stripped of its formality, would complement, contradict, and add to the traditional research methods, bore fruit. This view, shared by James Fogerty who notes that "documents...very rarely betray the donor's candid opinion of events and people with whom he interacts"²⁵ lent significant justification to the use of oral history within this book. The unsheathing of elite-voice gives an element of qualitative fertility to this book as it relates to the causation and motivations which drove industry innovations. In addressing queries relating to government's response to shifts within the industry and its desire to nationalize the island's major oil field during the early 1980's, interviews with persons located within the national and petroleum elite illuminated this research. Conducted to shift the interviewee's "noble mask"²⁶

24. Paul Thompson, *Voice of the Past: Oral History* (Oxford: Oxford University Press, 2000), 8.

25. James E. Fogerty, "Filling the Gap: Oral History in the Archives," *The American Archivist* 46, no. 2 (1983): 152-153.

26. Jan Vansina, *Oral Tradition as History* (Nairobi: East African Educational Publishers, 1985), 5.

as described by Vansina in order to reveal the “hidden portrait”²⁷ described by Lillian Hoddeson, these interviews facilitated greater validity and open access.

These approaches aside, pictorial aids, namely, microfiche of colonial correspondence and photographs were key contributors to this book. These were carefully selected in order to facilitate the synthesis of script, oral history, and imagery in order to aid the observation of technical and administrative development. From pictorial illustrations of crude shacks, representative of 19th century petroleum infancy, illustrative charts and tables are later utilized proportionately to illustrate growth, development, and increased petroleum production. The use of additional aids, such as maps, assisted with the identification of several significant topographical and geographical characteristics. These in-part explained why one part of the island produced oil while others did not and why oil and gas were found at one depth in one location and none at a similar depth meters away.

This book fills an important gap in the historiography of Barbadian industrial and political history. Excluding Gordon Lepper’s, *Report on the desirability of vesting in the crown the mineral rights in petroleum*, published in 1949, little has been published on the history of petroleum exploration on Barbados. It examines the origins, development, and expression of an industry which has been neglected by political and economic historians who have placed their academic gaze firmly on histories of slavery, sugar, and resistance. With a number of primary source documents from the 19th century fragile due to the inevitable effects of time, this book is a timely addition to the historiography of petroleum exploration and resource nationalism. This publication brings life to these fertile documents and reintroduces them in a concise history of petroleum exploration on the island. It introduces critical analyses of the evolution and development of Barbadian petroleum exploration within the political and economic environment from which it evolved.

This book has as its primary focus the examination and analysis of the Barbados petroleum industry from its inception in 1865 to the year 1985.

27. Lillian Hoddeson, “The Conflict of Memories and Documents: Dilemmas and Pragmatics of Oral History,” in *Historiography of Contemporary Science, Technology and Medicine*, ed. Ronald Edmund Noel and Thomas Soderqvist (New York: Routledge, 2006), 190-191.

This timeline was selected due to the fact that the points of origin and conclusion correlate with important local, regional, and international socio-political and economic occurrences which relate to the evolution and development of the island's petroleum industry. The year 1865 was selected since it marked the first references within local parliamentary debates and colonial despatches of commercial-based efforts to explore for oil on the island. It also contextually situates the advent of crude oil exploration within a post-slavery society under pressure to diversify its economy yet still wholly influenced by the plantation method of political and economic organisation. In addition, its proximity to an emerging crude oil industry in neighbouring Trinidad allows for a comparative examination of the early-development of both industries. The choice of 1985 is made because it facilitates informed analyses after key local and international petroleum-related phenomena and allows sufficient time for a thorough analysis of their impact on the island's petroleum industry.

CHAPTER OUTLINE

My analysis of the Barbados petroleum industry commences with chapter II. Titled, "Manjak Exploration on Barbados," it introduces to readers the island's petroleum industry at its commercial infancy. This chapter examines the mining and export of two hydrocarbon cousins of crude oil, namely, Barbados Green Tar, a green viscous liquid hydrocarbon (used for medicinal purposes) and manjak, a highly flammable coal-like mineral. Green Tar, skimmed from the surfaces of Barbadian streams situated within the petroleum-rich Scotland District and described by myriad travel writers as "smelling of petroleum," was exported from the island to Europe during the 17th century for use in the cosmetic industry. In 1830, James Maycock, writing in "Flora Barbadosensis," reported that oil created from Barbados green tar was considered a cure for numerous diseases including cancer, pulmonary consumption, tetanus, and elephantiasis. Descriptions of this primitive "petroleum" and its medicinal applications during the 17th-18th centuries sets the stage for more in-depth analyses of the industry.

This chapter also examines the exploration of manjak, a coal-like and highly flammable mineral. It examines the Barbadian manjak industry which, in keeping with the plantation ethos of foreign ownership and export

orientation, functioned for the sole benefit of foreign interests. Extracted from highly treacherous mines situated within the landslip-prone Scotland District and highly sought after in Europe and North America, when treated with a chemical solvent it was used as a substitute for rubber, roofing, and as a lubricant for heavy machinery. Such was its impact in North America that one specification for the first patent issued by the U.S.-Government for asphaltic paint required the use of Barbadian manjak. The uniqueness of these two little-known hydrocarbons provides engaging analysis for readers expecting more than a traditional history of oil and gas production as well as ample proof that the tenets of the plantation method of economic development were not transferable to petroleum exploration.

