The Prize: The Epic Quest for Oil, Money, and Power Study Guide

The Prize: The Epic Quest for Oil, Money, and Power by Daniel Yergin

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Plot Summary

The Prize tells the story of how a natural resource, known worldwide from antiquity to possess useful properties, came to dominate the world's economy and steer its political fate as technology made possible the transformation of crude oil into commercial products. Few areas of the earth are excluded from treatment in this vast saga, but even these (Antarctica and Greenland, for instance) are surely touched by oil's effects. The book describes the way the relentless advance of technology brought out the best and worst in human nature. The early chapters show the establishment of the great oil companies and the adaptation of governments and societies to booms and busts, benefits and threats. Yergin carefully details how access to oil largely determined the outcome of two world wars, before turning attention to regions of marginal international importance that took center stage during the Cold War. He analyzes competition and conflict in the Middle East at length. *The Prize* is a vast panorama of world history since the 1860s, held together by focus on a commodity that everyone needs and wants to control.

Prologue

Prologue Summary

In 1911, Winston Churchill, Great Britain's Home Secretary, favored domestic spending over war preparations against Germany. His views shifted, however, when a German gunboat entered Agadir harbor in Morocco. As head of the Admiralty, Churchill set about converting the fleet from coal to oil because "mastery itself was the prize." Eighty years later, following two world wars and a cold war where oil proved crucial, Saddam Hussein invaded Kuwait, and the Middle East joined in forcing him out. Oil - embargoed as an economic weapon and destroyed as a symbol of defiance - was central to the conflict.

Prologue Analysis

The Prologue offers vignettes from the beginning and end of the 20th century to suggest the three themes that Daniel Yergin intends to develop in this book: 1) "the rise and development of capitalism and modern business," 2) "oil as a commodity intimately intertwined with national stratagems of global politics and power," and 3) the dependence of modern society and its citizens on oil that legitimized the terms "Hydrocarbon Society" and "Hydrocarbon Man." The Prologue suggests that the story of "the epic quest for oil, money, and power" - the work's subtitle - will be told through vivid stories about figures great and small. Yergin paints on a vast canvas, but with a tiny detail brush.

Part 1, Chapter 1

Part 1, Chapter 1 Summary

In 1855, Benjamin Silliman, Jr., a professor of chemistry, fumed when he did not receive payment for the report on "rock oil" he had prepared for a group of investors led by George Bissel. He had substantiated that they could make money marketing the dark, smelly substance, provided it could be harvested in sufficient quantities. The analyses proved scientifically that they could distill a superior, economical fuel for lamps, while a different process could make it useful for lubricating machinery. They formed a company for exploration. In England, entrepreneurs looked to exploit asphalt and its derivative, kerosene. Patents crossed the Atlantic, and by 1859, 34 U.S. companies were producing $5 million worth of the commodity.

By the mid-19th century, oil was hardly unfamiliar to humankind. Known as bitumen in the ancient world, it played a key role in war and peace. The Arabs learned to refine it and transmitted this technology to Medieval Europe. What was lacking at that time was an economical means of harvesting the resource. The Chinese had been drilling for salt for 1,500 years, and around 1830 their methods were applied in Titusville, PA, by "Colonel" Edwin Drake.

Drake refused to be discouraged, and struck oil just before being ordered to close down operations. Soon there were 75 producing wells in Titusville, and Bissell grew wealthy. Near the "Oil Regions," refineries sprung up to process crude oil into kerosene. Soon production outpaced consumption during the Civil War, prices fell, and many newly rich producers were ruined. After the war, however, veterans returned in search of opportunities, and new companies mushroomed. Greedy entrepreneurs knew little about geology, and, following English common law's "rule of capture," over harvested and depleted oil reserves too quickly. Muddy, oil slick communities vanished into ghost towns. Transporting barrels from the Oil Region created a physical bottleneck, placing the oil companies at the mercy of teamsters. They settled on pipelines as an alternative method of delivery. Informal oil exchanges developed to coordinate buying and selling between producers and refiners. They provided for regular sales, spot sales, and futures. By 1871, petroleum was well on its way to becoming a big - and immensely profitable - business.

Part 1, Chapter 1 Analysis

Part 1 is entitled "The Founders." In eight chapters, it moves from the first hopeful explorations for oil through the outbreak of World War I. Chapter 1, "Oil on the Brain: The Beginning," covers some 15 years in which American entrepreneurs created a viable enterprise. Science worked hand-in-hand with financing. Exploiters lurked everywhere. War reshaped the marketplace. Unions sought to gain the upper hand.

Foreigners contributed but Americans controlled and profited. The most important factors were individual ingenuity, imagination, and a stubborn refusal to give up.

Part 1, Chapter 2

Part 1, Chapter 2 Summary

Early in 1865 two partners in a bustling Cleveland refinery were engaged in one of their frequent disputes. This time John D. Rockefeller surprised Maurice Clark by accepting his offer to dissolve the partnership, and bought him out for $72,000. After Drake's breakthrough, they had concentrated on oil refinery. Rockefeller improved the quality of his products and took the first steps towards integrating supply and distribution, to insulate his business from market volatility and to improve its competitive position. With a head for figures and clear vision, Rockefeller mastered every aspect of the new industry. In 1867, he teamed with Henry Flagler, who hated "unbridled competition" and believed that cooperation among producers was key to minimizing risk. They formed Standard Oil Company in 1870 as a joint stock company intent on consolidating all refiners into one giant combination. Flagler formed arrangements with railroads to extracting rebates (discounts) on freight rates, in order to get a pricing advantage and raise profits. Rebates evolved into "drawbacks," an arrangement whereby railroads paid Standard a percentage of the non-discounted price that rival companies paid. They cloaked these arrangements through a mysterious corporation, causing enraged competitors to boycott the refinery/railroad cartel. Thus began the first "Oil War." Rockefeller was not swayed by press hostility, however, and as cutthroat production could not be controlled, concentrated on making refining safe and profitable. Whenever friendly acquisitions failed, Standard gave targets "a good sweating" by cutting prices to the point they could not survive. Takeovers were cloaked through ostensibly independent companies within the Standard Group. By 1879, Standard controlled 90% of U.S. refining capacity, as well as the pipelines, gathering systems, and transportation.

In 1879, Oil Region producers used deception and speed to construct the 110-mile Tidewater Pipeline to a railway connection, and Standard responded by building pipelines to Cleveland, New York, Philadelphia, and Buffalo, and by buying up sufficient Tidewater stock to arrange a pooling of shipments. The independents turned to the political and legal systems, filing suits in Pennsylvania against discriminatory rates. They also succeeded in getting New York legislators to air details of Standard's rebate system and secretive operations. The press had a field day, creating a reputation for Standard and Rockefeller that would haunt them thereafter.

Needing a shield of legality without sacrificing administrative flexibility, Standard initiated a trust agreement in 1882 that created for a board of trustees who would control 700,000 shares and supervised 14 wholly- and partly-owned companies. Standard organizations were incorporated in the various states in which they operated. A central office coordinated and rationalized their activities. Eight specialized committees were established to manage various products. An executive committee set policy. Achieving the goal of being *the* low-cost oil producer required efficiency of operations, mastery of costs, massive scale and volume, technological initiative, and ceaseless striving for ever-larger markets. Arbitrage, corporate intelligence, and espionage proved effective

tools. Rockefeller, his brother William, Flagler, and two other associates controlled 57% of the stock. Another dozen intelligent, enterprising, willful, and assertive individuals - most bought-out competitors - rounded out senior management. Unanimous consensus ruled, following extensive formal debate and luncheons in the private dining room of the headquarters at 26 Broadway in Lower Manhattan. Rockefeller was in his early forties at the formation of the trust and already one of the richest men in America.

Standard's expansion continued in the 1880s-90s, incorporating new scientific discoveries and establishing a marketing system that reached down to the local distributor. Kerosene lighting was transforming American life, but if poorly processed, kerosene could cause explosions, so quality control was paramount. Others products that Standard distilled from crude oil and marketed ruthlessly included naphtha, gasoline, fuel oil, lubricants, petroleum jelly (Vaseline), and paraffin. Standard stayed out of the production of oil, however, deeming it too risky, volatile, and speculative. Exhausting the Oil Regions threatened enterprise until a prolific new field was found near the Ohio-Indiana border. When a Standard chemist discovered a process to remove sulfur content, profits soared, and Rockefeller began acquiring additional fields. By 1891, Standard pumped a quarter of America's total output of crude oil.

Standard's "cult of secrecy" continued, in the building of the world's largest refinery at Whiting, IN, and in trading in oil certificates on various exchanges. The company's buying arm, the Joseph Seep Agency, pioneered direct purchasing from producers, causing transactions on the exchanges to drop off. In 1895, Seep issued a "Notice to Oil Producers," announcing he would pay whatever the world markets would justify and would furnish daily price quotations. Standard now dictated the purchase price of American crude.

Part 1, Chapter 2 Analysis

Chapter 2: "'Our Plan': John D. Rockefeller and the Combination of American Oil" portrays the two decades following the American Civil War, during which Standard Oil achieved stability through the "vertical integration" of the flow from producer to consumer. Rockefeller played "the Great Game," with gusto and cunning, but gained a reputation as a predatory, secretive octopus. He believed in capitalism and felt that his company was a boon to society, lighting American homes and businesses, and standing ready to deliver whatever benefits science would discover for crude oil. He took a bold step into the future. "Combination is here to stay," he declared. "Individualism has gone, never to return." Chapter 2 plants the seeds of many themes that Yergin will develop; most importantly, it raises the question of how to control the octopus. Governments worldwide will maintain love-hate relationships with oil, and international organizations will wrestle with the kinds of problems Pennsylvania and New York first faced with the young Standard Oil. Yergin also devotes many pages to the vertical integration of the oil industry worldwide, discussing the balance between production and refining, shortage and glut, and inflation and deflation of prices, as well as the fundamental question of subterranean resource ownership. Yergin paints the themes of vast riches and power,

secure transportation, and public relations on a broader canvas as he looks beyond the United States, where Rockefeller established the pattern for the oil industry.

Part 1, Chapter 3

Part 1, Chapter 3 Summary

The thought of kerosene fires at sea was terrifying, but after the first safe delivery to London in 1861, global trade grew rapidly. Europe was oil-hungry for the same reasons as Americans: lighting, industrialization, and urbanization. U.S. consuls eagerly pushed the new "Yankee invention," and helped develop distribution networks. During the 1870s-80s, over half of U.S. oil output was exported, mostly to Europe, with Standard responsible for 90%. Its leadership and other experts doubted that oil would be discovered outside the U.S.

American kerosene found a ready market in Russia in 1862. Ancient sources told of "pillars of fire" in the Caucasus Mountains around Baku, and after Russia annexed the region in the early 19th century, a primitive industry developed there, thwarted by the region's backwardness and isolation, as well as by incompetent czarist administration. Wells were drilled in 1871-72 and over twenty small refineries were built. A clever Swedish inventor, Immanuel Nobel, had immigrated in 1837 and established a considerable industrial company. His son Robert, a chemist, worked for his brother Ludwig, a successful armaments merchant and road builder. Brother Alfred, gifted in both chemistry and finance, went his own way, creating a worldwide enterprise marketing his invention, dynamite. In 1873, Robert visited Baku, caught oil fever, and built a refinery. Ludwig supplanted his brother to become "the Oil King of Baku," conceiving a business plan on the scale of Rockefeller, whose methods he studied closely. The highly integrated Nobel company began shipping oil to St. Petersburg, and dominated the Russian market within ten years. Because transit to market was slow and costly, Ludwig decided to ship the oil in bulk across the Caspian Sea. He hired a staff geologist, his Baku operation soon became the most scientifically advanced in the world. By the mid-1880s, it matched almost a third of total U.S. production. However, Russian oil still lacked access to the open seas, keeping it off the international market. Exporting became feasible when Nobel competitors Bunge and Palashkovsky constructed a rail line from Baku to Batum on the Black Sea, a region Russia won from Turkey in 1877. Alphonse Rothschild, whose family bankrolled many of Europe's new railroads, provided financing, eager to acquire low-cost Russian fuel oil. In 1883, the completed railway transformed Batum overnight into one of the world's most important oil ports. The Rothschilds formed a company known by its Russian acronym, BNITO. They and the Nobels built storage and marketing facilities in Batum, and thus began a 30-year struggle for the oil markets of the world.

Standard could hardly afford to ignore the developments in Russia. Management began buying up Nobel stock. Ludwig, who at this point matched over 80% of American output, had no interested in negotiating. He faced off with Standard in Europe through an aggressive sales campaign, with Standard applying its "good sweating" tactics, combined with rumormongering, sabotage, and bribery. The Nobels and Rothschilds fought back fiercely - and successfully. In 1888, they established import and distribution

companies in Britain. Standard was forced to act, and set up its first foreign affiliate, the Anglo-American Oil Company. Joint ventures followed across Europe, making Standard a true multinational enterprise. The Rothschilds spent money tying up production rights in Baku at advantageous prices, while the Nobels used Alfred's invention to blast through the mountains and laid a 42-mile pipeline to break the railroad bottleneck. Russian market share rose from 22% to 29% in 1888-91, while the American share shrunk 7% over the same period.

The Rothschilds looked to "dispose of" their growing surplus by exploiting Asia's vast markets. They turned to a London shipping broker, Fred Lane, a "go-between *par excellence.*" "Shady Lane" put them in touch with Marcus Samuel, Jr., a rising merchant whose father had established a network of trusted relationships with the great British trading houses in Asia. Samuel was determined to earn a place for himself and his family name in the highest levels of British society - a difficult task for a lowborn Jew. By 1869, technology was transforming transportation and communications, and Samuel took advantage of this to build a worldwide shipping enterprise no longer subject to speculation on prices on delivery. After their father's death, Marcus in London and younger brother Samuel, in Yokohama, joined forces to industrialize Japan and to exploit their father's contacts across Asia. Marcus understood that he would have to undersell Standard in order to break into the Asian market, as well as work quickly and secretly to blanket Asia in order to survive a price war with his merciless foe. On a prospecting trip to the Caucasus in 1890, Marcus realized that technologically advanced tankers would reduce shipping costs per gallon. He commissioned the design and construction of a fleet, and then turned his attention to securing supplies of kerosene from Batum. To shorten his supply route, he sought access to the Suez Canal. He needed large storage tanks in all major Asian ports, and transportation for kerosene to inland depots in the hinterlands, where bulk kerosene could be packaged for delivery to the wholesale and retail trade.

The Rothschilds could not decide whether they wanted to compete with Standard or reach an accommodation. In 1891, facing falling prices, they granted exclusive rights for nine years to Samuel to sell BNITO kerosene east of the Suez. Samuel's tankers were designed to be able to transport foodstuffs on the return ship from Asia (to reduce costs), and specially equipped to minimize the possibility of explosion and fire (to defeat the campaign to exclude oil ships from the Canal). The Samuels' contacts in the British Foreign Secretariat agreed that British merchants, rather than Russians, should control the canal, and Lloyds of London rated the tanker to be design-safe. Negotiations began regarding acquisition of ports in Hong Kong, Shanghai, and Singapore, and construction of the local facilities was nearing completion when they received permission to traverse the Canal. The *Murex*'s first Batum-to-Singapore voyage shocked Standard. By the end of 1893, the Samuels had ten more tankers in service and by 1902, controlled 90% of the oil traveling through the Canal. The Samuel brothers, Lane, and the Asian trading houses formed the Tank Syndicate - predecessor to Shell Oil - to position themselves financially to defend against Standard, and Lane assumed day-to-day operations of the fleet.

Oil wars raged among the rivals through the 1890s. They battled for markets, tried to apportion the world's markets among themselves, and explored mergers and acquisitions, all in a spirit of great suspicion and mistrust. Apportionment was nearly achieved in 1892-93, but Russian and American independents refused to cooperate. Standard, whose objective was to "assimilate" others, launched a worldwide price-cutting campaign, singling out Samuel Samuel as the weak link. He refused a great deal of money and a Standard directorship, rather than compromise his British identity. Rebuffed, Standard turned to the Rothschilds and Nobels, and together, they formed the "grand alliance" they desired. Americans were allocated 75% of world export sales and the Russians, 25%. When the czarist government vetoed the plan, Standard responded with further price-cutting.

If Standard could not gain access to Russian operations, it would search for crude oil in Asia. The Royal Dutch Company carved out a successful operation in the jungles of Sumatra and had begun to make an impact across Asia with its Crown Oil brand. By 1865, oil seepages were being identified throughout the Dutch East Indies. Aeilko Jans Zijlker won a concession at Telaga Said. Progress was slow until Zijlker won royal patronage in 1890 and began floating stock. His successor, Jean Baptiste August Kessler, found an operation in chaos and working conditions abysmal. He completed a pipeline in 1892, and by 1895, increased production six-fold. Royal Dutch finally turned a profit, as the Dutch government excluded the Tank Syndicate from its East Indies ports, but Standard still had the power to ruin it. It searched the Pacific rim for production opportunities and gathered intelligence about Royal Dutch. The Samuels were also eyeing Royal Dutch, but directors in The Hague remained silent. In 1897, Standard made a formal proposal to Kessler that would quadruple the company's capital, but Kessler recommended that the board reject it. Standard sought another concession in the Dutch East Indies, but was opposed by both the government and Royal Dutch, which moved to insulate itself by creating a special class of preference stock, available for sale by invitation only.

Part 1, Chapter 3 Analysis

Chapter 3, "Competitive Commerce," looks overseas at the same developmental period discussed in the previous chapter. Westerners develop Russia's rich Baku oil fields and, upon positioning their products for export to Europe, attract the attention of Standard Oil, who is sending half of its production to the continent. All eyes then turn east to Asia for additional markets. We see politics at work in the battle for control of passage through the Suez Canal, and we witness Standard's "sweating" fail against well-financed competitors. Repeated emphasis is given to the daunting task of remaining on the cutting edge of technology, as well as vertical marketing. Rockefeller's methods provide a primer for competitors, and even those lacking his organizational abilities are able to imitate his results successfully.

Part 1, Chapter 4

Part 1, Chapter 4 Summary

Kerosene, gas, and candles met American demand for artificial light at the end of the 19th century, but all three presented serious health and safety problems. In 1877, Thomas Edison perfected the incandescent light bulb, commercialized his invention, and priced it competitively with gas. His first generating plant opened in 1882. Electricity offered superior light and proved instantly irresistible. Standard's initial market was threatened, but the company subsequently developed a new and more potent one. Henry Ford's gasoline-fueled "horseless carriage" won out over steam- and electricity-driven challengers, and automobiles became a status symbol. Gasoline changed from being a novelty byproduct of crude oil into a valuable commodity. At the same time, Standard found its position in East Coast and overseas sales challenged by the creation of an unattainable, independent Producers' and Refiners' Oil Company and the Pure Oil Company.

Prospects for new oil fields in the American West had been identified as early as the 1860s. An early strike north of Los Angeles fizzled, but revived in the early 1890s, and for ten years, California led the nation in production. Union Oil (later Unocal) dominated California production and grew into a major integrated oil company, surviving even the 1907 founding of Standard Oil of California (Socal), which otherwise gained a hammerlock on the industry. However, too far removed geographically from the population centers of the U.S. to penetrate that market, California decided to look across the Pacific for customers.

Minor production began in Texas when Patillo Higgins hit natural gas while poking around with a stick on a hill called Spindletop. In 1892, he formed a company in Beaumont and hired a driller, Anthony Lucas. Despite drilling failure, the ridicule of professional geologists, and Standard's refusal to offer financial backing, James Guffey and John Galey, the county's most successful wildcatters, agreed to back Lucas in return for 87.5% of any profits. Galey, who claimed he could "smell oil," staked out what he was sure to be "the biggest oil well this side of Baku" on Spindletop. Sure enough, a gusher erupted in 1901, launching the Texas oil boom. In a mad scramble for leases, Beaumont's population swelled and stock fraud became so prevalent that the area became known as "Swindletop." Prodigious output eventually forced prices to fall. Determined not to be swallowed up by Standard, Guffey instantly signed a 20-year contract with Shell, which needed freedom from dependence on Russian oil. Both sides considered this the deal of the new century. Samuel ordered four new tankers to handle the load. Spindletop motivated railroads, manufacturers, and steamship companies to convert their operations from coal to oil, and became the training ground for the oil industry of the southwest. Guffey, though a national symbol of instant wealth, was a terrible manager who exploited Spindletop until underground pressure gave out. His backers, the Mellon brothers of Pittsburgh, feared for their investment and turned to nephew William C. Mellon to take control in Beaumont and extract the company from its

Shell contract. Andrew Mellon went to London to reach a *modus vivendi*, freeing the family from contractual binds, while William integrated the company's activities and expanded the Port Arthur refinery just as oil was struck near Tulsa, OK, in 1907. He constructed a 450-mile long pipeline to his port faster than Standard could connect to its Kansas pipeline. Thus, the Mellons established themselves as major players in the oil industry through the reorganized Gulf Oil.

Seeing commercial possibilities for natural gas, J. N. Pews in 1876 pioneered the use of natural gas to light Pittsburgh. He later sold out to Standard and began producing oil in the Lima field under the Sun Oil name. His son J. Edgar acquired leases and storage facilities in the Beaumont region, and built a refinery near Philadelphia to process crude oil sent by tanker from the Gulf of Mexico. By 1904, Sun Oil was one of the predominant companies in the gulf oil trade.