Chapter three examines the genesis of crude oil exploration on the island and the challenges encountered by the early petroleum companies. Titled, "The Early Wells: Oil Development, 1865-1919," it examines the earliest efforts by North American oil companies to drill for oil thus situating Barbados as historically contemporaneous with exploration ongoing across North America. Serviced by letters from managers and engineers lamenting the absence of imperial aid, it examines an industry perennially crippled by a lack of financing from imperial governments which wanted results without investment. Unlike sugarcane, which grew naturally, crude oil could not emerge from its reservoirs without being made to do so. This chapter clearly demonstrates that the plantation model of development, so successful with sugar production, was doomed to fail when applied to the resource-heavy petroleum industry. It will provide readers with an interesting non-sugar-related socio-economic and political examination of the complex nature of relations between imperial government, the oil companies, and the Barbadian landowners for control over the colony's resources in order to maintain the ages-old status quo.

Chapter four, titled, "British Union Oil Company: Oil Exploration, 1919-1953," examines the control which the British Union Oil Company had over the colony's petroleum industry. Though it revolutionized the technical aspect of crude oil extraction and provided natural gas to select districts, by the end of The Second World War its almost total control of leases over the island's drillable areas, had become concerning to the emergent black political intelligentsia. The introduction of the *Petroleum Production and Control Bill 1947*, which proposed the nationalization of

the island's petroleum rights, heightened existing tensions within the industry. The subsequent *Petroleum Act 1950*, through which the state appropriated ownership of petroleum rights from landowners by way of nationalization, shook the British political establishment which scoffed at the idea that its colony would dare nationalize an imperial asset. This chapter delves deeply into the politics of the nationalization initiative during a period in the colony's history when it still relied heavily on Britain for military, financial, and infrastructural aid.

Chapter five, titled, "Natural Gas Exploration on Barbados, 1922-1960," analyses the development of the island's natural gas industry. From locals preparing meals via gas escaping from fissures along the Scotland District, to the supplying of gas via gas mains, this chapter charts the history of the industry. It addresses the BUOC's response to the Petroleum Act (withdrawal of service) and the Barbados Government's reaction which was the nationalization of the industry by way of the *Natural Gas Corporation Act 1950*. Though the Barbados Government compensated the BUOC for its appropriation of the latter's processing plant and for the loss of future earnings, so bold were these nationalizations that Lord Melverton, addressing the House of Lords, labeled them "an unhealthy manifestation of self expression." Such was the furor in London that the island's Premier, Grantley Adams, declared to the nation on his return from a visit to London in 1953 that "the name of Barbados is like mud in England." This chapter is an engaging and enlightening examination of resistance to patriarchy and imperial hegemony during a period when much larger petroleum producers dared not to challenge the imperial style of management.

Chapter six, titled, "Petroleum Exploration, 1953-1972: A Period of Hope," examines developments within the island's petroleum industry during the pre and post-independence period with specific regard to the expansion of drilling beyond the Scotland District. It examines the island's political opinion on long-simmering Arab conflicts as Middle Eastern oil and gas producing states jostled for geopolitical advantage. Special mention is made of the little-known effort of British industrialists to construct an atomic power plant on Barbados. So secretive were these talks that no records of them exist outside of the local press with only one entry found in the 1959-60 Parliamentary debates. Highly secretive, with pitfalls germane to the atomic question, this segment makes for fascinating reading

with regard to the potential pitfalls of placing such a facility within the recently formed and very fragile West Indian Federation. More importantly, this chapter analyses the evolution of the nationalist thought which had fuelled the nationalizing thrust and pays particular attention to the Barbados Government's medium and long-term plans for the continued development of the industry.

Chapter seven, titled, "The 1973 Oil Crisis: Effects on the Local Petroleum Industry," examines the performance of the industry in mitigating the impact and effects of the global oil shock of 1973-74. Given that these mitigating efforts would have been impossible in the absence of a well-established petroleum industry on the island, it highlights the importance of the industry irrespective of low production levels. It satisfyingly highlights the benefits of the nationalist initiative of the 1950's as evidenced by the tripling of crude-oil extraction and the discovery of highly productive gas veins at the recently discovered Woodbourne oil fields in the eastern part of the island. As an interesting segue, the regional solar energy thrust had its genesis on Barbados during this challenging period. Articulated by a quote from The University of the West Indies academic, Professor Oliver Headley, who famously wrote that "the sun will shine when the oil runs out," the development of solar energies is also addressed within this chapter as the Government of Barbados sought additional pathways to power the nation.

Chapter eight, titled, "In the Interest of the Nation: Petroleum Exploration on Barbados, 1977-1985," examines the island's petroleum foreign policy in the years following the 1973 oil shock. It reveals that the island's political leaders adopted a petroleum foreign policy which reflected the realities of an immediate post-crisis world where political and petroleum alliances were crucial. The orientation of this foreign policy is revealed to readers in this chapter's examination of the island's strategic relationships with select oil producers and lending organizations. Using theoretical determinants of nationalization specific to the period as constructed by Sergei Guriev and Anton Kolotilin, this chapter examines the Barbados Government's decision to purchase the drilling and production assets of Mobil Exploration (Barbados). The results of the purchase, namely, the creation of the Barbados National Oil Company (BNOC) and increased production in crude oil, resulted in significant reductions in foreign exchange expenditure