The last major company spawned by Spindletop was Texaco, the handiwork of Joseph ("Buckskin Joe") Cullinan, an aggressive, abrasive Texas oil developer. He left Standard in 1895 to form an oil equipment company and was consulting in Coriscana, TX, when Spindletop erupted. He formed the Texas Fuel Company to purchase and market crude, and obtained leases from a syndicate of former politicians headed by James Hogg, Texas's anti-Rockefeller ex-governor and a tough businessman with political ties to Guffey. Cullinan obtained financial backing in New York and Chicago and in 1906, after the Texas legislature blocked a proposed merger with Gulf, registered "Texaco" as a trademark. Buckskin Joe went his own way after New York colleagues defeated him in a proxy fight.

Gulf Coast developments opened doors to competition with Standard. The Old House's sales continued to grow in absolute terms, particularly in gasoline, but its ability to establish prices was slipping away. Russia and Texas now had slipped outside its grasp.

Part 1, Chapter 4 Analysis

Chapter 4, "The New Century," returns to the U.S., explaining how exploration for sources to replace the fast-depleting Pennsylvania and Lima/Indiana fields led to a weakening in Standard Oil's near-total ability to control the industry. Texas pulled together a number of factors that militated against Standard. Governor James Hogg was determined to rein in both the company and its head, removing Standard's interest in investing there. The Mellons of Pittsburgh, like the Rothschilds, had sufficient resources to survive in Standard's league. For the first time, a great deal turned sour when conditions abruptly changed, a theme Yergin will revisit repeatedly in later chapters focusing on Latin America and the Middle East. We also see how, despite Rockefeller's declaration that the age of the individual was over, the tenacity of Patillo Higgins was key in starting the Texas oil rush. None of this would have mattered if kerosene had remained the industry's premier offering, but a second great American entrepreneur, Henry Ford, changed the circumstances. Gasoline and motor oil became true necessities of American life, ensuring Standard's commercial viability. In the next chapter, we will see the demise of the giant at the hands of politicians and the courts.

Part 1, Chapter 5

Part 1, Chapter 5 Summary

The Old House could not eliminate commercial competitors anywhere, and state courts and legislatures were examining its ruthless business practices. Management failed to understand the depth of public hostility. Standard hired the best and most expensive legal talent, perfected the art of timely political contribution, purchased advertising space in newspapers, and planted favorable articles. It set up "blind tigers," distribution companies seemingly independent but in fact well controlled. In 1892, the Standard Trust dissolved in response to an Ohio court decision and transferred shares to 20 companies. Control nevertheless remained with the original owners. The companies grouped together to form the "Standard Oil Interests" and the executive committee gave way to informal meetings of presidents, but this arrangement did not afford sufficient legal protection. New Jersey, anxious to become more business-friendly, therefore revised its laws to recognize holding companies. In 1899, Standard Oil of New Jersey was established as a holding company for the entire operation. Two years earlier, tired of being "crucified," an ailing Rockefeller retired. The senior executive most expert in all phases of the business assumed leadership. From his youth in Titusville, John D. Archibold showed a "go-ahead" determination, great "oil enthusiasm," and the ability to defuse tension with humor. As acting head of the company, he restored vigor to the leadership. Rockefeller, however, was allowed to retain the title of president, which proved a tactical error, since his name was a lightning rod for anger, criticism, and attacks.

By 1898, at least 80 trusts had been formed following the Standard example, together worth over $1.2 billion. To outsiders, they represented a perversion of the economic system and a great moral, political, and social threat. Progressive journalists, known as "muckrakers," investigated and exposed the ills of society. The managing editor of *McClure's*, Ida Tarbell, who was also America's first great female journalist, began research that in 1904 would result in the publication of *The History of the Standard Oil Company*. She grew up in the oil fields of Pennsylvania, filled with vivid memories of the agonies her father suffered at the hands of the Octopus. She found Rockefeller an elusive subject but infiltrated his organization through author Mark Twain, a friend of the second most powerful Standard director, H. H. Rogers. Rogers and Tarbell developed rapport and met regularly for two years. Proud of his company, and believing Tarbell's claim that she intended to paint a picturesque, dramatic narrative history rather than a controversial polemic, Rogers was remarkably candid. When her 24-part series began appearing in *McClure's,* it became the talk of the nation. Released in book form with 64 appendices, it was hailed as arguably the single most important business book ever published in the U.S. Rockefeller dismissed "Miss Tar Barrel" as just another socialist/anarchist, maintaining that he and Standard had done more good than harm.

Tarbell was no socialist. She was a high-minded muckraker. The man who termed the phrase, Theodore Roosevelt, succeeded the assassinated William McKinley as

president in 1901. He disliked everything "vile and debasing" in business and government, and was in favor of government regulation and control of "bad" trusts. After winning the 1904 campaign (during which he refused Archibold and Rogers money), TR launched an investigation into the "Mother of Trusts" and the oil industry at large. In 1906, Standard was sued for conspiring to restrain trade under the Sherman Antitrust Act of 1890, and experienced a "good sweating." The main antitrust suit was decided in 1909, but Standard appealed. In 1911, the U.S. Supreme Court declared that "no disinterested mind" could fail to realize that Standard had prevented others from exercising their right to trade freely, and gave Standard six months to dissolve voluntarily. The complex plan stipulated no overlapping boards of management among 1) Standard Oil of New Jersey - eventually Exxon; 2) Standard Oil of New York - Mobile; 3) Standard Oil (California) - Chevron; 4) Standard Oil of Ohio - Sohio; 5) Standard Oil of Indiana - Amoco; 6) Continental Oil - Conoco; and 7) Atlantic. Stockholder's profits soared after the breakup.

Indiana felt particularly liberated because its head of operations, William Burton, had devised the process of thermal cracking, which doubled the percentage of synthetic gasoline that could be refined from crude oil. The old board had turned Burton down for funding to build stills, but the newly independent Indiana gave him the green light - just in time to head off a gasoline famine as the world's automobile fleets expanded dramatically. In 1914, Indiana began licensing the process, and Jersey's president was galled at writing a fat monthly royalty check to Indiana.

Part 1, Chapter 5 Analysis

Chapter 5, "The Dragon Slain," details the legal assault on Standard, inevitable given the public outrage over the Old House's size and power. Court records, despite company witnesses' evasiveness, began cracking the wall of silence, as did Ida Tarbell's inside exposé in *McClure's.* Teddy Roosevelt's administration took Standard to court, eventually forcing a company breakup and resulted in the array of corporations with which we are familiar today. Yergin will not refer to the new companies by their modern names for some time, but rather will refer to them as "Jersey" and "Indiana," alongside the overseas competitors whose names shorten and morph. Be warned that it can get confusing.

Part 1, Chapter 6

Part 1, Chapter 6 Summary

In 1896, the Samuels' syndicate dispatched Mark Abrahams to Borneo to secure a supply of oil for its tankers and storage facilities. Abrahams lacked oil experience, but plunged through the jungle to the "Black Spot" and set to work. The first gusher, in 1898, yielded crude unsuitable for kerosene but useable, without needing refinement, as fuel oil. For ten years, Samuel nagged the Royal Navy about converting the fleet from coal to oil. Events in South Africa, Russia, and China all worked against the interests of the renamed Shell Transport and Trading Company. Freight rates plummeted and the Borneo operation fell short of expectations, even while Royal Dutch was flourishing in Sumatra. Drillers refused to give up despite 110 failures, and eventually struck luck at Perlak in late 1899. Henri Deterding took over Asian operations in 1900 and would dominate the world of oil for the next 35 years. Deterding had abandoned banking for more lucrative opportunities, "sniftering around" in the East. In 1895, Shell offered him a job of setting up a marketing system that would bring the company to parity with its competitors while insulating it against them.

Together, Shell and Royal Dutch controlled over half of the oil exports east of Suez. Amalgamation made sense, but Deterding and Marcus Samuel both wanted control. Lane entered as an intermediary. Samuel failed to ally with Standard and, fearing that Standard might reconsider, Deterding pushed for a quick signing. Lane convinced the Samuels not to allow Shell to become an American entity. Deterding gained control over the new combination, "British Dutch," and Samuel was relegated to chairing the board. The Rothschilds, in the meantime, realized that they could not afford to be left out, and signed an overarching agreement in 1902, creating the Asiatic Petroleum Company. Before a working contract could be drafted, however, Shell's financial and market position deteriorated to the point of peril. With great skill and success, Deterding used the companies' combined resources to buy and sell oil on a vast scale and restricted production in Asia, based on a quota system. Samuel retreated into politics and in 1902, Lane bitterly left the company. Deterding assimilated most of the independent producers in the East Indies into Royal Dutch, winning important share of the European gasoline market. Working on behalf of Shell proved more difficult, with Spindletop dried up, the British Admiralty wedded to coal, and Lane determined to settle scores. Deterding offered to buy 25% of Shell's shares, and the union was cemented in 1907, creating the Royal Dutch/Shell Group (RDSG). Royal Dutch and Shell became holding companies, with the former holding 60% of the stock in the operating subsidiaries and the latter 40%. This put RDSG beyond danger from Standard, but competition remained fierce and bitter. In 1910, Deterding refused a $100 million buy-out offer, resulting in a new round of price wars. Deterding declared a new policy - "To America!" - to gain a foothold in Standard's backyard, and in 1912, set up a marketing operation in California for Sumatra gasoline, where he began producing oil in-state. He sent Abrahams to Oklahoma to repeat his Borneo success. In Tulsa, Abrahams established Roxana Petroleum.

The Russian state was incompetent, corrupt, and prejudiced. The people were alienated and dissatisfied, and nowhere were conditions worse than in Baku and Batum, which had become the "revolutionary hotbed on the Caspian." A young Joseph Stalin masterminded strikes against the Rothschilds' interests. To divert the people's attention from their misery, Czar Nicholas II provoked a war with Japan. This, however, only led to a crushing defeat and further flamed the fires of revolution. Race and ethnic conflict seized the Caucasus, with Muslim Tatars massacring Christian Armenians in Baku, including leaders of the oil industry, and two-thirds of the derricks and oil wells were set ablaze. Standard responded quickly to regain Asian markets previously lost to Russian kerosene. Nicholas allowed formation of a constitutional government but foolishly undermined it, and Stalin returned to Baku to foment trouble. The West turned to Russia for oil only when no other source was unavailable, until speculation on oil on the London Stock Exchange capitalized modern technology in Maikop and Grozny. Having lost interest in this politically unstable and volatile nation, the Rothschilds sold their interests to RDSG in 1912, instantly making it a major economic force in Russia, with 20% control of its total oil production.

Standard Oil, Deutsche Bank, and Royal Dutch all looked to Romania, where modern technology had begun developing substantial reserves, and output had grown sevenfold. In 1906, the Nobels, Rothschilds, and Deutsche Bank formed the European Petroleum Union (EPU), which negotiated contracts in 20-25% of the markets. The rest fell to Standard.

Part 1, Chapter 6 Analysis

Chapter 6, "The Oil Wars: The Rise of Royal Dutch and the Fall of Imperial Russia," presents a counterbalance to Chapter 5's tale of Standard Oil's dismemberment. It shows the two Asian oil adversaries merging in order to escape the threat of Standard. The obvious next step involved an invasion of Standard's American market. In discussing the crumbling of Russia at the turn of the twentieth century, Yergin introduces several themes to which he will return often. The first is the effect of war and revolution on international oil production. Yergin shows the rich Baku fields going up in smoke and flame - a hellish image to be repeated in the East Indies in the 1940s and Kuwait late in the century. We will see Russian oil resurrected under Soviet control, providing Hitler his most prized target in World War II, and accounting for most of the USSR's hard currency in the era of *glasnost*. Russia's defeat at Port Arthur, which prefigures Pearl Harbor, will be discussed at length in later chapters. The Romanian oil fields, discussed briefly, will increase in importance during both world wars and in the postwar years. The only arena not yet discussed is the Middle East, which Yergin takes up in the new few chapters.

Part 1, Chapter 7

Part 1, Chapter 7 Summary

Short on money, the Persian government dispatched Antoine Kitabgi to Paris in1900 to hunt for oil investors. Kitabgi sought the aid of a retired British diplomat, William Knox D'Arcy, who had built his fortune on gold mining and remained open to promising investments. Oil seepages had been observed in Persia for centuries, but two earlier concessions had failed. A French geologist convinced D'Arcy that the Middle East held potential, and he subsequently founded the oil industry there. Persia's national identity stretched back to the fifth century B.C.E. In the 18th century Qajar shahs united warlords and tribal confederations, and ruled avariciously for a century and a half. They learned to play Russia and Great Britain off each other, both vying for economic control in the era of Great Power diplomacy. By the turn of the 20th century, Russia held the upper hand, virtually integrating Persia's economy into its own. D'Arcy saw an oil concession as a means of righting the balance, and accomplished this by putting an additional £5,000 on the negotiating table. In 1901, the Shah signed an agreement, giving D'Arcy access to 75% of the country for 60 years (he declined the five provinces closest to Russia in order to lessen provocation). D'Arcy's Persian gamble was massive, but the British Foreign Office was unwilling to assume any direct responsibility. He hired George Reynolds, an engineering graduate with drilling experience in Sumatra, to find local workers with adequate technical skills. The dominant Shiites met Reynolds with hostility, and every piece of equipment had to follow an arduous 300-mile path from Basra on the Persian Gulf. Equipment routinely broke down, food and parts were in short supply, temperatures rose to 120º F in the workers' quarters, and diplomacy was required to prevent open warfare among the tribes. Nevertheless, they struck oil after 11 months, though costs far exceeded D'Arcy's resources. On advice from Thomas Redwood, who was a trained chemist, Britain's premier oil expert, and a leading outside adviser to the government, D'Arcy applied to the British Admiralty for a loan, pointing out the advantages of fuel oil over coal and the desirability of having a British company provide it. Though he won over the Admiralty by promising an attractive contract for fuel oil, the Chancellor of the Exchequer turned him down. The Foreign Office, however, desired to keep Persian oil out of Russian or French hands, and consequently arranged for a "syndicate of patriots" to provide funds. In 1904, Burmah Oil (BO) found a large Persian field attractive, and Redwood arranged for BO to provide capital and practical expertise. D'Arcy became a director of the Concession Syndicate. Exploration moved to an area resembling Baku geologically. Work at the Masjid-i Suleiman field was immensely difficult, but Reynolds had a knack for jerry-rigging machinery. In Teheran, the Shah's government was in decay and concessions to foreigners were a sore spot. In mid-1906, rioting and a general strike gripped the capital, and a new constitution was promulgated. A small cohort of British troops was dispatched from India to guard Masjid-i Suleiman, and the Majlis (parliament) made investigating concessions a top priority.

To foil German penetration into the Middle East, London signed the 1907 Anglo-Russian Convention, providing for the partitioning of Persia into economic spheres of influence;

unfortunately, the new drilling sites fell inside the designated neutral zone. BO was displeased by both pace and price, and ordered D'Arcy to halt work or put up half the additional funds required. As D'Arcy sought to delay, gushers erupted in 1908. Investors vied for stock in the newly incorporated Anglo-Persian Oil Company (APOC). To refine Persian oil and get it to market, APOC built a pipeline across hills and desert to Abadan in the Shatt al-Arab, the extended estuary of the Tigris, Euphrates, and Karun rivers. The refinery broke down when first tested in 1912, and later consistently operated below capacity, producing poor quality kerosene.

Part 1, Chapter 7 Analysis

Chapter 7, "'Beer and Skittles' in Persia," takes its title from George Reynold's sarcastic report to the managers of Burma Oil in Glasgow. Persia - known from 1935 onward as Iran - was, from the start, an inhospitable environment. The government was unstable and ineffective; its sole interest in oil lay in the large amounts of cash it would obtain from the foreigners who drew it from the ground. The local Shiite Muslims were intensely hostile to outsiders, Western infidels in particular. Bribery was the only way to get things done. This scenario will be repeated when exploration begins in the Arabian Peninsula, with the exception that Russia will not play an early role, and the inhabitants for the most part will adhere to Sunni Islam.

Part 1, Chapter 8

Part 1, Chapter 8 Summary

In 1903, D'Arcy encountered Admiral John Arbuthnot Fisher at a spa. There they discovered a shared enthusiasm for oil, and D'Arcy's maps and papers on the Persian venture impressed Fisher. He was dedicated to modernizing the Royal Navy and convinced that converting the fleet to oil would produce greater speed, efficiency, and maneuverability. In 1904, Fisher became First Sea Lord and, convinced that war with Germany was inevitable, pushed to see D'Arcy's oil fields developed under British control.

Led by an overbearing, temperamental Kaiser Wilhelm, Germany in the 1890s began a full-scale drive for global political, strategic, and economic prominence, alarming its rival powers. This required breaking British control over the high seas, and Wilhelm launched a naval challenge in 1897. He was confident that Britain would quickly tire of the cost. Instead, the British resolved to maintain superiority. By 1904, a "runaway technological revolution" was transforming both fleets. England entered into a classic - and bitter - guns-or-butter debate. Churchill emerged in 1908 as one of the "economists" determined to limit naval expenditures, because the inevitability of war was "all nonsense." The 1911 Agadir crisis, however, changed his views. As First Lord of the Admiralty, the top civilian post in the Royal Navy, Churchill approved Fisher as his unofficial adviser and learned a few key lessons about oil: 1) it does not deteriorate; 2) it can be stored up in vast, defensible tanks; and 3) that which was east of Suez was cheaper than coal. Convinced, Churchill took the "fateful plunge" in a vast building program in 1912-14. It was a great gamble to commit the navy irrevocably to a fuel for which there was no secure, reliable source.

Charles Greenway, who assumed management of APOC, offered the Admiralty a 20-year fuel contract, arguing that without it, a Dutch company susceptible to German pressure would gain a dangerous monopoly. Fisher and the Foreign Office agreed, but Churchill and the Admiralty worried about the availability and reliability of Persian oil, as well as skyrocketing prices. Churchill asked Parliament for a £2.2 million investment in APOC, which would give the government a 51% controlling interest, two directors on the board, and veto power on all but commercial aspects. The Samuels objected to Churchill's depiction of their company, instigating a highly charged debate. The decision to take over a commercial company - unprecedented except for the purchase of the Suez Canal - was overwhelming and surprising. The vote occurred 11 days before the start of World War I. Through Deterding's continued efforts, Shell received a contract to augment APOC supplies.

Part 1, Chapter 8 Analysis

Chapter 8, "The Fateful Plunge," details the process by which oil became an instrument of national policy. It returns us to the Prologue, filling us in on details of the scenario introduced there. Many non-financial considerations lie behind Britain's choice of RDSG or APOC as the Admiralty's chief provider. The overwhelming vote in Parliament, on the very eve of World War I, set a precedent that would be reproduced around the world in later decades, eventually leading to outright nationalization of many an oil company. Oil, as the world's most strategic commodity, will become the theme of the rest of the book.

Part 2, Chapter 9

Part 2, Chapter 9 Summary

What everyone expected to be a short war in 1914 turned into a lengthy stalemate that killed 11 million people, destroyed the political systems of much of Europe, and devastated all economies. Many of the industrial innovations of the preceding decades were militarized, most of which depended on oil products to run. When German forces closed in on Paris, French General Gallieni enlisted all 3,000 Parisian taxicabs, and in two days his ragtag armada rushed thousands of troops to critical points on the battle front. Tanks, introduced by the Allies in 1916, proved decisive in 1918. Technological innovations made possible the use of fighter planes and tactical bombers. In the East, the Ottoman Empire, who was allied with Germany, threatened the Abadan refinery. The British repulsed them and captured Basra to secure the strategic approaches to oil and ensure the safety of the Amir of Kuwait. Only in 1915 was the flow of Persian oil interrupted when local tribesmen damaged the pipeline. Between 1912 and 1918, military demand drove oil production up tenfold.

By 1915, APOC was supplying 20% of the British Navy's needs - and reaping considerable profits. Greenway began positioning the company for postwar success by transforming it into an integrated company. He purchased from the government one of the largest distribution systems in the United Kingdom, British Petroleum (BP), which was owned before the war by Deutsche Bank and had been nationalized for security reasons. Greenway also built a fleet of tankers, and continued polemics about Shell's "foreign taint." Greenway's arrogance backfired, however, and Shell served as quartermaster-general for oil, acquiring and organizing the supply of British forces worldwide. In 1916, Churchill's successor in the Admiralty, Arthur Balfour, questioned the wisdom of government involvement in the oil business. German U-boats had caused a "dearth of petrol", instigating gasoline rationing in England. After the U.S. entered the war, an Inter-Allied Petroleum Conference was established to pool, coordinate, and control oil supplies and tanker shipping. Jersey and RDSG cooperated, and convoys sent supplies safely across the Atlantic for the rest of the war. America became the "oil granary" for Europe, stepping up production and exporting 25%. As the country entered the war in 1917, President Wilson named Mark Requa, a California petroleum engineer, the first U.S. energy czar. As surging demand strained production to the maximum, the government responded by tapping reserves and importing Mexican oil to fill the gap. Demand for heating oil soared, mirrored quickly by prices. Requa warned the industry to institute voluntary price controls and Jersey complied, followed reluctantly by the independents. Civilians voluntarily cut back on driving. An Allied blockade forced Germany to look to Romania for oil. In 1916, the British government recruited John Norton-Griffiths to destroy the Romanian facilities in order to keep them from German hands. Germany besieged Baku but was driven off. Its army had nearly exhausted oil supplies, and war industries had only a few months of fuel and lubricants remaining when Germany surrendered.

Part 2, Chapter 9 Analysis

The seven chapters of Part 2, "The Global Struggle," cover the years of World War I (1914-18) and the expansion of Western oil concerns into the Arabian Peninsula. Chapter 9, "The Blood of Victory: World War I," introduces a theme that will pervade the rest of the book: oil's crucial role in war. It takes its title from a toast at a victory celebration: oil was "the blood of the earth," "the blood of victory," and the wave on which "the Allied cause had been floated to victory." Germany's dearth of oil was as critical to the course of World War I as U.S.-provided availability. Governments came to grips with shortages for the first time, and the U.S. government had to backtrack on its antitrust offensive while the long-demonized Standard Oil stepped up to do its patriotic duty. The theme of oil as the "blood of victory" will be amplified in Part 3, as the world goes to war a second time. Armies will again burn oil fields to prevent them from falling into enemy hands. First, however, Yergin examines the oil industry's interwar growth spurt.

Part 2, Chapter 10

Part 2, Chapter 10 Summary

Making peace and reorganizing a world in shambles required swift action. As the defeated Ottoman Empire was dismembered, Britain asserted influence in Mesopotamia, believing that it held oil potential. France had a historic claim to Mosul and was willing to exchange it for control over neighboring Syria and a share in Mosul's oil profits. Before the war, Deutsche Bank had vied with APOC for a Mesopotamian concession, but in 1912 transferred its claims to the Turkish Petroleum Company (TPC), which was half owned by the British-controlled Turkish National Bank TNB and shared with RDSG. An Armenian millionaire, Calouste Gulbenkian, had put this deal together. A second-generation oil man, Gulbenkian had been educated in France and England and sent by his father to Baku, where he earned a reputation writing about oil. He was a master of trading and dealing, information gathering, patience, perseverance, and complete distrust of others. This distrust was only reinforced when he had to flee to Egypt in 1896 to escape a massacre. There he met two rich, powerful Armenian refugees and formed connections that enabled him to establish himself in London as a representative for Baku oil. He joined forces with the Samuels and Deterding, and in 1907, returned to run their new Constantinople office. He became a financial adviser to the Ottoman government and a major stockholder in the TNB, and united these connections in the TPC. The British wanted to merge the TPC with APOC to seek a joint concession, and in 1914, a "Foreign Office Agreement" between Britain and Germany went into effect. APOC and Shell each gave Gulbenkian 2.5% of the total shares, and thereafter, he became known as "Mr. Five Percent." The partners also agreed to a "self-denying clause," specifying that neither could become involved in oil production anywhere in Ottoman lands except through the TPC. The clause, however, exempted the regions of Egypt, Kuwait, and the "transferred territories" along the Turco-Persian border, establishing the foundations for later oil development and struggle in the Middle East.

World War I ended Anglo-German cooperation, but Mesopotamian oil was not forgotten. The 1916 Sykes-Picot Agreement determined Mosul's fate and carved up of the region into a host of independent nations, leaving Britain with the upper hand. As the oil crisis deepened in 1917-18, control over the region became a key issue. Britain was appalled by President Wilson's vague, idealistic, anti-Bolshevik - and anti-imperialistic - Fourteen Points, which called for the "self-determinism" of nations and peoples. War taught France the strategic value of oil, and the San Remo Agreement gave the country 25% of Mesopotamian oil and Germany's stake in the TPC. The government bought a 25% share of the newly organized Compaignie Française des Pétroles (CFP) and erected tariff barriers against "Anglo-Saxon oil trusts." Britain wanted the 60/40 split of RDSG reversed, arguing that as a British company, Shell would be better able to guarantee its title to Mesopotamian oil. Deterding feared that any commercial control by or close association with the government would compromise his dealings in the Americas and Persia. Amalgamation with APOC, however, would make him competitive with Jersey

worldwide and end waste and duplication. The Admiralty did not want to compromise its advantageous deal with Greenway, who hated Shell, and asked Churchill to lobby for amalgamation. His castigation of Shell a decade earlier was forgotten as Churchill set to work persuading Britain to quit the oil business. In 1923, however, he returned to politics and became Chancellor of the Exchequer, responsible for the Treasury.

The U.S., meanwhile, was facing the imminent depletion of its oil resources. Consumption had risen by 90% over 1911-18, with no slowdown in sight. The development of Rocky Mountain shale oil was not yet price-effective. Conflict grew between Washington and London over U.S. demands for an "Open Door" policy on access to overseas oil supplies. The American press denounced San Remo as old-fashioned imperialism, and Jersey protested being shut out around the globe, until Congress passed the Mineral Leasing Act of 1920. This Act denied foreign interests access to drilling rights on public lands if their governments denied similar access to Americans. Cynics were amazed at the rapprochement between Jersey and the administration. Tensions with Britain continued to grow over interests in Mexico, the Dutch East Indies, and Mesopotamia. Gulbenkian argued that it was better to have the Americans "inside" than "outside" - and competing. The Foreign Office firmly instructed APOC and RDSG, in national interest, to include Americans as soon as possible. Because it was deemed unseemly for the U.S. government to exert diplomatic energy on behalf of a single company, a proposal emerged, allowing a syndicate of companies to operate in Mesopotamia. Jersey accepted the plan, and Walter Teagle took the lead in forming the consortium. He sailed to London in 1922 to face off against Deterding, Greenway, and Mercier - all partners in the TPC. Gulbenkian, whose background paralleled that of Teagle's, proved to be Teagle's chief antagonist. The latter's talent as an aggressive, persuasive salesman had drawn the attention of Standard, and by 1908, he headed its Foreign Export Committee and knew the dynamics of the international marketplace better than anyone. He viewed RDSG as Standard's most dangerous competitor. In 1917, Teagle became president of Jersey and began restructuring operations. In 1920, he announced a new strategy: to enter every production area in the world. That brought him to the acrimonious - and fruitless - negotiations with TPC in London, where he learned that newborn Turkey was contesting its border with newly renamed Iraq and trying to undermine the legal basis of the TPC.

During World War I, London encouraged Hussein, the Sharif of Mecca, to lead an Arab revolt against the Turks. In exchange, he promised that he would install Hussein and his sons as rulers of the Arab regions. His third son, Faisal, was enthroned in Iraq in 1921, where he faced an enormous task. The three former Ottoman provinces he ruled shared no common political or cultural history. Faisal needed British support but had to gain it tactfully; he could not appear to be too beholden to London. Washington rejected the validity of the 1914 grant to TPC, and negotiations were slow and bitter, but the parties eventually reached an agreement in 1925. Gulbenkian stood resolutely in the way of the American consortium's advances in Iraq until they paid him his 5% in cash. At this point, no one knew for certain if commercial quantities of oil existed in Iraq. Only in 1925 was a joint geological expedition mounted; the geologists' optimistic report made Teagle anxious to begin drilling. One of the sites, Bab Gurgur, near Kirkuk in the Kurdish region, yielded a bonanza in 1927, and in 1928 Teagle signed a contract that gave

RDSG, APOC, CFP, and the Near East Development Company (newly created to hold the Americans' interests) each 23.75% of the oil. Gulbenkian received his 5% in crude, but with an agreement that he could sell it to the French at market prices, granting him his beloved cash. The final question in the "Red Line Agreement" concerned the "self-denying" clause that would constrain the new partners to act jointly.

Part 2, Chapter 10 Analysis

Chapter 10, "Opening the Door on the Middle East: The Turkish Petroleum Company," provides a few more details on pre-war and wartime oil machinations in the Middle East, as perspective for the negotiation of the "Red Line Agreement" that will prove crucial through much of the rest of this volume. It takes its name from the outline Gulbenkian claimed to have traced around the boundaries of the defunct Ottoman Empire, delimiting the zone in which the signatories would agree to cooperate rather than compete. In this chapter, Jersey also drops its 50-year reticence to enter overseas oil production. The election of a pro-business U.S. president appeared to bode well for the oil industry. His Secretary of Commerce, future president Herbert Hoover, had petroleum experience and favored overseas alliances as a hedge against the kind of shortages that had inconvenienced Americans during the war - particularly because geologists foretold the end of the country's days as an oil producer - as they faced the inevitability of joining Britain and France as net importers of the strategic commodity. Yergin also begins to sketch the effects of the Treaty of Versailles on the world. He will discuss this later in greater detail, describing specifically the treaty's role in fueling the rise of Nazi Germany, in creating conditions that later spawned repeated wars in the Middle East - crippling Arab oil embargoes - and in helping inspire the formation of OPEC, the bane of the West for decades. At this stage, Yergin is content with depicting Britain and France's advancement of their own imperialistic interests without regard to native concerns. America appears to be a strategic commercial and political asset in the region, but nothing more. World War II will shake these views and postwar nationalism will destroy them, and through it all, oil will play a central role. Transitional chapter 10 provides valuable insights into the process.

Part 2, Chapter 11

Part 2, Chapter 11 Summary

In 1919, Captain Dwight D. Eisenhower volunteered to lead a cross-country motor caravan to demonstrate the value of motor transportation and to dramatize the need for better highways. The two-month trip allowed time for contemplation for the future president who would champion the interstate highway system. The automobile was transforming American society at an astonishing rate; garages, filling stations, eateries, tourist sites, and campgrounds sprouted, while traffic lights, road signs, parking ordinances, and congestion grew. By 1929, 78% of the world's cars sped along American roads; oil had taken over 25% of total U.S. energy consumption, with gasoline eclipsing kerosene as the premier product. Shell pioneered the growth of the standard filling/service station in Los Angeles, and Indiana turned it into a grand operation. Competition forced companies to develop trademarks to assure brand recognition, and these quickly became secular icons. Full service was the rule as Americans enjoyed their growing mobility. Price increases became a source of rancor, a topic discussed by politicians and investigated by the government. Senator Robert La Follette of Wisconsin chaired hearings that warned that price manipulation would soon result in a hefty cost of $1 a gallon at the pump. Instead, the price dropped sharply, but by then La Follette had found another oil-related subject to probe: the Teapot Dome scandal.

Teapot Dome in Wyoming was designated a naval oil reserve in 1921, as a hedge in converting the fleet from coal to oil. This was part of a larger debate over whether public lands should be developed by private interests or conserved and protected by the government. Harding campaigned for harmony between the two positions, but in naming Senator Albert B. Fall as his Secretary of the Interior, he clearly sided with the developers. Fall wrested the reserves away from the Navy Department and placed them under his own control. Teagle declined to lease Teapot Dome, saying the deal "smelled," but Sinclair Oil found the odor exceedingly sweet and accepted a lease that guaranteed the U.S. government as a customer. Edward Doheny, head of Pan American, accepted a lease on Elk Hill, an even more bountiful reserve in California. The contracts were signed in 1922 amid swirling rumors. La Follette launched an inquiry, Fall resigned from the cabinet, and investigation revealed that he had suddenly become flush with money. Sinclair fled to France to avoid reporters as Doheny testified that he had provided Fall $100,000 as a loan to an old friend. The Administration was deeply mired in scandal when Harding died suddenly and was succeeded by Calvin Coolidge. Intent on winning the White House in his own right in 1924, "Silent Cal" fired Harding's underlings, neutralized the issue, and won the election handily. The Teapot Dome eventually touched Standard Oil when it was disclosed that Robert Stewart, chairman of Indiana, had taken part in a kickback arrangement involving Victory Bonds. John D. Rockefeller, Jr., Indiana's largest stockholder, demanded that Stewart resign. When Stewart refused, "Junior" launched a successful proxy fight to remove him. Junior acted in the name of decency and high standards - and to protect his family name. Teapot Dome, however, succeeded in bringing nefarious "oil money" back into the public eye.

The years 1917-20 were disappointing for new oil discoveries. With crude in short supply, many refineries worked at half-capacity, and Teagle worried about a "chronic malady" in the industry. War had spawned technologies that helped explorers "see" promising oil structures beneath the surface: the torsion balance, the magnetometer, and the seismograph. These were applied to America oil in 1923-24. Aerial surveillance and micropaleontology added additional clues, while further advances allowed for deeper drilling. Still, luck remained pivotal in the oil industry, and in 1921, Shell got lucky on Signal Hill in Long Beach, CA. By 1923, discoveries around Los Angeles restored California's primacy in the U.S, but memories of the swift depletion of previous fields remained fresh, fueling concerns that shortages could lie ahead.

Henry Doherty dropped out of school but became the director of over 150 energy utilities. He insisted that the "rule of capture" be abandoned, due to the wanton harm it wreaked on oil fields, exhausting underground pressure and leaving much oil unrecoverable. His solution was to "unitize" them: to tap them as a single unit and apportion the output among owners. He insisted that the federal government take the lead in (or at least sanction and enforce) this vital conservation project. For most of the 1920s, his idea was abused. Barred from industry meetings, he wrote endless letters before one to Coolidge finally found receptive ears. It argued that an oil deficiency was an invitation to others to declare war on the U.S., and in response, the frugal president created the Federal Oil Conservation Board in 1925. Its research confirmed Doherty's thesis, which the American Petroleum Institute opposed, declaring that waste in the industry was "negligible." Doherty found better-informed colleagues shifting to his side.

Past predictions of impending shortage had all been followed by record production, and in 1926, the Greater Seminole field in Oklahoma was tapped, followed by massive discoveries in West Texas and New Mexico. Breakneck competition ensued, wanton and wasteful. "Thermal cracking" allowed more gasoline to be extracted from every barrel of crude oil, and soon America was awash in oil, far surpassing the growing rate of consumption. Nevertheless, oil men felt obliged to maximize production, which yielded devastating environmental and economic results. Oversupply disrupted the market and collapsed prices. Doherty's remedy began to make sense, and the question became: Who can control production? Teagle favored voluntary control, while rival Farish wanted the government to step in, arguing, "The industry is powerless to help itself." The independents, adamantly opposed to government regulation, formed the Independent Petroleum Association of America, which campaigned for increased tariffs on foreign oil. This placed them at odds with the American Automobile Association, who resisted any sort of increase gas costs. The last great oil glut had inspired Standard to consolidate, integrate, and regulate, but this only led them into court and dissolution. By the 1920s, Standard's spin-offs had become fierce competitors in the retail market, invading one another's turf and engaging in bitter price wars. In 1927, the Federal Trade Commission (FTC) declared that supply and demand set oil prices rather than Standard Oil's spin-offs. In aggregate, they controlled 45% of the output of refined products, down from 80% two decades earlier. Both Socony and Shell undertook a wave of acquisitions and mergers, motivated by the same need to control the chaos that had inspired Rockefeller's efforts in the previous century. Physically worn out by his fruitless campaign for unitization, Doherty bitterly warned one last time that a long period of

troubles lay ahead for the industry, and that they would soon wish they had sought Federal involvement. He was ignored again, and soon thereafter, the Great Depression plunged the economy - and oil - into ruin.

Part 2, Chapter 11 Analysis

Chapter 11, "From Shortage to Surplus: The Age of Gasoline," begins with a lighthearted survey of how the gasoline-powered automobile transformed American society in the years following World War I, before turning to the political scandal of the Teapot Dome. American politicians were still abusing retired John D. Rockefeller and dismembered Standard Oil when a truly corrupt bureaucrat was caught with his hand in the proverbial till. A greedy senator had gained jurisdiction over the strategic oil reserves that Congress had set aside to fuel the U.S. Navy in the event of war. Senate hearings brought to light bribery, perjury, and various shady tricks, and the press followed the story with gusto equal to the future Watergate and Lewinsky inquests. Notably, Jersey Standard refused to participate in the questionable business, but nevertheless found itself dragged into the scandal anyway. When Rockefeller's only son and namesake, troubled by this tarnish on the industry's image, spoke out in condemnation, he received only accusations associated with his father's past in response. Junior knew well his father's faults but was intent on keeping the family name out of this foul business. Chapter 11 also focuses on another principled crusader, Henry Doherty, who denounced the reigning "rule of capture." In its place, he proposed "unitization," whereby each oil field would be systematically developed as a single operation and the resources would be apportioned among the owners of the real estate lying above it. He was ignored - and mocked - but persevered until his health gave out on the eve of the Great Depression. He called for the Federal Government to coordinate the process, feeling his colleagues were too greedy to do it themselves. In this debate of conservation versus exploitation, Yergin introduces a theme that will be picked up at the end of the volume, as environmentalism grows into a global movement in the late 20th century. We also see here, as well as in the Teapot Dome investigations, that the tension between the oil industry and the government is fluid: slackening in times of war, retightening whenever politicians see an opportunity to capitalize. This phenomenon also plays out in other countries, beginning with Mexico.

Part 2, Chapter 12

Part 2, Chapter 12 Summary

Outside the U.S., oil exploration in the Western Hemisphere centered on Mexico. Two companies predominated: Doheny's Pan American Petroleum and Sir Weetman Pearson's Mexican Eagle. In 1900, Doheny began scouting oil territories for the Mexican State Railways. Meanwhile, Pearson was invited to Mexico for a series of large-scale engineering projects, where he ingratiated himself to the calculating anti-American dictator, Porfirio Díaz. Three months after the Spindletop discovery, Pearson launched his Mexican venture, hiring Captain Lucas to assist. In1909, they struck oil on the "Golden Lane" near Tampico, quickly making Mexico a major oil power. In 1911, Díaz was violently overthrown and Gulbenkian bought Mexican Eagle. Article 27 of the Mexican Constitution of 1917 declared that all subsurface resources belonged to the nation. Doheny led lobbying in Washington for military intervention to protect vital American-owned oil reserves in Mexico. American banks opposed him, however, hoping to see the country make good on its debts. The two countries averted war, but Mexico ceased to be a world oil power.

RDSG geologists put Venezuela atop the list of potential oil finds, made purposefully business friendly by its cruel, corrupt, and avaricious dictator, Juan Vicente Gómez. Shell began minor production near Lake Maracaibo in 1914, and was joined in 1919 by Jersey. Jersey's concession - 4,200 underwater acres - seemed useless as it was inaccessible, disease-ridden, and vulnerable to hostile Indian tribes. Gómez sought American advice in writing a Petroleum Law that would help attract foreign capital. By 1922, Shell was close to leaving South America, when La Rosa field blew out and promised to become a world-class producer. Hundreds of groups, mostly American, descended on Venezuela in a frenzy. Gómez played them off each other and made a fortune on kickbacks and speculation. By 1929, Venezuela was second only to the U.S. in production, and oil accounted for half of the government's revenues. For fear of a future without Gómez, Standard and Shell built refineries on the secure offshore islands of Aruba and Curaçao. In 1928, Jersey's new underwater drilling technology turned Lake Maracaibo into a major field.

The collision of politics and petroleum was even more dramatic in Soviet Russia. Fleeing émigrés sold properties at "bargain basement" prices and found Gulbenkian a willing buyer. The Nobels fled to Paris during the revolution and offered Deterding their entire Russian operation, but his request for a guarantee of political support from the British Foreign Office quashed the deal. Teagle saw that Russia could most cheaply supply Mediterranean markets and began negotiations just as the Bolsheviks recaptured Baku and nationalized the fields. Nevertheless, he confidently signed a contract in mid-1920, thus beginning a duel with the skilled and resourceful Commissar for Foreign Trade, Leonid Krasin. As a former capitalist, Krasin understood Teagle's mind-set, and arrived in London bolstered by Lenin's New Economic Policy, which

allowed a return to private enterprise and broadened commitments to foreign trade and the selling of concessions. A Bolshevik newspaper spoke of oil as "liquid gold."

In 1922, Jersey, RDSG, and the Nobels led a dozen companies in forming "Front Uni" as a unified bloc to seek compensation for nationalized property. Realizing that the members mistrusted one another as much as they did the Soviets, Krasin played them off each other masterfully. Confiscated Russian oil flooded world markets, and Jersey and Shell considered cooperating in a joint purchase. Over Teagle's philosophical objections, an agreement appeared imminent in 1926, setting aside 5% of the profits to compensate former owners. The deal fell apart in 1927, and Deterding beseeched Junior Rockefeller to block any attempts to help the Soviet "anti-Christs" gain hard cash. Standard did not listen, but instead built a kerosene plant at Batum and exported supplies to Asia. Deterding launched a brutal price war in India to punish Socony for its treachery, and (falsely) accused Jersey of buying "communist" oil. The majors wearied of the dispute, distracted simultaneously by the gusher at Baba Gurgur in Iraq.

Part 2, Chapter 12 Analysis

Chapter 12, "The Fight for New Production," details the beginnings of the oil industry in Mexico and Venezuela, as well as the resurrection of the once-great Russian operations, which had been devastated by world war, revolution, and civil war. The equation "oil equals power," proven on the battlefield in World War I, was tested in the marketplace dynamics of supply and demand. In Mexico, Yergin introduces us to a major theme of concern: whoever is in power at any given moment determines whether foreign investors will succeed or fail. The Mexican dictator, lamenting that his poor country was "so far from God and so close to the United States," so highly desired to deal with a British entrepreneur who respected his people's sensibilities, that he suspended the principle that for ages had governed the country's mining operations. When the Spaniards were thrown out, the subsoil was claimed by the Mexican nation, and Díaz sold off the inheritance to enrich his treasury. When he was overthrown, the revolutionary government restored the age-old principle, leaving foreign investors unsure of their status. Many moved to Venezuela, where another avaricious dictator, Juan Vicente Gómez, was determined to make the business climate conducive. Companies had learned to hedge their bets, however, building refineries on offshore Dutch islands against a future without Gómez. Yergin will return to both countries in later decades. First, he focuses on Russia, where the Bolshevik leader, Vladimir Lenin, was forced by economic chaos to make temporary peace with capitalism. He sent the only capable ex-capitalist in his government to London to negotiate the re-entry of foreign oil capital to Baku. Westerners had to decide whether to profit from confiscated property or refuse to dealing with an aggressor. The first *front uni* was unsuccessful, but a second attempt - OPEC - will help countries fully realize the value of oil, and reach compromises with technicians to exploit it. Yergin soon will explore the corollary that the flowing wealth will eventually tip the balance of power ("oil equals power") in their favor and they will seek to renegotiate agreements that are more favorable.

Part 2, Chapter 13

Part 2, Chapter 13 Summary

An optimistic wildcat promoter known as "Dad" Joiner had a knack for spinning tales of wealth in love letters to recent widows. Rival promoters used mass mailings to bilk victims, but Dad actually intended to strike oil. In 1930, headlines announced "Joiner's Wildcat a Gusher," and the field became known as the Black Giant - the richest yet discovered in America. An orgy of drilling followed, and oversupply drove Texas prices down sharply. Having oversold his "interests," Joiner found himself in a legally vulnerable position, but H. L. Hunt bought him out for $1.3 million and settled his debts, thereby becoming the largest independent in East Texas.

The glut of oil threatened the industry with ruin. As majors and independents feuded, the Texas Railroad Commission (TRC) stepped in to restore order. Created in 1891 by Governor Hogg, the TRC had power to regulate "physical waste" in oil production, but not to control "economic waste." The legislature explicitly forbade market proration, and when the TRC set out to do precisely that, Federal courts blocked it. In 1931, Oklahoma's governor called out the militia to seize the major oil fields and keep them out of production until the price of crude returned to "a dollar a barrel." Texas producers continued pumping until Governor Stirling declared a "state of insurrection" and sent in guardsmen and Texas Rangers to stop them. These enforced a series of proration orders issued by the TRC, and prices rose back up to $0.98 a barrel. Sterling called a special session of the legislature, which passed a bill allowing the TRC to set quotas twice as high as engineers advised. Independents produced "hot oil" - oil illegally produced above quotas - to smuggle across state borders. Some producers began urging the Federal government to intervene, just as the New Deal was gearing up.

FDR appointed Harold Ickes to head the Department of the Interior, in addition to the newly created positions of Oil Administrator and Public Works Administrator. Deeply suspicious of the oil industry, Ickes was determined to prevent another Teapot Dome scandal. When the Texas governor asked for help, Ickes stepped into the "thorny" situation. His first objective was to restore purchasing power to the economy by controlling production. Avoiding the more radical solution of Federal price-fixing, FDR signed an executive order banning "hot oil," and Ickes declared state production quotas, effectively ending the "rule of capture." Oil men were relieved. In July 1935, the Supreme Court stripped Ickes of the power to set mandatory quotas, but by then a framework for regulation had been established, as had a consensus to observe informal, voluntary quotas. Most states complied, most of the time. In 1935 the establishment of the Interstate Oil Compact formalized the role of the states. After feuds between Texas and Oklahoma, the Compact evolved not into a cartel, but rather a forum for the exchange of information plans, unifying legislation, and coordinating prorationing and conservation. The final measure needed to endorse prorationing concerned the limitation of oil imports. The companies agreed in 1931 to a voluntary reduction but, predictably, this failed. In 1932, Congress passed a tariff steep enough to

provide a barrier against foreign oil. This hit Venezuela hard, and oil companies operating there quickly redirected their exports to Europe. By 1937 complete cooperation and coordination had been achieved. Though it had followed a haphazard, incremental path, American oil was now on a new course that would, years later, provide a compelling model for other countries. The assumptions underlying the new system were that demand would not follow price movements, but rather remain constant, and that each state had a "natural" share of the market. This theory would be tested in the late 1930s when a new producer, Illinois, who was not part of the Interstate Oil Compact, began carving out its own share. Despite recriminations and threats, the system survived. Prices stabilized as the flood was stayed.

Part 2, Chapter 13 Analysis

Chapter 13, "The Flood," opens with stories about entrepreneurs using direct mail to rake in money from unsuspecting victims. One such character, slightly more conscionable than the average, flirted with widows of men whose obituaries he scouted in the newspapers. What Dad Joiner actually sought was oil, so his program was less a scam than an overselling of possibilities. He refused to listen to geologists who scoffed about oil in East Texas, and instead trusted a patent medicine salesman who encouraged his quest. In the Pennsylvania tradition, Joiner persisted until he opened America's latest plumb. Greed again brought oil prices to the point of ruin, and this time, state governments acted, with limited success, before swallowing their pride and imploring Federal deliverance. FDR's New Deal created structures that allowed informal, voluntary cooperation to succeed. What a radically different departure from the days of the first President Roosevelt, when the break-up of the Old House was the order of the day. Though both were disciples of Tarbell and TR, FDR and his front man in the oil campaign, Harold Ickes, responded to the new crisis non-ideologically. Yergin states explicitly that the New Deal solution will later prove a compelling model for other countries. He will show that though the first of the Administration's working assumptions - that demand is a constant, regardless of price fluctuations - was valid in the Great Depression, it will break down in the face of Arab oil embargoes in 1967 and 1973, and later, during the Iranian Crisis of 1979-81. Americans will embrace conservation when prices soar. The second assumption, that each of the oil-producing U.S. states had a "natural" share of the market, will be tested internationally by OPEC.

Part 2, Chapter 14

Part 2, Chapter 14 Summary

In August 1928, Deterding rented Achnacarry Castle, a hunting estate in western Scotland, to host a secretive meeting of colleagues to discuss the troubled state of the oil industry. The group had been regular hunting companions for years, but this time were joined by Heinrich Riedemann of Jersey Standard-Germany, Cadman of APOC, William Mellon of Gulf, and Robert Stewart of Indiana - and a large clerical staff. The press was suspicious, but remained at a distance. The oil men wanted a formal treaty to end the price wars in Europe and Asia. The "unbridled competition" that Rockefeller and Flagler had fought at the dawn of the oil age was again proving to be a looming threat, but this time no company had the power to "sweat" others into submission. Behind the scenes, the British government pushed for cooperation. After two weeks of discussion, the group formed a document entitled the "Pool Association," also known as the Achacarry Agreement or its most common name, "As-Is." The document, which identified overproduction, waste, and duplication of facilities as the enemies, used market shares in 1928 as a basis for assigning percentage shares of the market to each company. These would remain constant as demand grew. They agreed to share existing facilities, restrain new building, supply oil from the nearest geographic source, and share profits at an established rate. A few months later, they agreed to limit production. Notably missing from Achancarry was the Soviet Union. The U.S.S.R. was Britain's fourth-largest importer, however, and Deterding and Teagle formalized the Soviets' share of the British market, in hopes of roping them into "As-Is." The domestic U.S. market was explicitly excluded in order to avoid violating American antitrust laws. Still, there were enough "fringe" players outside the new system to make an impact. Seventeen U.S. companies banded together as the Export Petroleum Association to manage their activities, and failed to reach agreement with the "European Group." In the wake of the East Texas boom, Achancarry dissolved and oil companies began attacking each other's markets. Nevertheless, the Big Three (Jersey, Shell, and APOC) tried to work out less grandiose agreements in 1930, 1932, and 1934. The Soviets never hesitated to cut prices to gain hard currency. U.S. consumers were suspicious of any camaraderie among the oil giants. The "brotherhood of oil" grew desperate and frustrated, and every marketing or merger maneuver served only to deepen rivalries. A loose Draft Memorandum of Principles in 1934 came closest to succeeding, for several reasons: 1) Ickes had gotten production under control, 2) the Soviets constricted oil exports to quicken the pace of their own industrialization, and 3) the large companies agreed to control Romanian output. Early in 1938, Jersey gave verbal notice of termination of the "As-Is" agreements, and the advent of war in September 1939 ended any further efforts. Across Europe, powerful political forces pressured oil companies over import quotas, set prices, taxes, and molding trade agreements to political links. National companies and cartels gained preference over non-national subsidiaries. Ramping up to war, Germany regulated and manipulated industry heavily. Business operations in Europe were 90% politics-based and 10% oil-based.

In Persia, the Shah was infuriated to see his export earnings drop and blamed APOC. In 1932, he unilaterally cancelled the 1901 concession, shocking observers and threatening the company's existence. Reza Khan had parlayed his command of the Cossack Brigade into unchallenged leadership of the country, and in 1925, crowned himself Reza Shah Pahlavi, founder of a new dynasty. He set upon an erratic and chaotic effort to modernize the country, and in the process alienated civil servants and subjects alike. He beat down the powerful mullahs into sullen submission, and then turned to reducing APOC's independence, restrained only by dependence on its royalty payments. In 1932, Britain could no longer remain passive. After an appeal to the League of Nations, which preferred that the parties resolve the matter themselves, a new agreement was forged. This agreement reduced the concession area by 75%; assigned a fixed royalty; and, to insulate Persia against fluctuating prices, guaranteed minimal annual payments of £750,000, irrespective of other developments. The duration of the concession was to last until 1993.

The greatest nationalistic challenge came in Mexico. Backed by the U.S. and British governments, the oil companies fought hard against implementation of Article 27, arguing that pre-revolutionary property rights could not be seized retroactively by the state. Mexico countered that the concessions had been temporal fiats, which could not abrogate national ownership. Still, the government needed foreign investors and technicians, and devised a face-saving but acrimonious *modus vivendi*. Thus, stability and calm lasted until the mid-1930s. At that point, Venezuelan oil threatened to undermine Shell-operated Mexican Oil and the remaining American companies. Mexican production dropped 80%, and nationalist fervor resurged. In 1934, General Cárdenas, a radical leftist, was elected president, placing the oil companies in a new and uncomfortable situation. Oil workers went on strike over wages in 1937, and Cárdenas set up a commission to review the companies' books and activities. The companies protested the accuracy of the report, doubting that Mexico had the wherewithal to take over their operations. In 1938, Cárdenas signed an expropriation order. The British government's response, an embargo, was stronger than Washington's because Mexican Eagle was largely British-owned. Cárdenas shifted the bulk of his exports to Nazi Germany, Fascist Italy, and Japan. Fearing further strengthening of the Axis Powers' foothold, FDR backed down. England's reaction was also strategic; it feared U.S. isolationism could foreclose exports in the event of a conflict. Russian exports had dropped and could be expected to end if war broke out; Dutch East Indian, Romanian, and Iraqi resources were uncertain; and Reza Shah had nearly expropriated APOC. Allowing a Mexican-style revolution to spread to Venezuela would leave Britain defenseless. Washington did not want to see U-boats refueling in Mexican ports, or German geologists and technicians wandering near the common border or closing in on the Panama Canal. Mexico had to be drawn into a hemispheric defense system. On the eve of Pearl Harbor, a joint U.S.-Mexican commission agreed on $30 million worth of compensation. The companies were outraged and felt betrayed, but the Administration held firm on a take-it-or-leave-it stand, and most took it. London remained adamant, turning its attention to wooing Iran and Venezuela, and did not settle until 1947. Mexican Eagle/Shell received $130 million in compensation. The national oil company, Petróleos Mexicanos (Pemex), emerged as the first state-owned oil company in the world, setting "a model for the future."

Part 2, Chapter 14 Analysis

Chapter 14, "'Friends' ? and Enemies," discusses efforts by the leaders of world oil to establish a cartel strong enough to stem the industry's decline. A comprehensive "As-Is" plan, hammered out at Achnacarry Castle in Scotland, fell apart in the face of a challenge by independents. Scaled-down projects failed because the companies were too self-centered to act towards common goals. Soviet Russia was the most self-serving - and massive - obstacle until it shut down exports to divert oil resources to building up its industry. Iran, seized by Reza Shah Pahlavi, threatened to oust APOC, and when it relented from outright seizure, sweetened considerably the 1901 deal. All of these factors turned the world's attention to Mexico. Contention arose over provisions in the 1917 Constitution that allowed nationalization of foreign oil companies when a leftist xenophobe was elected president. Differing global views divided Washington and London. This same situation will occur in the Middle East and Japan in future chapters. The advent of the oil industry in the Arabian Peninsula is Yergin's last brushstroke in his picture of the interwar period. It is here that he turns next.

Part 2, Chapter 15

Part 2, Chapter 15 Summary

Frank Holmes, a charming, blustering New Zealander who had worked globally as an engineer, found himself in the British Army's quartermaster corps during World War I. He heard stories of oil seepages while on two postings around the Persian Gulf, and oil became his obsession; after the war, he helped set up the Eastern and General Syndicate to develop business opportunities in the Middle East. British officials in Aden saw in the great promoter a "capacity for mischief," but to coastal Arabs he was "Abu Naft" - the "Father of Oil." Holmes held concessions in al-Hasa and in the Neutral Zone between Saudi Arabia and Kuwait, and in 1925, added a third in Bahrain. APOC did not want anyone operating within its "sphere of influence," even though it was convinced that no oil would be found in Arabia. In 1926, the financially strapped Syndicate was ready to sell out to APOC, but the company refused. Holmes tried to attract capital in London, with little success. Frustrated, he looked to "the really big New York Sheikhs" and was turned down by Standard, but found a buyer in Gulf Oil. In 1928, a problem arose with the Bahrain concession when Gulf joined the TPC, a signatory of the Red Line Agreement. Forbidden to develop Bahrain unilaterally, Gulf sold its option to Socal, which in turn set up a Canadian subsidiary, Bahrain Petroleum Company, to hold the concession. Though Kuwait lay outside the Red Line, the British government was hostile to any American presence. Before the war, local sheikhs had agreed to include "British nationality clauses" in every concession they granted. Locked out, Socal and Gulf turned to the U.S. government for diplomatic backing. In 1929, London reconsidered its position and struck a deal with Socal that preserved Britain's exclusive access to the Amir. Drilling began in 1931, and by May, oil was flowing in modest quantities.

In the early 1930s, the British began hearing about an astute leader in Saudi Arabia, Ibn Saud. He was a massive, well-bred man, badly in need of money but skeptical both of finding oil in his country and the effects of foreign capital and technology on the traditional values in his society. He was amenable, however, to selling a concession for exploration. His dynasty dated back to the early 1700s, established by Muhammad bin Saud in the Nejd, the plateau in central Arabia. He allied with a puritanical spiritual leader, Muhammad bin Abdul Wahab, and within fifty years, they conquered much of the peninsula. This alarmed the Ottoman Turks, who defeated them in 1818. Four generations later, Abdul Rahman set two goals: to reestablish his dynasty as master of Arabia and to make universal the Wahabi branch of Sunni Islam. Mubarak, the Amir of Kuwait, took Abdul Rahman's son, Ibn Saud, under his wing, fashioning him as an expert in *realpolitik* and skilled in warfare and desert survival. Ibn Saud's first test came when Mubarak dispatched him to retake Riyadh from the Turkish-backed Rashids; he succeeded on his second attempt and was proclaimed Governor of Nejd and Imam of the Wahabis in 1902. As leader of the *Ikhwan* (Brotherhood) of intensely religious warriors, Ibn Saud subdued central Arabia, and during 1913-14 brought Shiite eastern Arabia under his control. Immediately after World War I, Ibn Saud also took control of

northwest Arabia, causing the British High Commissioner to draw boundaries between his territories and those of Kuwait and Iraq in 1922. The agreement acknowledged jointly administered "neutral zones" where the Bedouin were free to roam. In 1925, with the capture of the Hejaz, the strip along the Red Sea coast that included the Medina and Mecca and the port of Jidda, Ibn Saud became master of Arabia and keeper of the holy places of Islam. He secured his hold on power in 1930 by purging the *Ikhwan*, who had rebelled against what he considered Ibn Saud's heresy in cozying up to Western culture. In 1932, Ibn Saud commemorated the consolidation by renaming his kingdom Saudi Arabia. His only problem was money - and it was dire. As a solution, he sent his son Faisal to Europe in search for aid or investments, but Faisal returned in failure.

In 1930, however, a British renegade, Harry St. John Bridger ("Jack") Philby, suggested oil revenue as the answer to this problem. Philby had served in the Indian civil service before World War I and had been stationed in Baghdad and Basra during the war. He mastered Arabic and took an interest in genealogy. Ibn Saud fascinated him, and the two met for the first time in 1917. By 1925, Philby had worn out his welcome in India and received a transfer to Transjordan. He returned to Saudi Arabia to establish a trading company in Jidda and became Ibn Saud's informal adviser. In 1930, Philby converted to Islam and began arduous explorations of the barren Rub al-Khali in southeast Arabia. He convinced Ibn Saud that great mineral wealth lay beneath the desert, and put him in touch with Charles Crane, an American tycoon working in Yemen. Crane visited Jidda in 1931 and brought in an American mining engineer, Karl Twitchell, who saw prospects in al-Hasa. Twitchell returned to the U.S. to seek financial backing from an already interested Socal, and returned to Saudi Arabia in 1933 with a Socal lawyer to begin negotiations with the Minister of finance, Abdullah Suleiman.

Suleiman was the most important man in the kingdom outside the royal family. Trained in trading and business in Bombay as a young man, he took on an enormous workload for Ibn Saud. Secretive and peremptory, he knew his duty was to extract a great deal of money quickly. Al-Hasa's oil potential was a matter that could wait. Competition would improve the financial outcome, and Philby alerted the Iraq Petroleum Company (IPC: the former TPC) to Socal's intentions. With ample oil, IPC was interested only in blocking others from obtaining al-Hasa. Socal was unwilling to risk more than 20% of what the king demanded for an unproved resource, but in 1933, the two signed a 60-year concession that provided for a £35,000 loan up front and a promise of a £100,000 loan upon actual discovery of oil. Ibn Saud had bailed himself out financially, and Socal had the incentive to move expeditiously. The British were "thunderstruck" that the Americans had gained a foothold in the Persian Gulf; Washington, however, was slow to capitalize on it. IPC/APOC soon realized they had blundered, and in 1936 won a concession in the Hejaz for more than Socal had paid three years earlier. They, however, never found oil.

Seeing progress in Bahrain but non in his own country tormented Sheikh Ahmad of Kuwait. He took up the dangerous task of playing Britain, Ibn Saud, and Iraqi off each other. Occupying a strategic location near the head of the Persian Gulf along the trade and pilgrimage route, Kuwait had long enjoyed a commercial role. Since 1756, the al-Sabah family had ruled the country, but in the late 19th century, Britain assumed

responsibility for its foreign affairs, in order to protect it from the Germans and Ottomans. Soon APOC and Gulf began courting Ahmad. At the time, Kuwait was suffering severe economic hardship, and Ahmad desired American protection against its larger, hostile regional rivals. Britain again reluctantly waved the Nationality Clause under pressure by Andrew Mellon, the U.S. Ambassador to England and scion of the Gulf Oil family. To avoid being used as pawns against each other, Gulf and APOC agreed to set up a 50/50 joint venture. The result, the Kuwait Oil Company, received a 75-year concession for £35,700 in 1934. In Saudi Arabia, Socal set up the California-Arabian Standard Oil Company (Casoc) to work its concession. Drilling began in the summer of 1934, but nothing commercial was discovered, and geologists fanned out across the desert to hunt for other sites with the help of seismography and aerial surveillance. Socal and Texaco agreed to pool their assets "East of Suez," drawing a "Blue Line" on the map. The company became known as the California-Texas Company (Caltex).

In October 1940, the Italians bombed Dhahran. On orders from the Allied governments, the Kuwaiti wells were plugged to keep them out of German hands, and a skeleton crew was left in Saudi Arabia. The rest of the enterprise remained in suspended animation. Philby worked during the war to become an intermediary between Ibn Saud and Chaim Weizmann, leader of the Zionist movement for the partition of Palestine. He was arrested for anti-British activities in India, and in prison took to writing. After the war, he reclaimed his post as the King's advisor and profited from the oil boom. Though expelled by Ibn Saud's son, he was eventually readmitted. He died in Lebanon in 1961.

Part 2, Chapter 15 Analysis

Chapter 15, "The Arabian Concessions: The World That Frank Holmes Made," chronicles the advent of the oil industry in what was destined to be its most crucial center: Saudi Arabia and Kuwait. Much of the chapter centers on the growing Anglo-American political competition and the oil companies' varying needs. Those with large distribution networks but limited crude oil needed concessions. Others, oil-rich, desired only to block others from attaining parity or superiority. Yergin sketches the history of the houses of Saud and al-Sabah, as well as the financial straits that opened their minds and territories to Westernization. The text is becoming increasingly difficult to follow as mergers, acquisitions, and holding companies - referred to increasingly by their abbreviated names - abound. World War II looms in the closing pages, setting the reader up for Part 3: "War and Strategy."

Part 3, Chapter 16

Part 3, Chapter 16 Summary

In 1923, private citizen FDR wrote an article entitled "Shall We Trust Japan?" He observed that before World War I, an American-Japanese war had been considered inevitable and would have been a military deadlock, determined by economic factors. Nevertheless, FDR called on Americans to trust Japan and continue trades with the island-nation. The Pacific afforded ample room for both. FDR's analysis held true for the 1920s, but as the military began dominating the Japanese government, it sought to exclude the West from its "Greater East Asia Co-Prosperity Sphere." The minor "Manchurian Affair" in September 1931 gave the Japan a pretext for invading China, which offered a vast source of raw materials and living space. The Great Depression caused intense hardship in resource-poor Japan. Pro-Western Osachi Hamaguchi won a smashing electoral victory in 1930, but his assassination by an ultranationalist brought to an end any spirit of cooperation that had existed. Japan organized a puppet state, Manchukuo, in Manchuria and withdrew from the League of Nations. Secret societies abounded, rejecting liberalism, capitalism, and democracy as decadent; devotees wanted only to die for the Emperor. They studied the economic causes for German's defeat in World War I and saw that petroleum was their own greatest liability. It was crucial to military uses and shipping, but currently amounted for less than 7% of the nation's energy mix. The U.S. provided 80% of Japan's oil imports, while another 10% came from the Dutch East Indies. Soon after the Manchurian Affair, the military advocated a Petroleum Industry Law to give the government power to control imports, set market share quotas, fix prices, and make compulsory purchases. Foreign companies were compelled to maintain six months of inventory beyond normal commercial working levels. London and Washington discussed an embargo to frighten the Japanese, but Secretary of State Cordell Hull opposed this. In 1937, China stood up against further concessions to Japan by bombing its naval based at Shanghai, and in response, Tokyo declared to war. The Diet (parliament) passed a seven-year plan to increase production of synthetic fuels. Americans viewed China as a victim of aggression, but FDR, now president, was constrained by isolationist laws. He broached the idea of "quarantining" Japan, but news coverage of atrocities moved public opinion towards banning the export of all war materiel. FDR feared undermining Japanese moderates, however, because Nazi Germany loomed as a more immediate threat. He asked airplane and aircraft engine manufacturers to end shipments to Japan, but drew the line there.

As Tokyo pressured East Indies oil producers for larger supplies, Stanvac executives developed a contingency plan to destroy their refinery and oil wells. By 1940, evacuation plans were in place and Stanvac vowed to cooperate with any potential U.S. embargo, despite doubts that the U.S. would defend its interests against the Japanese. Washington moved the U.S. fleet to Pearl Harbor and FDR signed the National Defense Act, which gave him power to control exports. In Tokyo, antiwar leaders were losing ground. General Hideki Tojo, the mastermind of the Manchurian Affair, took over as War

Minister. Efforts to increase imports of aviation-grade gasoline set off alarm bells in Washington, and the State Department agreed to a ban on aviation gasoline above 87 octanes. Japanese fighter aircraft functioned below that level, however, and Japan bought 550% more gasoline from them in the next five months than before the proclamation. Secretary of State Hull began secret nighttime discussions with the new Japanese ambassador, Kichisaburo Nomura, who knew what Toyko was telling Normua, now that the Allies' had cracked Japan's top-secret diplomatic code. However, no one knew that the Japanese fleet had plans for a surprise attack on Pearl Harbor. Admiral Isoruku Yamamoto had begun work on this daring plan in the spring of 1940. He prided himself on understanding Americans, scoffed at the mystical ultranationalists who knew nothing of the real costs and sacrifices of war, and wanted to reach an accommodation. He also believed, however, that the Japanese were a chosen people; if they were to fight the U.S., he would do his best to strike the "decisive blow" that would incapacitate and demoralize them, similar to the 1905 assault on Port Arthur. Washington scoffed at rumors about "Operation Hawaii."

Aiming to "scare the daylights out of everyone," FDR declared an "unlimited national emergency" in May 1941. By mid-July, Washington knew that French Indochina and the Dutch East Indies were targeted for imminent occupation. If Japan made this move, FDR intended to freeze its financial assets, in an effort to restrict its ability to buy oil. Hoping to buy as much time as possible for its own build-up, the U.S. military opposed greater curbs. FDR wanted to keep the Japanese guessing day to day, without pushing them over the brink. This new American policy baffled Britain and the London-based Dutch government-in-exile, but they cooperated nonetheless. Nomura advised Tokyo to appease the West, but paranoia had worked them into a corner: they had to risk going to war with America. Prince Konoye received the Emperor's blessing to request a summit with FDR, but the State Department opposed the idea. The army, predicting that a war with the U.S. would last only three months, also asked the Emperor for permission to assume a war posture. The approach of winter demanded that Operation Hawaii commence in early December. When Tojo replaced Konoye, fatalism gripped both capitals. Tojo admitted that a protracted war with the U.S. presented great difficulties, but the only alternative was to accept status as a third-class nation. FDR washed his hands of negotiations; he had already maintained that Japan could *not* be trusted. Washington dispatched a "war warning" to Pacific commanders. On December 6, 1941, FDR dispatched a personal note to the Emperor, but it arrived the country was launching its as carrier-based fighters. Nomura arrived at the State Department after reports that bombs had fallen on the American fleet. Senior American officials expected an attack somewhere, but virtually no one had believed that Japan could strike so far from home or destroy "the strongest fortress in the world." The Americans had underestimated Japan's technical ability and their own ability to crack Japanese codes had broken down. On the other side, however, the Japanese underestimated the American national resolve. Simultaneously with Pearl Harbor, the Japanese bombed Hong Kong, Singapore, the Philippines, Wake, and Guam. They invaded Thailand and Malaya en route to Singapore and the oil fields of the East Indies. The only purpose for incapacitating the U.S. fleet was to protect the Japanese flank. Though Japanese aircraft sank or damaged most of the fleet at Pearl Harbor, they did not touch the aircraft carriers out at sea. Furthermore, they failed to send a third wave of bombers to

destroyed the repair facilities and oil tanks holding 4.5 million barrels of oil. The attack on Pearl Harbor, like that on Port Arthur, was not "thoroughgoing" enough, and failed to immobilize the surviving fleet.

Part 3, Chapter 16 Analysis

Part 3, "War and Strategy," consists of four chapters focusing on World War II. Chapter 16, "Japan's Road to War," examines the mutual misconceptions of the U.S. and Japan as tensions rose between them. A fast-industrializing nation looked southward to the oil-rich Dutch East Indies in an effort to break its overwhelming dependence on imports from the U.S. FDR, focused on Europe, sought to avoid antagonizing Japan until the military was ready for war. Oil loomed large in every consideration on both sides. Japan was convinced that oil was worth fighting for, and its militarily brilliant strike on Pearl Harbor failed primarily due to lack of thoroughness that allowed the massive oil tanks on Oahu Island to survive. The Commander-in-Chief of the U.S. Pacific Fleet, Chester Nimitz, later stated that elimination of those vulnerable targets would have prolonged the war by two years.

Part 3, Chapter 17

Part 3, Chapter 17 Summary

Top officials of I.G. Farben, a huge German chemical combine, paid a visit to Adolf Hitler in 1932, hoping to end the Nazis' press campaign against their company. Hitler spent a long time with them, speaking about his plans to motorize Germany and build new highways, while also listening to their promotion of synthetic fuels. German petroleum production was miniscule and most imports came from the Western hemisphere. When he became Chancellor in 1933, Hitler began his *Autobahn* and Volkswagen, but these projects paled in comparison to his ultimate goal of regimenting the economy to rebuild the war machine. Farben's synthetic oil could prove decisive in his planning. Germans pioneered the extraction of synthetic fuels from coal before World War I. Friedrich Bergius's "hydrogenation" beat out a rival process and Farben acquired the patent in 1926. Jersey Standard had explored alternative fuel sources since 1921, and found Farben's Leuna works experiment so impressive that it bought a permit to apply the process to crude oil. In 1929, Standard bought patent rights outside Germany, giving I.G. Farben 2% of its stock. In 1930, a joint "oil-chemical" company was formed, and Standard benefited from an influx of technical knowledge. The Leuna project foundered financially as the East Texas oil glut cut prices below the production cost of *Leunabenzin*. The Nazi regime agreed to rescue it, provided Farben agreed to develop high-quality aviation gasoline and expand production of domestic synthetic fuels to meet the needs of modern warfare.

The economic sanctions that the League of Nations imposed on Italy, as punishment for invading Ethiopia in 1935, reminded Hitler of Germany's vulnerability. Ethiopia was occupied before the power of an oil embargo could be tested, but Mussolini confided he could not have lasted a week. More directly, Hitler's orders to clear out the "wasp's nest" of Bolshevik gasoline stations in Germany backfired when the Soviets stopped delivering oil. Oil supplies and sanctions were on his mind in March 1936 when he ordered the Rhineland remilitarized. The gamble paid off, however, and set a pattern for the future. Hitler turned Farben into an industrial arm of the state, and gave it until 1940 to increase the production of synthetic fuels six-fold. By the time Germany invaded Poland in 1939, the Axis Power had 14 hydrogenation plants in full operation and six more under construction. By 1940, synthetic oil accounted for 46% of the country's oil supply, and the Bergius process produced 95% of the total aviation gasoline.

Hitler obsessed about oil. He read and talked about the history of the world's oil fields. *Blitzkrieg* had to succeed before petroleum problems could set in, and when the *Wehrmacht* overran Norway, the Low Countries, and France, it captured oil stocks well in excess of the amount of fuel expended in the invasions. As bombs rained down on Britain in late 1940, Hitler turned his sights eastward to the Soviet Union. Though personal feelings about Bolshevism, Stalin, and the Slavs contributed to the Führer's decision, Baku oil was the key motivation behind his aggression. Control of Caucasian oil and Ukrainian farmlands would make the Third Reich invulnerable. The Nazi-Soviet

Pact of 1939 brought a resumption of Russian oil shipments to Germany, but it also allowed Stalin to seize a significant part of northeastern Romania, putting Russian troops uncomfortably close to the Ploesti oil fields, which accounted for 58% of Germany's total imports. That resource had to be secured. Hitler's Directive Number 21, which ordered invasion planning of the U.S.S.R., was accompanied by an elaborate six-month charade to lull Stalin. Soviet freight trains were still rolling towards Germany carrying oil and other raw materials when the *Wehrmacht*, three million men strong, struck across a broad front. The initial advance was more rapid than earlier campaigns, but supply lines grew disastrously long. Hitler overruled his generals and set Baku and the Crimea as the first winter's goal. By the time he reconsidered and focused on Moscow, he had lost critical time, and a combination of oil shortages, winter weather, and an organized Soviet counterattack handed Germany its first defeat. Winter also stalled the Caucasian campaign. Pearl Harbor freed Stalin's mind of worries about a Japanese invasion and allowed him to transfer his crack Siberian divisions to the German front.

Early in 1942, *Operation Bleu* was developed, aimed at the Caucasus and beyond, to the oil fields of Iran and Iraq, and onward to India. Hitler agreed with economic experts who warned that Germany could not continue the war without controlling eastern oil. He was convinced that the Soviets would expend its last reserves defending the oil fields, and when this happened, victory would be his. He ordered the formation of a 15,000-man Technical Oil Brigade to rehabilitate and run the industry once it was captured. By late July, the Germans had conquered Rostov and cut the oil pipeline. In August, they captured Maikop, but found it thoroughly destroyed, depriving them of resupply. Defensible mountain passes and shortage of fuel stalled the German advance; a winter breakthrough to Grozny and Baku was repulsed. When the Soviets threatened to encircle the Germans at Stalingrad, Hitler forbade a strategic retreat on the grounds that "unless we get the Baku oil, the war is lost," but the panzers ran out of fuel and surrendered. In an ironic twist, Operation Blau failed because the Germans ran short of oil in their quest for oil.

The tide of war also turned against Germany in North Africa. The brilliant tank commander, Erwin Rommel, oversaw a battle zone from Tripoli to Egypt that was ideal for his Afrika Korps, provided they had adequate fuel supplies. Rommel scoffed at the dubious quartermaster corps, but needed the troops to drive the British across Libya toward Cairo, the Suez Canal, Palestine, Iraq, and Iran, to join forces in the Caucasus. He got no further than El Alamein on Egypt's western border. Allied control of the Mediterranean forced Rommel to rely on land supply from Tripoli, and British General Bernard Montgomery was able to capitalize on the disparity in the two forces' supply lines. Rommel realized time was running short and ordered an attack. In the weeklong Battle of Alam Halfa, the Afrika Korps ran out of fuel and stopped in its tracks, and the destruction of four fuel ships at Tobruk ended any hope of recovery. Rommel wrote to his wife, "Shortage of petrol! It's enough to make one weep."

These defeats forced Germany back to its own resources and synthetic fuels. Albert Speer was appointed to reorganize the economy. He proved remarkably adept at industrial mobilization, even under intense Allied strategic bombing. Surprisingly,

Germany's weak spot - oil - was not specifically targeted. By 1942, production doubled over 1940 levels and achieved a higher grade. Farben's hydrogenation plants became part of the "Final Solution," as able-bodied Jews, Slavs, and other prisoners were forced into facilities adjacent to the Auschwitz concentration camp. As preparations proceeded for an Allied invasion of Europe, the U.S. Strategic Air Force targeted synthetic fuel plants to halve their output and draw the *Luftwaffe* to their defense, away from the invasion beaches. In May 1944, Allied bombs hit the Leuna plant, inspiring Speer to declare that "on that day the technological war was decided." Production was nearly restored when a second attack was launched, coordinated with the bombing of Ploesti. Speer dispersed and hid oil facilities, but production plummeted. With the Allies advancing on two fronts, Hitler personally designed a huge counteroffensive in the Ardennes forest. Every drop of fuel inside Germany was diverted to support the *Blitzkrieg*, which Hitler hoped would push the Allies back and buy time to develop new, more devastating weapons. The Allies surprised the Germans by driving them back as the they approached the Allies' 2.5 million gallon fuel dump. Germany was finished, militarily and economically. The Führer, however, unwilling to give up, looked for magical deliverance and ordered a scorched earth policy. He ordered that his body be doused in gasoline and set afire so that it would not to fall into enemy hands after his suicide. There was sufficient oil left in Berlin for that task.

Part 3, Chapter 17 Analysis

Chapter 17, "Germany's Formula for War," covers both the build-up to and execution of World War II in Europe. Oil plays a crucial role. As in Asia, two things motivated the Germans: increased living space for a chosen people, and the securing of adequate supplies of raw materials that nature had not provided. No moderates restrained Hitler's war lust, and the Führer was a student of oil. He knew bitterly the price Germany paid by running out of oil, and devised a two-pronged plan to resolve the issue: 1) exploit synthetic fuels and 2) incorporate rich oil fields within the Reich. If Hitler had followed his instincts to focus on taking Ploesti and Baku, he would have had enough supplies to conquer Russia and might well have advanced into Iran and Iraq, two more potential caches. If Allied commanders had targeted synthetic fuel facilities earlier and more aggressively, the war might have been shortened, as a third wave at Pearl Harbor would certainly have changed the pace of the Pacific war. If a panzer unit in the Ardennes Forest had possessed up-to-date maps, it would have seen that it had, within its grasp, enough oil to fuel the whole army for several weeks - perhaps long enough to drive back the still-disorganized Allied forces. Chapter 17 invites readers into "what-if" situations. General Rommel, whose supply chain forced him into retreat, said it best: "Shortage of petrol! It's enough to make one weep."

Part 3, Chapter 18

Part 3, Chapter 18 Summary

Shell employees at Balikapan in Borneo reacted to Pearl Harbor by executing their well-practiced plan. As the Japanese fleet closed in, the men stopped production, sabotaged wells, set wharves ablaze, and waited anxiously for the whole tank farm to implode in a hellish conflagration. The preemptive destruction of oil facilities was common in the East Indies, but did little more than inconvenience the Japanese. Within three months, the Japanese controlled the oil - their principal motivation for war. Tojo announced, prematurely, that the oil problem was solved, and "victory fever" gripped the country. By contrast, the Americans picked up the pieces and they faced the worst humiliation in their history. Fear and panic gripped the nation as the reality of war sunk in. Neither the Army nor the Navy was willing to commit its entire Pacific force to the other, so two commands were set up. Unfortunately, this divided command wasted scarce resources and hindered coordination. War had never been fought on such a grand geographical scale. The commanders faced formidable challenges: keeping open long American supply lines and denying the Japanese the abundant resources they had captured. Yamamoto realized that knocking out Pearl Harbor was just the "children's hour"; confronting America's industrial might very well be "the adults hour." Japan needed to extend its defense perimeter to Midway Island. They welcomed the remnants of the U.S. Navy to come out to oppose them; they were sure this would enable them to complete the assault they had started in Pearl Harbor. Instead, the Battle of Midway turned into a decisive victory for the Americans and turned the tide of battle. Now America took the offensive, steadily island-hopping westward.

Japan's original war plan was based on two premises: 1) the Westerners would quickly weary and sue for peace, and 2) Japan's shipping system would function smoothly. Planners counted on a two-year oil supply to be sufficient, augmented by captured booty. They were certain, too, that Americans would be too weak to endure the rigors of submarine life. However, improved U.S. torpedoes began to wreak havoc in critical shipping lanes, and neither convoys nor air support - nor more inventive solutions - could stem the losses. Civilian oil use was curtailed and commercial applications were converted to non-petroleum oils. Shortages of steel and equipment, as well as technical glitches, kept Japan from reaping the benefits of its determined prewar commitment to synthetic fuels. Indeed, these never met more than 5% of the total requirements. By 1944, Manchurian oil - half the capacity planned upon - was blockaded. By June 1944, the submarine campaign was affecting the Imperial Navy's strategic decisions, penetrating its inner defensive ring. Under duress, ships were reconverted to running on coal, thereby losing speed and flexibility. By August, American bombers had come within range of the Home Islands and the situation looked grim. If the Japanese lost the Philippines, the shipping lanes would be closed completely. Thus, the entire Japanese fleet raced toward the Battle of Leyte Gulf. Though the fleet was sufficiently strong to annihilate the invasion troops, lack of fuel forced a retreat, and over the next three days, the Japanese lost three battleships and most of their support ships. In desperation,

Japan deployed *kamikazes*, in hopes the "divine wind" would shatter another great invasion fleet as it had done with Kublai Khan's in the thirteenth century. Suicide pilots offered strategic, psychological, and economic advantages. By contrast, the Americans developed huge floating bases to supply, repair, and salvage their ships. On Guam in late 1944, 120,000 barrels of aviation gasoline were delivered daily, compared with Japan's daily consumption of just 21,000 barrels on all fronts. Japan's domestic refineries ran dry and oil disappeared from the domestic economy. Under relentless bombardment, all hope of counterattack vanished, and Premier Tojo was overthrown. The new government included members who wanted to end the war short of total annihilation, but failed to act for fear of coup or assassination.

On April 5, 1945, the Soviet Union renounced its neutrality pact with Japan, and the Red Army prepared to advance on Japan. Stalin demanded steep territorial concessions from Japanese envoys before he would consider breaking the Yalta Pact, but at any rate, could not afford to export any petroleum, which was in short supply within the Soviet Union. The new Japanese premier, Admiral Kantaro Suzuki, discovered that the Navy had fallen below the minimum supply of oil to operate. The situation was hopeless. The Army wanted a suicidal fight to the finish, demonstrating its resolve in a fanatical defense of Okinawa in mid-1945. This convinced U.S. planners that perhaps a million American casualties could happen in an invasion of the Home Islands. The U.S. dropped two atomic bombs, and shortly afterwards, the Soviet Union declared war and invaded Manchuria. The Japanese mood continued to be one of suicidal defense until the Emperor recorded a surrender message. Insurgents broke into the Palace to capture the recording before it could be played, but were repulsed. The Emperor's voice was obeyed, and thus began the U.S. Occupation of the country. Authorities found 316,000 barrels of oil hidden in remote caves to fuel now-aborted suicide flights. Top officials committed ritual suicide. Tojo shot, but failed to kill, himself, and later faced trial and execution as a war criminal. It took two hours to find an ambulance in Tokyo with gasoline in its tank.

Part 3, Chapter 18 Analysis

Chapter 18, "Japan's Achilles' Heel," resumes the story of World War II in the Pacific. Japanese military planners were confident that they had sufficient oil inventories to last two years, but shortages developed far sooner than expected, causing oil to become Japan's Achilles' Heel. This is a reference to Greek mythology. Achilles, destined to be the bravest hero in the Trojan War, was made immortal as a baby when his mother dipped him in the magical river Styx. The heel by which she held him, however, did not receive a coating of invincibility, thus Achillies died when an arrow pierced him there. Homer's *Iliad* suggests that pride was Achilles' weakness, and Japan's war plans certainly indicate overconfidence, perhaps even pride and hubris. Japan's seizure of oil fields in the "Southern Zone" initially allowed its fleet to operate at will, but six months into the war, the Battle of Midway revealed their miscalculations. A second assumption - that Americans could not interrupt the flow of oil from the Southern Zone - also proved erroneous, and gradually the Home Islands became starved of oil. By contrast, the U.S. Navy was amply supplied through careful planning, and was able to push onward. As

with the Nazis' *Operation Blau,* the irony here was that the Asian aggressors ran short of oil in their quest for oil.

Part 3, Chapter 19

Part 3, Chapter 19 Summary

Churchill was frustrated that people did not heed his warnings about the Nazis. When war broke out, he was restored to the Admiralty and soon became Prime Minister. Deterding hated the Soviets and admired Hitler, and had, on his own initiative, opened discussions in 1935 to provide Hitler with a full year's supply of oil on credit. Upon Deterding's death in 1939, RDSG had to move swiftly to prevent the Nazis from gaining more than a handful of its common shares. When war began, Shell joined other British companies in merging their downstream activities under the Petroleum Board. Britain assumed that Germany would enjoy an abundant supply of Russian oil while its own Southeast Asian supplies would be cut off, once Japan entered the conflict. The country instituted and progressively tightened rationing as military needs increased, and developed plans to destroy petroleum stocks in the event of a Nazi invasion. London turned to the U.S., which then supplied almost two-thirds of the total world production. In December 1940, FDR declared the U.S. the "arsenal of democracy," and in March instituted Lend Lease. Oil was "lent," subject to repayment in the indefinite future. As neutrality legislation was slowly loosened, American oil tankers began transshipping oil to England. Prewar prorationing had been an invaluable security measure. In May 1941, FDR declared an "unlimited national emergency" and named Ickes his Oil Czar. New Deal hostility to Big Oil vanished in the rush to mobilize for war. The swift integration of oil operations and public acceptance of rationing in Britain would not repeat itself in the U.S. When the Supreme Court invalidated the NIRA in 1936, the Justice Department indicted the companies that Ickes had convinced to buy up "distress" gasoline during the Depression, leaving those convicted leery of working with him again. However, by hiring a Socal marketing executive, Ralph Davies, as his deputy, Ickes was able to disarm the hostility and mobilize the oil industry.

The German Navy realized that breaking the supply chain between the New and Old worlds would most speedily end the war. They organized U-boats into "wolf packs" to disrupt Atlantic shipping, and by July 1941, British inventories fell below the safe minimum. Ickes diverted Atlantic coast supplies to export, mobilized the railroads, and promoted voluntary conservation. Companies complained about the cost of compliance with his shipping orders, and Ickes gained the ridicule of Congress and the press as the supply situation worsened and word came from England of improving conditions. When Germany declared war on the U.S. after Pearl Harbor, U-boats began operating in American coastal waters, sinking oil tankers at a rate four times faster than they could be built. Previous discussion of a pipeline stretching from Texas to the East Coast was resuscitated. "Big Inch" was one of the extraordinary engineering feats of World War II: 1,254 miles long, it was capable of carrying half of all the crude oil moving eastward. "Little Inch," 1,475 miles in length, moved gasoline from the southwest to the East coast. During construction of these two pipelines, the Battle of the Atlantic went badly; 25% of U.S. oil exports were lost at sea and petroleum stocks in Britain again dropped. A planned invasion of North Africa would increase demand, and Stalin demanded more

oil. The scales tipped when the Allies broke the U-boat codes and managed to mask their own convoy ciphers from the Germans. In addition, improved radar and long-range cover aircraft combined to inflict heavy losses on the hunters, and Germany had to order its U-boat commanders to withdraw to safer areas.

Ickes's ability to increase U.S. oil production was strengthened when he became Petroleum Administrator for War (PAW). Nevertheless, he was forced to struggle with other agencies involved with the oil industry, and was hampered by the U.S. military's unwillingness to disclose projected needs. He envied the unified British system. Despite the roadblocks, however, PAW gradually molded an effective government-industry combine. The Justice Department reluctantly granted oil companies antitrust exemption. Serious supply crises were averted. Engineering methods improved. Tax deductions encouraged exploration. U.S. production increased by 30% between 1940 and 1945. Though it was difficult to convince Americans to give up their "birthright" to gasoline, rationing rubber - which truly was in short supply - was palatable, and "nonessential driving" was banned in 1943. A black market arose, but civilian gas dropped 30%. The supply and coordination of oil proved a massive, complex undertaking in both theaters of war, but the Allies evolved an effective system. Planning the 1942 invasion of North Africa revealed the problem of petroleum supply. Half the tonnage crossing the Atlantic was oil. A number of inventions facilitated the flow and use of petroleum in the U.S. Army. Shell's 100-octane aviation gasoline gave British Spitfires a crucial advantage in battles against lower-performance Messerschmitts. Demand rose in all areas, and one of the largest construction and engineering programs in history took on the task of meeting it. "Catalytic cracking," the first advance over Burton's process in 30 years, required expensive 15-story processing units. To maximize output, aviation plants were run as a combine.

After the war, the Army-Navy Petroleum Board claimed, "not a single operation was delayed or impeded by a lack of petroleum products." This overlooked the fact that Eisenhower had to set priorities for moving abundant supplies from Normandy to the front. When Patton outran his supply line, Eisenhower concentrated on seizing the port of Antwerp, and by the time Patton was resupplied, German resistance had stiffened. Eisenhower's decision was based on the consideration that a failure on Patton's part would have exposed the entire poorly supplied Allied force.

Part 3, Chapter 19 Analysis

Chapter 19, "The Allies' War," concludes Part 3. It looks at the logistical problems of global warfare and ends with an analysis of the crisis General Eisenhower faced regarding problems with oil delivery . French railroads and truck convoys both proved inadequate. Rival generals competed for oil to execute their own strategies. George Patton had a proven record of daring success and loudly publicized a plan which he was certain would get them to Berlin fast. Bernard Montgomery wanted to head to the industrial heartland of the Reich, the Ruhr. It was not possible to supply both, and since Montgomery was the more fragile character, Eisenhower gave him the nod - a curious rationale. Once Montgomery met his first objective, the conquest of Antwerp, Ike gave

Patton his share of oil, but by then the advantage had been lost, and Patton's Third Army could no longer charge forward as planned. According to Eisenhower, Patton's plan was simply too risky. Patton died before he could give his opinion, but historians point to the tragic consequences of the nine-month delay in terms of lost Allied lives, concentration camp deaths, and postwar boundaries. Oil, even when abundant, is worthless if it cannot go where it is needed. If that was true in World War II, it will be even more valid in the "Hydrocarbon Age," to which Yergin turns next.

Part 4, Chapter 20

Part 4, Chapter 20 Summary

Oil industry lore calls the war years the "Time of the Hundred Men," in reference to the skeleton crew that was left in Saudi Arabia to protect the wells against Axis aggression. In 1943, Everette Lee DeGolyer joined them. He was the eminent geologist, entrepreneur, innovator, and scholar who discovered the Golden Lane fields in Mexico and introduced geophysics to oil exploration. In the late 1930s, he established the DeGolyer and McNaughton consulting firm, a pioneering third-party appraiser of the value of petroleum reserves for would-be investors. DeGolyer agreed to serve on PAW under Ickes, and was assigned to appraise Saudi Arabia's value. He declared it a "galaxy of fields of the first magnitude," destined to be the most important producing region in the world within decades. A firsthand tour of the Middle East convinced him this was "the greatest prize in all history," and he foretold a dramatic postwar reorientation of the oil industry and world politics.

The war interrupted the flow of Muslim pilgrims to Saudi Arabia, and Ibn Saud's financial problems overcame his reticence to allow infidel money into his kingdom. Casoc and its two parent companies, Socal and Texaco, were unwilling to risk additional loans while production was constrained, but wanted to protect their concessions. They asked the U.S. government to extend Lend Lease to the Saudis, but were turned down until the U.S. entered the conflict. Washington, responsible for almost single-handedly fueling the Allied war effort, formulated a "conservation theory" to control and develop "extraterritorial" oil reserves, in an effort to slow the drain on domestic supplies and conserve them for future security crises. Fearing what would become of their investments following Ibn Saud's downfall, Socal and Texaco begged Washington for a policy of "solidification," or direct foreign aid in exchange for special access to or an option on Saudi oil. The government finally allowed Saudi Arabia into Lend Lease, but Ickes wanted direct U.S. ownership of the Saudi resources. Backed by FDR, Ickes formed the Petroleum Reserves Corporation (PRC) to buy out Casoc. Socal and Texaco were stunned; after all, they had desired assistance, not assimilation. Ickes compromised on a one-third share, but when the rest of the oil industry rose up in indignation, he rejected the plan. In 1944, he proposed that the PRC spend $120 million to build a pipeline to the Mediterranean and a billion-barrel reserve that the military could tap at a 25% discount. Though the military endorsed the project, independents berated Congress about this "move towards fascism," and the project ultimately failed.

Thwarted from entering the Saudi oil business directly, the U.S. stepped up discussions with Britain over joint management of world oil. Neither wanted to see a repeat of the East Texas boom. The U.S. wanted the Saudis to provide European needs, while Britain feared for the stability of concessions and foresaw a need for American help defend the region against Russian pressure. APOC and Casoc pointed out the need to move swiftly, before U.S. companies lost their antitrust immunity. An overall system of allocation might help balance the inevitable pressure to increase production, as oil

royalties became a major source of revenue throughout the Gulf. FDR sketched a map showing his solution: the two nations would share Iraqi and Kuwaiti oil, while Britain would get Iran's supply, and the U.S. would control Saudi Arabia's. Churchill, indignant, declared that his country was "being hustled," and an acid exchange followed. The Anglo-American Petroleum Agreement, signed in 1944, assured "equity" to all parties, including the producing countries. An eight-member International Petroleum Commission (IPC) would estimate global oil demand and allocate production quotas to various countries based on a variety of criteria. The agreement had the same purpose as Achnacarry and the TRC: to balance supply and demand by managing surplus and stabilizing oversupply. American independents and their congressional allies assailed the threat. The majors demanded explicit antitrust exemption before they would cooperate. When it became obvious that the Senate would reject the treaty, FDR withdrew it and set out for Yalta to carve up the postwar world with Churchill and Stalin. En route home from Yalta, FDR stopped at the Suez Canal Zone and met Ibn Saud, and the two discussed a Jewish homeland in Palestine and the postwar configuration of the Middle East. FDR and Ibn Saud got along well, but the official record said nothing about oil. FDR reached Washington too exhausted to settle the PRC debates, leaving them unresolved even at his death. Ickes later renegotiated the terms to make the agreement more palatable domestically, principally by precluding the IPC from touching domestic U.S. production. The British agreed. Gloom over the adequacy of U.S. reserves receded in anticipation of Allied victory, reducing the impetus to reach an agreement with Britain. Ickes resigned under the new president, Harry S. Truman, and Navy Secretary James Forrestal, who had worked with and respected DeGolyer, stepped in to champion the agreement. Besides Forrestal, the agreement had no political support, and in 1947, Truman allowed it to die. "Solidification," however, obviously remained a top priority.

Part 4, Chapter 20 Analysis

Part 4, "The Hydrocarbon Age," reviews oil's place during the Cold War through the length of eight chapters. Chapter 20, "The New Center of Gravity," focuses on DeGolyer, the prophet of the postwar economic and political emergence of the Middle East, and discussions between the U.S. and British governments to reach a workable arrangement to govern the postwar years. The two sides suspected one another's motives, but agreed that managing production and allocation would be crucial, much as the Texas Railroad Commission had decided earlier. This time, however, there would be no Texas Rangers to send into that region. Action needed to be taken before peacetime could again restrain American oil companies by antitrust concerns. Harold Ickes proposed three programs: 1) purchasing a controlling interest in Aramco (Casoc's abbreviation, after being renamed in 1947 as the "Arabian-American Oil Company"), 2) building a pipeline from the Saudi and Kuwaiti oilfields to the Mediterranean, and 3) an Anglo-American Petroleum Agreement. Political opposition doomed all three. The orderly development and distribution of abundance proved harder than the rationing of scarcity as the guns of war fell silent.

Part 4, Chapter 21

Part 4, Chapter 21 Summary

U.S. gas rationing ended within 24 hours of Japan's capitulation, and demand exploded. By 1950, oil surpassed coal as the country's premier fuel source. The removal of price controls made crude oil twice as valuable in 1947 as in 1945, providing impetus for new exploration. While it appeared that the U.S. was not yet running out of oil in the ground, there was a shortage of available oil. As it took time to refit refineries for civilian products, and steel was in short supply, politicians declared an energy crisis and resumed investigating rumors of skullduggery and conspiracy on the part of the majors. The oil industry became leading advocates of conservation, while imports grew, exceeding exports in 1948. "Foreign oil" entered the American vocabulary with an ominous ring.

The strategic lessons of World War II were not forgotten, nor were the cooperative projects that had been discussed but not implemented. Aramco lacked both capital and markets for its superabundant oil. To gain access to risky but lucrative European markets, Socal and Texaco revived Ickes's $100 million pipeline plan. The Trans-Arabian Pipeline ("Tapline") would have to traverse politically unstable Arab territories, and on top of that, war in the region was a likely possibility if the U.S. decided to back the creation of a Jewish state in Palestine. Soviet machinations could not be discounted. The greatest "if," however, remained an uncertain future after the aging and infirm Ibn Saud died. What support would the U.S. government provide in the event of political problems? Aramco looked to ameliorate the risk by drawing Jersey into the joint venture. Facing a shortage of oil and vulnerability in Europe, Jersey jumped at the opportunity. Now the question centered on how Jersey - and Socony, with whom Jersey had been holding side conversations - would enter Aramco. Membership in the IPC bound them to the Red Line Agreement's "self-denying" clause, and both had long wanted out of this straightjacket. They finally found a means in the doctrine of "supervening illegality." When the British government took over the IPC shares held by the "enemy aliens" (CFP and Gulbenkian), it "frustrated" the entire agreement, making it invalid. (Jersey and Socony chose to overlook the fact that the seized shares were restored at war's end.) Shell and APOC saw "mutual interests" in the plan, but CFP and Gulbenkian rejected the challenge to the IPC's validity. The Americans dismissed the threat and proceeded to deal directly with Texaco and Socal. The French, meanwhile, lodged a strong diplomatic protest, and CFP lawyers filed suit for breach of contract. After Ibn Saud reminded Aramco that they needed to consult him, he gave his approval after receiving assurance that neither Jersey nor Socony were "British-controlled." The $470 million Socal and Texaco received for selling 40% of Aramco more than repaid their original investment. Socony agreed to a modest 30-10 split, which it would later regret. The U.S. Attorney General opined that there would be no antitrust problem, and in March 1947, the Saudi concession was officially "solidified." On the same day, the president announced the Truman Doctrine, assuring a substantial U.S. presence in the Mediterranean and Persian Gulf. Because France needed the U.S., CFP dropped its

lawsuit. Gulbenkian, however, refused to compromise, and filed suit. In response, Jersey and Socony counter sued. On the eve of the trial, the groups reached the highly complex Group Agreement of 1948, which reconstituted the IPC and enriched Gulbenkian beyond his 5%. This erased the Red Line and ended any legal threat to Jersey/Socony participation in Aramco.

Meanwhile, Gulf Oil, which was half-owner of the Kuwait Oil Company, sought a marketing outlet in Europe. RDSG had a vast distributing network but little access to Middle Eastern oil. The companies developed a unique purchase-and-sale agreement, shadow integration via long-term contract. It employed "netback pricing" - a 50/50 split of profits based on complex accounting formulas.

The third great postwar oil deal centered on Iran. AIOC (with "Iranian" having replaced "Persian" in the title) lacked the resources to build a large refining and marketing system in Europe to compete with Aramco, and needed "solidification" in the face of Soviet pressure for a concession. Stalin occupied Azerbaijan in northern Iran but claimed he was concerned only with defending Baku against vulnerability to saboteurs. In fact, he needed Iranian oil to augment Soviet production, which had fallen 40% during the war and offered meager promise. The Soviets began pressing for joint explorations, and ultimately, a joint Soviet-Iranian oil company. Their goal gained ground when the communist-led Tudeh party in Iran launched demonstrations and strikes. Civil war loomed. Britain was adamant about preserving AIOC's position at all costs, and agreed in September 1947 to a 20-year contract with Jersey and Socony.

Postwar Europe faced shortages of food and all raw materials. Coal was scarce and unemployment soared. Unable to afford its imperial role, Britain jettisoned India and Palestine, and passed to the U.S. the responsibility of propping up the Greek economy. The U.S. established the Marshall Plan ("European Recovery Program") in reaction, and to contain the Soviets. The plan centered around petroleum; Europe would receive 20% in the first year and increased quantities thereafter. As prices on Middle Eastern oil dropped below the benchmark levels of the "As-Is" system, European industry began shifting from coal to oil. Europe's needs matched the development of Middle Easter oil perfectly.

Congress fought the Truman Administration over Tapline, while Syria demanded exorbitant transit fees and, with Ibn Saud, threatened to cancel the Aramco concession if the U.S. supported Jewish claims in Palestine. Britain withdrew from its Mandate amid chaos, and the State of Israel was proclaimed. The Soviet Union and the U.S. recognized it instantly, leading to the first Arab-Israeli war. The U.S. State Department worried little about threats of oil sanctions, as Middle Eastern oil (excluding Iran) amounted to only 6% of the free world supply and could cause little hardship to U.S. consumers. In the end, Ibn Saud's need for Aramco revenues withstood his wrath, and he talked fellow producers out of using the tactic. He explored a tripartite defensive treaty with the U.S. and Britain. Tapline was completed in 1950 and tankers began carrying oil to Europe. The U.S. was forced to redefine national security both by the expansion of Soviet pressure on the "northern tier" (Greece, Turkey, and Iran) and by the shrinking of British commitments. Postwar Britain's sole concern in the Middle East

was to preserve the flow of income to the Exchequer. To forge a unique new relationship with Saudi Arabia, Truman in 1950 pledged U.S. support for the kingdom's independence and territorial integrity. Aramco became a mechanism for the overall development of Arabian society, within the limits prescribed by the Saudi state. The U.S. Joint Chiefs of Staff worried about the susceptibility of Middle Eastern oil to outside attack, and joined the National Security Resources Board (NSRB) in urging the importation of foreign oil to produce a wartime military stockpile. In 1947, the Interior Department launched a five-year, $10 billion program to stockpile two million barrels a day.

Cheap foreign oil kept synthetic fuels from being cost-effective, but new technology facilitated offshore production. Kerr-McGee, an Oklahoma independent, took the gamble, building a first-class oil platform in the Gulf of Mexico in 1947. The high costs of development - more than five times that of on-shore operations - opened the question of whether the Federal government or the states owned the continental shelf. Vast tax revenues were at stake. Interest also rose in the commercial exploitation of natural gas, which previously was burned off as an inconvenient by-product. The U.S. appeared to have a huge reserve that could substitute for coal and oil in residential heating and would cost consumers 20% less than oil, provided it could be transmitted from the southeast to the northeast and midwest. In1947, the the Texas Eastern Transmission Company purchased two wartime oil pipelines and converted them to natural gas. "Biggest Inch" was built to hook up to the growing population in southern California. By 1950, 2.5 trillion cubic feet of natural gas crossed state lines, more than double the amount in 1946, sparing the demand on American oil by 700,000 barrels a day.

Part 4, Chapter 21 Analysis

Chapter 21, "The Postwar Petroleum Order," addresses the political and economic reorientations required by a world recovering from the desolation of war. Britain retracts strategically while the U.S. expands, and the Soviet Union looks for any opportunity to gain influence. Oil is crucial to the rebuilding of the European economy under the Marshall Plan, and the U.S. government grants American oil companies permission to "solidify" their positions in the Middle East. The creation of Israel in 1948 marks the first time Arabs consider invoking sanctions against the West, and points out vulnerabilities (notably Tapline, which carried Saudi and Kuwaiti crude oil across Syria to the Lebanese coastline) that will loom large decades later. Oil as an economic weapon will play a large part in chapters to come. The old order of Red Line and "As-Is" has faded, and a new evolution will begin in the now-central Middle East.

Part 4, Chapter 22

Part 4, Chapter 22 Summary

At the tern of the 19th century, David Ricardo, a successful British stockbroker, defined "rents" as the rewards derived from nature's bounty in a given region, separate from any ingenuity or hard work by the owner. In the 1950s the notion was applied to oil, as the Saudis began demanding a greater portion of the difference between the market price of oil and the costs of transportation, processing, and distribution, as well as some return on its investment. The host country, as landlord, had sovereignty over the oil beneath its territory, but that oil was valueless until it was discovered, extracted, and marketed by a tenant. Should the rental rate increase as the value of the property, improved through the tenant's investment, rose? Or should the tenant reap the benefit? What was the risk of a dissatisfied landlord to the tenant? The question became infused with nationalism because the landlord's "irreplaceable heritage" was being drained off, reducing its long-term value. Western consumer nations viewed access to oil as a strategic prize, while producing nations viewed it as a source of income through excise taxes, as well as a means of fueling overall economic activity. For these nations, oil was a symbol of pride and a means of acquiring power and status. The battle was bound to be bitter, and Venezuela was the first to enter.

Gómez's death in 1935 left Venezuela in economic shambles, dangerously dependent on oil. Liberals, who had failed a coup attempt in 1928, came to power and demanded a global redefinition of tenants and landlords. The U.S. government, Jersey, and Shell wanted to avoid Mexican-style nationalization. Wallace Pratt urged fellow Jersey directors to accept the changes and to help create a new order, rather than fall victim to it. A landmark 50/50 settlement was hammered out for the sharing of rents. In 1945, the regime fell in a military coup, and Romuldo Betancourt became president. His minister of development, Juan Pérez Alfonso, called for a revision of the tax laws to truly enforce the 50/50 agreement, and as a result, Venezuela's income increased six-fold by 1948. Betancourt also successfully demanded that some of the royalties be paid "in kind," and sold the royalty oil directly on the world markets, breaking a worldwide "taboo." The Anglo-Saxon "veil of mystery" over the marketing of oil was parted.

Another precedent-shattering redefinition of the landlord/tenant relationship took place in the Neutral Zone between Kuwait and Saudi Arabia. The U.S. State Department was worried about the perception that a small group of American companies was forming a cartel, with full support by their government. As a solution, it encouraged "new companies" to move into the Middle East. In 1947, Ralph Davies organized a consortium called "Aminoil" and bid successfully on a Kuwaiti Neutral Zone concession. J. Paul Getty stepped up to claim Saudi rights there. The playboy son of a millionaire Oklahoma oil man, Getty was an insecure, controlling, and cautious gambler, always looking for a bargain. He saw this concession as his entrée to the Middle East. The Saudis needed money badly, and the deal they struck was the largest ever: $9.5 million up front; $1 million a year, whether or not oil was pumped; and a royalty of $0.55 per

barrel. Aminoil had to amalgamate operations to conform to the Saudi/Kuwaiti "undivided half interest" agreement. The company dominated exploration, drilling five dry holes at a cost of over $30 million by early 1953. If a sixth attempt failed, Getty intended to pull out. In March, a discovery "somewhere between colossal and history-making" was made, and Getty used this production to build vast, integrated oil operations in the U.S., Western Europe, and Japan. Getty Oil became the seventh-largest marketer of gasoline in the U.S., and by 1957, its owner had become America's sole billionaire.

Getty's $0.55-per-barrel royalty agreement planted fear in Middle Eastern competitors. Gulbenkian mocked the newcomer's lack of experience dealing with governments that would put the "squeeze" on everyone. Indeed, the Saudis regularly threatened to close down Aramco's operation unless it shared "large company profits," paid for construction projects, contributed to a "welfare fund," and advanced new loans. Behind this nibbling process lay Venezuelan lobbying for the 50/50 concept. The Saudis looked at the figures: the U.S. government was collecting $4 million more in taxes than Aramco paid them in royalties. Unwilling to cripple Aramco, the Saudis retained a U.S. tax adviser, who discovered the "foreign tax credit." The Saudis set their new demand at precisely the amount this loophole would save Aramco on its U.S. tax bill. The State Department backed the revision to deflect Soviet advances into the Middle East while the Korean War was raging; maintaining a pro-Western government and tamping popular discontent outweighed the lost to the U.S. Treasury. The 50/50 plan had become unavoidable, and the State Department advised companies to "roll with the punch." The new contract was signed at the end of 1950, but the IRS did not confirm Aramco's eligibility until 1955. In 1957, Congress added its approval. Fifty/fifty deals followed in Kuwait and Iraq.

Part 4, Chapter 22 Analysis

Chapter 22, "Fifty-Fifty: The New Deal in Oil," examines the revolution in relations between producing countries and oil companies that took place in the immediate postwar years. The philosophy dated back about a century to an agricultural model developed by economist David Ricardo. He defined "rents" as the difference in profit between two properties that could be attributed solely to the fecundity of the land, rather than the owners' hard work to till it. By Ricardo's model the oil countries that granted concessions were landlords and the companies their tenants. Oil was a valuable commodity only when pumped, shipped, and sold; without the tenants' investments and labor, it was void of tangible worth. Thus, the companies were entitled to profit from the improvements they made. This had been the basis of the original contracts. From the landlord's point of view, however, the pumping and sales diminished non-renewable resources, which required higher compensation for their shortened duration period. This called for new contracts, based on market changes. Ricardo's theory was first tested in Venezuela and resulted in the first 50/50 deal in 1943, later adjusted in 1945.

In 1947, Aminoil and Getty Oil obtained concessions in the Neutral Zone between Saudi Arabia and Kuwait. Getty's per-barrel annuity was substantially higher than that of anyone else, convincing other cash-strapped Arab governments that there was more

money to be squeezed from the industry. The Venezuelans toured the Middle East, educating governments about their 50/50 deal and hoping that its universal adoption would prevent price wars. The Saudis studied their spreadsheets and demanded a new deal, and after examining the American tax codes, discovered a way to increase their revenue substantially while keeping Aramco whole: simply claim the federal tax credit for which Aramco was eligible. Eager to prop up Saudi Arabia, the State Department backed the deal. By 1952, 50/50 was the rule in Venezuela, Saudi Arabia, Kuwait, and Iraq. Fifty/fifty, Yergin stresses, "felt right" psychologically, and remained for a long time an almost sacred norm. Venezuela will again play a key role when this "new order" begins to break down.

Part 4, Chapter 23

Part 4, Chapter 23 Summary

Mohammed Reza Pahlavi worshiped his pro-Nazi father, but in 1941 allowed British and Russian forces to place him on his throne. The young monarch faced massive problems. Educated in Switzerland, he was "too Westernized for an Oriental country," and this only added to his host of difficulties; leftists, reformers, and the military all itched for power; grinding poverty and hopelessness reigned; secessionism was widespread; bribery ran rampant; Moscow viewed his country as easy prey. The only nationally uniting element was the hatred of foreigners, the British in particular, and the AIOC represented their manipulation of Iran, a handy scapegoat in times of trouble. Its 1945-50 profits amounted to £250 million, compared to Iran's £90 royalties. In 1949 the Shah asserted authority by declaring martial law and adjusting AIOC's royalties to the 50/50 model. The U.S. State Department pressured London to comply, creating resentment and provoking an argument about the company's nature: Was it state-owned or privately owned but state-capitalized? The 1933 agreement provided for a royalty and 20% of its worldwide profits - terms far better than any other oil producer. Nevertheless, AIOC negotiated a Supplemental Agreement, allowing a large hike in royalties and a lump-sum payment. When the agreement was presented to the Majlis in June 1950, the oil committee called for cancellation of the concession and nationalization of the company.

At the breakout of the Korean War in June, the U.S. pressured London more urgently, as Abadan was the major source for aviation fuel in the Eastern hemisphere. AIOC's chairman, Sir William Fraser, refused to budge. He blamed the company's troubles on American meddling and Aramco's activities, knowing that his company's contributions to the British Treasury and the overall economy gave him leverage. Announcement of Aramco's 50/50 deal forced Iranian Premier Ali Razmara to withdraw his support from the Supplemental Agreement, and Fraser to put forth a 50/50 deal of his own. When Razmara opposed nationalization, he was assassinated. The Majlis voted to nationalize the oil industry, and Mohammed Mossadegh, AIOC's worst enemy, became prime minister, with a specific mandate to execute the nationalization law. The "Former Company" was abolished. Mehdi Bazargan, dean of the Tehran University engineering faculty, was put in charge of the Iranian National Oil Company (INOC). A frail, elderly aristocrat, cosmopolitan, nationalistic, and obsessively anti-British, Mossadegh survived the former Shah's downfall and amassed a following. "Old Mossy," as he was known, exasperated the Americans by playing them off the Soviets, but the British realized that as a pious Muslim, he could not be a communist. He was simply slippery and unscrupulous. So vital was Iranian oil to British interests that the cabinet considered Plan Y, a military action to capture Abadan. Failure to act would encourage the Egyptians to nationalize the Suez Canal. With this in mind, they were surprised by U.S. objections.

Averell Harriman mediated talks but failed to persuade Mossadegh that Iran would only hurt itself by nationalizing the company. As a result, Britain embargoed tankers and Iranian imports. The Majlis retaliated by making "sabotage or inattention" a capital offense, and Abadan was evacuated. An assault force prepared for a takeover. The British embargo stopped the flow of oil from Iran and occasioned rationing in some parts of Asia, but had no lasting effects on a world glutted with oil. Anglo-American cooperation was restored to pool supplies and facilities, eliminating shipping bottlenecks and shortages, and the U.S, Saudi Arabia, Kuwait, and Iraq all increased production. Churchill returned to office, bristling for action, but Foreign Secretary Sir Anthony Eden, who had long, direct experience with Iran, restrained him. Dean Acheson proposed a new solution: have RDSG acquire the Abadan refinery and AIOC receive a special purchase contract. The crisis dragged on into 1952, as Iran's economic and political situations worsened. Law and order collapsed and Mossadegh reacted by decreeing martial law, won a staged plebiscite, and moved closer to Moscow. This threat motivated Washington to action. Churchill approved the plan, and General Zahedi led a coup. "Operation Ajax" went poorly. The Shah fled to Rome and Zahedi went into hiding. When he emerged and spoke to the press, anger solidified against Mossadegh, the would-be dictator fled, and the Shah returned from exile.

Ajax did not solve the oil problem. American companies were unenthusiastic about involvement in a State Department plan to take up AIOC's interests; their profits from the rest of the Middle East were high. Additionally, Arab producers were not keen on seeing Iranian crude return to the market, and the Americans found it aggravating to deal with the Iranians. Eisenhower continued catering to popular demands for prosecuting "big oil," all the while enlisting it for national defense. The new crop of Justice Department lawyers was suspicious of Ickes' wartime arrangements, abhorred Aramco, and searched for Rockefeller's hidden hand everywhere. They embraced a 1949 FTC report, *The International Petroleum Cartel,* which was factually flawed and highly slanted by its focus on the situation in the 1930s. In 1954, the Attorney General and the National Security Council provided the explicit guarantee of non-prosecution that convinced the oil companies to enter Iran.

Building the consortium involved seven companies in addition to AIOC: its four partners, Jersey, Socony, Texaco, and Socal; Gulf (AIOC's partner in Kuwait); Shell (tied with Gulf in Kuwait); and CFP; as well as the British and American governments. The first step involved placating the other oil-producing countries. Next, they had to convince Tehran to accept the danger of resuming contact with the West. The Shah ratified an agreement between the consortium and the NIOC in October 1954, and oil flow resumed immediately. For the first time, negotiation and mutual agreement replaced a foreign-owned concessio . The consortium was a contract agent, who managed the Iranian industry and purchased all of its output for distribution. A few months later, to mollify antitrust watchdogs, the American companies each surrendered 1% of the holdings to Iricon, which consisted of nine independents. This again infuriated the British. The U.S. was now the major player in the oil - and the volatile politics - of the Middle East. In 1953, Loy Henderson, the U.S. ambassador to Tehran, prophesied that Middle Eastern governments would some day threaten the oil-dependent West. The Justice Department did not abandon its attacks on "big oil," but merely shifted focus downstream, to the

marketing and distribution facilities. Not until 1968 did the U.S. government give up the fight.

Part 4, Chapter 23 Analysis

Chapter 23, "'Old Mossy' and the Struggle for Iran," examines the fiery history of the nationalization of AIOC and the conflict between London and Washington in their reactions to the crisis. In London, the Treasury predominated. AIOC's income was indispensable; in fact, military action was deemed appropriate to prevent its loss. In Washington, the State Department reigned: the collapse of Iran would destroy efforts to contain the Soviet Union. The two allies united only to avert a feared shortfall of oil when Britain enforced an embargo against Iranian exports. As the remaining Middle Eastern producers took up the slack, their views again diverged. Note that it was *the West* that first actually wielded the "oil weapon"; the Arabs only shook it in 1948. The U.S. position remained clouded by the Justice Department's traditional vendetta against "big oil." The Department of Defense, State Department, and CIA had to unite to override the Justice, but notably, the agreement was formulated to endure from administration to administration. The fall of "Old Mossy" and the resumption of Iranian oil production did not settle Iran's social, religious, political, and economic turmoil. Another crisis loomed there, but Yergin first turns to other crises in the Middle East.

Part 4, Chapter 24

Part 4, Chapter 24 Summary

In 1859, the French-owned Suez Canal Company won a concession from Egypt to dig a narrow 100-mile long waterway between the Red Sea and the Mediterranean. Completed in 1869, it cut travel time between England and India in half. When Egypt ran out of funds in 1875, England bought 44% ownership, backed by the Rothschilds. Permanent British troops were stationed in the Canal Zone. When India gained independence in 1947, the rationale for British presence in Egypt ended, but the rising importance of oil in Europe demanded that the Canal continue to be defended, along with Tapline and the IPC pipeline. In 1952, a military coup toppled King Farouk, and Gamal Abedel Nasser emerged as Egypt's dictator. Nasser was a master of rhetoric, using radio to mobilize Arab nationalism and stir up the whole Third World. His immediate task was to eliminate the "Israeli wedge." Like Mossadegh, he wanted to increase his impoverished nation's share of the riches generated by the canal. When Nasser turned to the Soviet bloc for weapons in 1955, the State Department considered revising the Voluntary Agreement of 1950 to allow the oil companies to cooperate in the event that the canal was closed to tankers. They again demanded protection from antitrust prosecution. Nasser demanded a 50/50 division of the canal's profits, based on the oil model. In conjunction with the World Bank, Washington and London sought to placate him by loaning funds to construct a huge dam across the Nile at Aswan. When the U.S. withdrew over Soviet arms, a vengeful Nasser expropriated the Canal to use its revenues to finance the dam. Britain and France withdrew their skilled pilots, reasoning that the Egyptians could not replace them. The Soviets, however, offered aid, and navigation continued. France considered Nasser's rhetoric to be a direct threat to their North African colonies, and thus initiated talks about a joint military strike with Israel. England joined in, motivated by the desire to prevent the Soviets from strangling its access to oil. The U.S. was certainly not yet ready to take over Middle Eastern security. British and French leaders likened Nasser to Hitler and vowed there would be no second Munich. The analogies were less compelling in Washington, where Eisenhower dreaded military intervention. He authorized the creation of a Middle East Emergency Committee to plan for ways to supply Western Europe if the canal were blocked. The Justice Department granted limited antitrust immunity to participants, with U.S. and Venezuelan surplus capacity as the basis of the effort.

Top British, French, and Israeli officials finalized tactics: Israel would strike first from the east, and its allies would issue an ultimatum to protect the canal. If it were ignored, the countries would invade the Canal Zone. Egypt and Syria established a joint military command, joined quickly by Jordan. The Israeli attack was launched on October 29, 1956, and followed the prescribed order: an ultimatum, bombings, and a ground invasion. Egypt beat a hasty retreat. The attack surprised and infuriated Eisenhower. Nasser scuttled dozens of ships to block the waterway as the Syrians sabotaged pumping stations along the IPC pipeline, Saudi Arabia embargoed oil to Britain and France, and sabotage shut down Kuwaiti production. Eisenhower considered oil

sanctions but refused to activate the MEEC until all foreign troops withdrew. Britain imposed cutbacks in consumption. All of this occurred while the Soviets invaded Hungary, the U.S. elected a president, and winter set in.

An Oil Lift to Europe commenced in December. Tankers were rerouted to the Western hemisphere and shared among companies; the Organization for European Economic Cooperation (OECD)'s Petroleum Emergency Group coordinated "sugar bowl" distribution, based on pre-1956 oil use. Rationing and reversion to coal lightened demand. The TRC refused to allow any increase in production, raining down congressional investigations and antitrust suits on the industry. By the spring of 1957 Canal traffic resumed, the IPC pipeline partially reopened, the Oil Lift ended, and rationing ceased. The European energy crisis proved less severe than feared. Nasser was the clear winner. Suez had demonstrated Britain's loss of power and resolve. Oil companies looked for less risky means of moving their product. Japanese shipyards had begun launching supertankers that economically transported oil over the open oceans. New British Prime Minister Harold Macmillan was a realist who saw that his country needed the U.S., and made peace with Eisenhower at the Bermuda Conference.

Part 4, Chapter 24 Analysis

Chapter 24, "The Suez Crisis," deals with the rise of Pan Arabism and the ascension of Egypt's Nasser. With fellow Muslims successfully winning 50/50 profit shares on oil, he applied the concept of "rents" to his impoverished country's sole asset - the Suez Canal. Expecting U.S. support for preventing the Canal's nationalization, Britain and France conspired with Israel. Eisenhower, however, was sensitive to Arab and other Third World opponents of colonialism, and decided to embargo America's best allies rather than compromise broader U.S. interests. Ike's stand marks the last time the U.S. will be highly regarded in the Middle East. Also in this chapter, the Soviet Union finally enters the Middle East, and times its aggression Hungary with the Suez conflict. Finally, we see that Washington's schizophrenia over oil is a bipartisan affliction. Eisenhower's Justice Department is no more tolerant than the New Deal Democrats, but the oil companies have learned to demand binding protection against antitrust action before cooperating the State Department, whose goals stand starkly at odds with those of the Attorney General.

Part 4, Chapter 25

Part 4, Chapter 25 Summary

The oil industry calls a giant oil field an "elephant." There existed so many of these in the early 1950s that marketing became a problem. Through the late 1960s, availability of supplies outpaced sharp consumption growth. The U.S. share of total world production slipped from 64% in 1948 to 22% in 1972, while Middle Eastern production grew by 1,500%. While proven oil reserves grew nine-fold, the U.S. share shrunk to a mere 7%; 70% belonged to countries of the Middle East. The estimated reserve life was 35 years.

The postwar petroleum order rested on two foundations: 1) the great oil deals of the 1940s and 2) the 50/50 profit-sharing relationships between companies and governments. The companies wanted to maintain the status quo, as the arrangement seemed reasonable. To the countries, everything was subject to change. The Shah of Iran was determined to realize, with the help of oil, his country's destiny to be a great power. He needed a partner, and found one in the swashbuckling Italian oil man Enrico Mattei. Mattei dreamed of turning Italy's state-owned AGIP into a world player but needed capital. In 1953, all of Italy's hydrocarbon companies were gathered into a new entity, ENI, under his control. He despised the "Seven Sisters," the interlocking partners in Kuwait, who barred him from the Iranian concession. He began talking to Iran and in mid-1957 won the Shah's personal support for a deal that would make the NIOC ENI's partner and landlord. Iran received 75% of the profits. Perturbed, the rest of the industry looked for ways to keep him from further exploits in the Middle East. The U.S. and British protested that he had broken the 50/50 principle. A second shock to the 50/50 system came when Japan, uneasy with its dependence on oil imports, put together a consortium, the Arabian Oil Company, to purchase a concession in the Neutral Zone. Lacking the capital to make the large down payment that the Saudis required, the consortium agreed to a 44/56 split in the Saudis' favor. The Kuwaitis received a 43/57 split. Offshore drilling began in 1959 and struck oil in 1960, and the Japanese government ordered its refiners to take the oil on a proportional basis. Indiana Standard struck a 25/75 deal with Iran in 1958 but also had to provide a large up-front bonus. They hit an elephant in the Darius field south of Kharg Island in the Persian Gulf.

Nasser was a hero across the Arab world. In 1958, he bamboozled the Soviet Union into funding his Aswan Dam and convinced Syria to join in forming the United Arab Republic (UAR). It dominated both transit routes for Middle Eastern oil. He then began discussions with Iraq to build a new pipeline to break the "stranglehold," but these ended when a bloody officers' coup overthrew the Hashemite monarch in July. The new government in Baghdad demanded revisions in the IPC concession. Oil was central in the rise of Arab nationalism. Initially the focus of of the "Arab Oil Experts" meeting had been economic warfare against Israel, but Nasser broadened the scope to anti-colonialism. At a conclave in the spring of 1957, they declared that the Arabs should build up a refining capacity of their own and establish a tanker fleet and pipeline. They

needed a consortium that could counterbalance the Western companies, he insisted. Above all, they needed to build up Arab expertise and technical skills.

While the Arabs spoke about a consortium, Venezuela's Juan Pablo Pérez Alfonso put the words into action. President Betancourt, installed in 1958, faced challenges from the political left and right, and needed the oil companies. He turned to Pérez Alfonso, who had emerged from exile in the U.S. an oil expert. He set out to 1) increase the government's share of the rents, 2) control production and marketing, and 3) raise retail prices to control consumption, thereby delaying the exhaustion of a nonrenewable resource. Venezuelan prices were higher than Middle Eastern producers; to gain market share, Pérez Alfonso needed to persuade them to raise taxes - and, consequently, prices. He based his plan on the TRC model, which he had studied thoroughly. His resolve to create an international common front intensified when Eisenhower imposed quotas on foreign oil in 1959, which hurt Venezuela worst. When Washington ignored his proposal for a Western Hemisphere oil system, Pérez Alfonso turned to the Arabs.

In 1955, Abdullah Tariki, the first American-trained Arab technocrat, was named Saudi Arabia's Director of Oil and Mining Affairs. He created a team of experts, including an American lawyer, to challenge the Aramco concession. Tariki was an ardent Nasserite and critic of the Saudi royal family. This earned him the nickname the "Red Sheikh." With King Saud feuding with his younger, more competent brother Faisal, Tariki enjoyed free rein in shaping policy. He wanted to establish an integrated Saudi oil company and struck fear in the American majors by suggesting the outright nationalization of Aramco. In 1959, however, he changed his mind and concentrated on cutting the price of oil.

Capacity continued to outstrip demand, and oil companies had to enlarge their discounts in order to build market share. The gap grew between the "posted" or official price and the actual market price. Since the producing country's "take" in taxes and royalties was computed on the posted price, by the late 1950s, their percentage of the actual price was closer to 60-70%. The imposition of U.S. quotas in 1959 shrunk the market for Middle Eastern oil. In 1955, the Soviet Union resumed commercial oil sales in the West and cut prices at will to woo customers. It was quickly able to dislocate established markets. The Soviets could only be defeated economically by lower *posted* prices. British Petroleum made the first attempt, and Pérez Alfonso and Tariki met its 10% reduction with fury. This galvanized the producing countries into action. In April 1959, Pérez Alfonso attended the Arab Oil Congress in Cairo as an observer. Wanda Jablonski covered the conference as a correspondent for *Petroleum Week*. She saw in Tariki "a young man with a mission," and introduced him to Pérez Alfonso, who was "another guy who's just as nuts as you,". They met secretly, recruited a Kuwaiti and an Iranian, and reached a "Gentleman's Agreement" with recommendations to their governments. It reflected Pérez Alfonso's idea of an Oil Consultative Commission that would defend the price structure and create national oil companies. It urged the governments to drop the 50/50 principle and build up their integration infrastructures to protect their revenues. Jablonski had become the matchmaker for the Organization of Petroleum Exporting Countries (OPEC).

Part 4, Chapter 25 Analysis

Chapter 25, "The Elephants," shows conditions in the 1950s that made it necessary for the oil-producing countries to form a united front against the Western oil companies. New players could only break into the Middle Eastern club by breaking the sacrosanct 50/50 rule. Angered by Washington's imposition of import quotas and dismissal of his proposal for a comprehensive Western Hemisphere oil system, Venezuela's Pérez Alfonso shopped his well-considered plan in Cairo and found an attentive audience in Abdullah Tariki, Saudi Arabia's well-educated and visionary oil director. OPEC was conceived, and will be the focus for most of the remainder of Yergin's work.

Part 4, Chapter 26

Part 4, Chapter 26 Summary

Badly in need of hard currency, the Soviets proved a tough competitor in the Western oil market. At one point, they undercut Middle Eastern oil by 50%. Their most prominent buyer was Enrico Mattei.

Monroe ("Jack") Rathbone brought science into the boardroom of Jersey Standard when he became chairman, but could not grasp the nationalist mentality of the oil-producing countries. He was determined to cut Jersey's posted price, and even Jablonski could not convince him that the existing structure of IPC and Aramco would be short-lived. In 1960 Jersey cut prices by 7%, and competitors followed suit, with little enthusiasm but considerable alarm. Within hours, Tariki arranged to meet with Pérez Alfonso in Beirut. Iraq, which had boycotted the Cairo meeting, saw an opportunity to challenge Nasser for leadership of the Arab world, and proposed establishing an organization composed exclusively of oil exporters (which excluded Egypt). Shell, which had rightly feared that the price cut was a fatal mistake, raised its posted price. The gesture, however, came too late. On September 14, 1960, OPEC was founded with the following explicit goals: 1) to restore the price of oil to its precut level, 2) to require prior consultation on all pricing matters, and 3) to establish a system to regulate production. They intended to stand together through potential sanctions. Despite its angry rhetoric, OPEC did not seem threatening, and neither the companies nor Western governments took it seriously. During its first ten years, OPEC succeeded only in making the companies cautious about cutting the posted price again. With the exception of Iran, the concessionaires still owned by contract the oil reserves in the ground, and the market was overwhelmed with surplus. The countries could not afford to alienate the companies on which they depended to market their oil. The companies increased production to deliver the higher revenues that countries demanded. Political rivalries among the members were too great to make international oil pro-rationing realistic. In 1962, Tariki lost his job after choosing unwisely to side with King Saud against Faisal; he was replaced by a young legal adviser, Ahmed Zaki Yamani, who had no interest in pro-rationing. Pérez Alfonso grew disillusioned with OPEC and resigned in 1963.

The opening of new oil provinces further weakened OPEC's position. Africa was a "new frontier." France, determined to meet its own consumption from its colonies, established the Bureau de Récherches Pétroliers (BRP), which struck oil in Gabon, and the Régie Autonome des Pétroles (RAP) in Algeria."Sahara" became a magic word in France; however, getting oil from deep beneath the desert proved difficult, and the situation was further complicated by the ongoing bloody war for independence that had begun in 1954. Nevertheless, by 1957, the companies were meeting 94% of French demand. The Evian Agreement of 1962, which granted Algeria independence, guaranteed France's position in Saharan oil. In 1965, the various state companies consolidated to compete with the majors, forming the Entreprise de Récherches de l'Activités Pétrolières (Elf-ERAP, which was further shortened to Elf). A joint Shell/BP venture

discovered oil in Nigeria in 1956, but Libya was the indisputable oil jackpot of the mid-1950s, specifically near the World War II desert battlefields where Rommel was defeated for lack of fuel. The country had little world importance or prospects. It passed the Libyan Petroleum Law in 1955 and granted many small concessions to independent companies. The law pegged the government's take to the market price as an incentive for development. Progress was discouragingly slow until April 1959, when Jersey struck big at Zelten. By 1961, ten good fields produced high-quality, low-sulfur crude, which was better suited for refinement into gasoline than the heavier Persian Gulf crudes. In addition, the country established a short, secure supply route to refineries in Italy and France. By 1965, Libya was the world's sixth-largest petroleum exporter. Bribery was the key to success in dealing with Libya's monarchy. Cutthroat competition among the independents, trying to market to an already glutted Europe, dropped prices by 40%.

Late in 1962, Mattei died in a plane crash, but ENI and AGIP continued his quest. By this time, the oil industry had climbed to new standards: advanced technology had reduced the geological risk of exploration; governments welcomed smaller players; high rates of return on investment prevailed; the U.S. tax code was sweetened; and demand climbed to new heights. In the Middle East, the number of players rose from nine in 1946 to 19 in 1956, and finally to 81 in 1970. By 1972, 350 "new internationals" had a total daily output of 5.2 million barrels of oil per day and held 200 million barrels in proven foreign reserves. Such a crowded arena could only result in a decline in profitability, to roughly the 11%-13% returns of manufacturing industries at large. The oil-exporting countries, however, knew only that their revenues were dropping.

The global battle of production intensified the Saudi-Iranian rivalry. Working together, they could balance supply and demand by serving as the industry's "swing area" or "surge pot." However, cooperation was difficult on racial, religious, and egotistical levels. High output meant wealth, which in turn meant power, influence, and respect - and both countries desired these things. The price differential between them was trivial, so the oil companies dealt mainly with issues of personaly and jealousy. The Shah sealed a gas deal with Moscow to get Washington's attention, urged British and American oil companies to "do their best" to meet Iranian demands. Iranian production generally exceeded Saudi production in 1957-70, but due to a larger initial Saudi base, their 1970 production was nearly even. Iraq dropped out of the race by revoking 99.5% of the IPC concession, motivating the company to retrench. Oman held the promise of elephants, which Shell eventually developed.

The U.S. alone saw a threat in the rising flood of oil. In 1949 Texas Senator Lyndon B. Johnson led the fight to protect American independents from Venezuelan and Middle Eastern imports. Truman, however, rejected the plan. Eisenhower, a proponent of free trade, was given the power to restrict oil imports through a "National Security Amendment" to the 1955 trade act, but only called for "voluntary" restrictions by importers. During the Suez Crisis, he suggested that the government stockpile low-cost foreign oil in exhausted wells. He received no support. The independents continued to campaign for mandatory controls, but in 1957, Eisenhower was willing only to make the voluntary controls more explicit. This did, however, put the U.S. government in the business of informally allocating import rights. Getty ignored the quota system, while

Sun Oil feared antitrust action if it acceded. Recession set in and oil demand dropped. Imports increased, and political pressure for mandatory controls became irresistible. In 1959, Eisenhower appeased the independent oil "suckers." Import oil quotas would last 14 years. He set the quota at 9% of total consumption, which Kennedy tightened in 1962. Later, Johnson began relaxing them as inflation built during the Vietnam War, but kept the system intact. The nightmarish Mandatory Oil Import Program was marked by fights over allocations, struggles over interpretations, searches for loopholes, and hunting for exceptions and exemptions. It led to some increase in domestic exploration, but in general raised consumer prices domestically while lowering them overseas. It put pro-rationing systems in Texas and the other states back in a position to stabilize domestic prices. U.S. crude output increased 29% in 1959-68. Without quotas, output likely would have reached a plateau or declined.

Part 4, Chapter 26 Analysis

Chapter 26, "OPEC and the Surge Pot," deals with the birth of OPEC. Ignoring Middle East experts, Jersey Standard dropped its posted (official) price, and competitors followed. The architects of the "Gentlemen's Agreement" that conceived OPEC reacted angrily, and Iraq, seeing an opportunity to displace oil-poor Egypt from leadership in the Arab world, called a formal meeting. OPEC put the oil companies on guard against any further unilateral moves, but achieved little in its first decade. Iran and Saudi Arabia achieved parity in oil production, setting them up to become the industry "surge pot" - oil slang for the provider(s) who can afford to step in to make up for shortfalls and cut back to control gluts. As their historical feud was in full swing, however, the function was left for future implementation. Lastly, new resources are discovered, most notably in Libya. The country will play a prominent role in the pages ahead, following the Qaddafi revolution.

Part 4, Chapter 27

Part 4, Chapter 27 Summary

Overall, world energy consumption more than tripled in 1949-72, but oil demand increased by 5.5 times. U.S. demand went up three times, West European 15 times, Japanese 137 times. Rising standards of living translated into electrical appliances, central heating, and multi-car families. The factories that built these products were increasingly oil-fueled. Plastics proliferated. Cheap oil prices encouraged consumption. Tax revenues encouraged countries to press for greater volume, and profits encouraged companies to enter aggressively into whatever new markets they could find. New technology allowed refiners to get more high-value products from every barrel of crude oil. Coal was less convenient to use than oil, and the annual ritual of strikes by the United Mine Workers offered an incentive to covert to oil in the U.S. In Europe, the 1947 coal shortfall led governments to encourage conversion to oil as a stopgap. The Suez Crisis questioned its reliability. Britain began a major nuclear energy program to reduce its dependence on imported oil. London's "Killer Fogs," the result of coal burning, led to the 1957 Clean Air Act, which favored oil. By 1958, oil was cheaper than coal for industrial applications. By 1960, both France and Germany had hopped on the oil bandwagon, as oil was now cheaper than coal. Between 1955 and 1972, coal and oil fought for prominence. Japan shifted more slowly. The American Occupation did not permit oil refining until 1949. Coal fueled the postwar recovery, but by the 1960s, falling oil prices triumphed. The Ministry of International Trade and Industry (MITI) assigned priority to independent Japanese refiners. A new oil law in 1962 gave MITI authority to regulate imports and allocate sales. Price wars resulted and sped the conversion to an oil economy. By the end of the 1960s, oil accounted for 70% of total energy consumption, up from 7% in the early 1950s. The Japanese car industry burgeoned, increasing domestic gasoline consumption, even before the export boom began.

Europe was the most competitive market in the world in the 1950s-60s. There, direct and indirect government regulation and control was stronger than in the U.S. Shell was the leading European marketer, making full use of "American-style aggressive selling." Continental Oil Company (later Conoco), established in 1929, by 1947 found itself at a competitive disadvantage in the U.S. market and began to look abroad. Frustrated by dry holes in Egypt and Africa, Continental joined Marathon and Amerada to form the Oasis Group in Libya in the mid-1950s, where it struck big. However, because the U.S. quota system prevented Continental from selling cheap Libyan oil on the U.S. market, the company turned to Europe. There, frustrated by a general dependence on outside refiners and distributors, it began to develop its downstream operation. By 1964, Continental had become a significant international oil company.

American consumers delighted in price wars, which were often sparked by independent stations offering cheap surplus gasoline from the secondary market. Occasionally the majors initiated price wars to break into new markets. Service improved and advertising became ubiquitous, hawking additives that were often hoaxes. Cheap gas accelerated

the American escape to the suburbs, and shopping centers, malls, and motels sprung up. Drive-in restaurants became popular in1954. Detroit made a spectacle of the annual new-model rollouts. Learner's permits became a teenage rite of passage. Roads and highways were upgraded to accommodate the increased traffic. In 1956, Eisenhower signed the Interstate Highway Bill, which led to the development of an active "highway" lobby. In 1962, *The Beverly Hillbillies* television show became a hit, celebrating the "black gold" that had transformed the face of America.

Then Middle Eastern tensions intervened. With Syria sponsoring terrorist attacks on Israel, Nasser could not afford to appear less militant. In May 1967, he expelled U.N. observers, blockaded Israeli shipping in the Gulf of Aqaba, and remilitarized the Sinai. Jordan and Iraq joined his coalition. The Third Arab-Israeli War began on June 5, 1967, as Israel gambled everything to wipe out enemy air forces in surprise attacks. With air superiority, Israeli forces advanced to the eastern bank of the Suez Canal and seized Jerusalem, the West Bank, and the Golan Heights. The Arabs banned oil shipments to the U.S., Britain, and West Germany, reducing the flow of oil by 60%. The Foreign Petroleum Supply Committee was activated, promising that antitrust laws would be suspended to allow an oil lift to Europe. Supertankers mitigated the closure of the Suez Canal and pipelines. Despite high anxiety, the problems proved less severe than originally feared. Arab exporters returned to production, meeting the needs of the non-embargoed countries. High stock levels and increased production outside the region made up for the shortfall. Within a month, it was clear that the "Arab oil weapon" and "selective embargo" had failed. The Arabs lost substantial revenues while paying large subsidies to the "front-line" states. In early September, the embargo was lifted, and the Arabs boosted output to make up its losses and hold on to market share.

This incident taught the U.S. the importance of diversifying sources of supply and maintaining a large, flexible tanker fleet. The country ignored the Shah's call to build up a strategic stockpile (purchased, of course, from Iran). It would take another oil crisis before the U.S. finally learned that lesson. The oil glut persisted, and Hydrocarbon Man continued to take oil for granted. Voices of caution and skepticism were few. The economist E. F. Schumacher called for alternatives to high-cost coal, showcased industrial projects in the Third World, condemned wanton use of a finite resource, and advocated a long-term view of the world's energy needs. His, however, was a voice calling in the wilderness.

Part 4, Chapter 27 Analysis

Chapter 27, "Hydrocarbon Man," concludes Part 4. It surveys the ways in which the postwar world became utterly dependent on oil; all came to view it as a birthright rather than a finite resource. Baby boomers will smile at recollections of the gas wars, commercials, and other cultural trappings of their time. The Arabs' first attempt to use the "oil weapon" failed because existing stocks were too large; they too quickly capitulated in order to cut their own economic losses. The U.S., unfortunately, was not hurt badly enough to learn an important lesson. Yergin will show us later, in 1973, that

the oil weapon was not impotent. The Six Day War of 1967 was a dress rehearsal for 1973.

Part 5, Chapter 28

Part 5, Chapter 28 Summary

In October 1971, the Shah of Iran hosted a gala celebrating the 2,500-year anniversary of the founding of the Persian Empire. He was a man of enormous wealth, power, and pride who had stepped into pivotal new roles in the Middle East and on the international stage. With the U.S. digesting the "lessons of Vietnam" and anti-Americanism in vogue, now appeared to be a relatively safe time to challenge the superpower. Britain had been withdrawing from the world scene for decades, preoccupied with its own economic decline. In 1971, it abandoned the Persian Gulf, leaving a dangerous power vacuum. Needing a strong, friendly local power to serve as regional policeman, Nixon supported the Shah's quest to assume the role. In truth, he had little choice since the Soviets were arming neighboring Iraq, which also wanted to control the region and its oil.

Rapid economic growth in the late 1960s and early 1970s brought extraordinary oil consumption. U.S. production peaked in 1970 at 11.3 million barrels per day before going into decline; the U.S. no longer had "surge capacity." Middle Eastern oil wells now satisfied two-thirds of Western oil consumption. Environmental consciousness rose in the mid-1960s, increasing the demand for oil and regulating its use. New York City restricted coal burning in 1965. In 1967, the U.S. Senate passed a clean air bill; in 1970 Federal legislation passed a bill requiring environmental impact statements, and 100,000 people celebrated Earth Day. In 1972, *The Limits to Growth* predicted that within 100 years, oil would be depleted and the atmosphere destroyed. "Global warming" loomed; fear and pessimism marked the debate over energy and resources for the rest of the decade. Nuclear power came into vogue. The nationwide public outcry over a 1969 oil leak in Santa Barbara shut down further development of offshore drilling in California and threatened to put Alaska off-bounds to development.

The Arctic coast of Alaska was named a naval petroleum reserve as early as 1923, and for years wildcatters had poked around. The geology of the North Shore was promising; both Shell and Jersey had explored it in 1959 with no success. BP, determined to expand outside the Middle East, accepted Sinclair Oil's offer of joint exploration, but they too found nothing. Gulf Oil was interested but hindered by the prohibitive cost. In 1964, Jersey spent $5 million to set up a subsidiary, Humble, in partnership with Richfield, a California-based independent. In 1965, ARCO won two-thirds of the exploration leases on the Prudhoe Bay structure. Its first drilling was a costly failure. BP/Sinclair, which also won a vast territory, drilled six expensive dry holes. ARCO began drilling a last hole in the spring of 1967, and in December heard the roar of natural gas. In mid-1968 a "step-out" well seven miles away confirmed that they had found a true elephant, the largest discovery in North America and capable of reducing U.S. dependence on imports. There were, however, two problems: 1) existing technology did not fare well in the hostile Arctic environment, and 2) the transport of oil to distant markets was daunting. After considering alternatives, they decided to construct a pipeline. Two routes were possible. The first traveled 800 miles south to the

port of Valdez, putting the environmentally sensitive Prince William Sound at risk. The second ran overland to Chicago via Canada. The "all-American route" was deemed more secure and flexible, less bureaucratic, and faster to construct. Half a million tons of pipe was rushed to the North Slope, but installation stalled over the demands of the Alaskan Natives and Federal injunctions filed by environmentalists. The eager oil companies, confident they could overcome the opposition, staged $75 million worth of equipment on the Yukon River. The equipment, however, sat for five years before work finally began. On the other side of the globe, oil was discovered in the North Sea, an environment that proved equally harsh and technologically challenging. Neither resource would quickly relieve dependence on Middle Eastern oil.

In August 1970, Armand Hammer, chairman of Occidental Petroleum, flew anxiously to Tripoli to defend his Libyan concession. Hammer had arranged medical relief in Soviet Russia and gained trade concessions from Lenin, but left when Stalin came to power. He began investing in Occidental as a tax shelter, but the company struck oil in 1961, and by 1966, was one of the world's great energy companies. Libya was Occidental's "shining star." Dry holes in the scorched desert did not faze Hammer, and in the autumn of 1966, seismic technology found an elephant in the Idris field. The value of the find increased upon the closing of the Suez Canal during the Six Day War, and Occidental built a 130-mile pipeline in less than a year. In less than two years, it was delivering oil to Europe. During this time, Libya was considered to be politically stable; in the shadows, however, insurgents were planning two unrelated military coups. The more radical one happened first. Muammar al-Qaddafi was a born conspirator - eccentric, erratic, charismatic, and manic-depressive. He felt called to take up Nasser's mantle of leadership in the Arab world. He was a sworn enemy of Israel and the capitalist West, willing to bankroll terrorist groups from Libya's huge oil revenues. The radical anti-Western Abdullah Tariki advised Qaddafi on how best to exploit the situation: Europe depended on Libya for 30% of its oil, but transportation was in short supply and oil from Arabia was cut off. Late in 1969, Qaddafi ordered that Libya's 21 oil companies increase the post price or be shut down. With "all its eggs in one basket," Occidental was the most vulnerable. It received orders to cut production by 37.5%. Frustrated, Hammer flew to Tripoli, and in the end, Occidental received an agreement allowing it to remain in Libya for five years in return for a 20% increase in royalties and taxes. The agreement emboldened other exporting countries and put the companies into retreat.

In November 1970, the Shah won 55% of the profits from the consortium companies, which then had to match the increase in all their Gulf operations. Thus began a game of leapfrog. Venezuela intended reach 60%. Alarmed, Shell chairman David Barran advocated a common front against OPEC. The oil companies, bolstered with a successful antitrust waiver from the U.S. Justice Department, formed a modern *front uni* that was responsible for 80% of free world oil production. A secret Libyan Safety Net agreement promised to replace any oil lost by a company that stood up to Qaddafi. A "Letter to OPEC" was dispatched, explaining the group's position. The Shah opposed any "all-embracing" settlement, but promised a stable five-year agreement, to which the U.S. government consented. Representatives met with the unbending U.S.-educated oil ministers of Iran, Saudi Arabia, and Iraq, who split negotiations between Tehran and Tripoli. The Tehran Agreement replaced the 50/50 norm with a new 55% standard,

complete with annual hikes after the five-year run of the contract. OPEC "got muscles," and the buyer's market for oil was over. The Tripoli Agreement raised the posted price of Mediterranean oil until it was set far higher than the Tehran figure, enraging the Shah, who leapfrogged.

The five-year guarantee was illusory. OPEC demanded increases to compensate for devaluation of the U.S. dollar, then "participation" that would allow the countries to gain partial ownership of their oil resources short of outright nationalization. Previous attempts to nationalize in Mexico, the Soviet Union, and Iran had disrupted business and revenue flow. Without distribution systems, the countries were at the mercy of the companies to dispose of oil, and lost control over taxation. In 1969, Yamani warned against outright nationalization, which would lead to competition among the countries and eventually the collapse the price structure. He advocated participation instead - joint ownership with the majors in an indissoluble bond, "like a Catholic marriage." This did not fit the needs of Algeria or Venezuela, and proved impractical elsewhere. In 1971, Iran seized Arab islands near the Strait of Hormuz, Libya nationalized BP's holdings, and Iraq nationalized IPC's last remnants at Kirkuk.

Valuation had to be worked out before implementing participation; it was necessary to create an "updated book value" that would take into account inflation and large fudge factors. The Gulf States and companies reached a "partial agreement" in 1972, providing a 25% share that rose to 51% by 1983. Algeria, Libya, Iran, and Kuwait did not enter the deal. Aramco, however, felt obliged to join, knowing it would only goad Libya into greater demands. Indeed, Libya took over 50% of ENI and expropriated Hunt's holdings altogether. Occidental was among the companies Qaddafi nationalized 51%. Not to be financially bested, the Shah ordered the NIOC to set up a new service contractor to replace the old consortium, as a first step in turning it into the world's premier oil company. The new *front uni* failed due to lack of support from the consuming nations. By 1973, the supply-demand balance had grown taut. Cutbacks in Kuwait and Libya left surplus production capacity at just 1% of consumption. The West was less prepared than the Middle East to understand intellectually and politically that the power balance had shifted.

Part 5, Chapter 28 Analysis

Part 5, "The Battle for World Mastery," consists of nine chapters that cover the 1970s-80s. A separate Epilogue deals with the First Gulf War of 1990. Chapter 28, "The Hinge Years: Countries versus Companies," examines the period between the third and fourth Arab-Israeli wars in 1967 and 1973, marked by increasing rivalry for economic and political leadership between Iran and Saudi Arabia. It introduces a new player, Qaddafi's revolutionary Libya. Yergin first discusses the factors that trained the world's attention on Middle Eastern oil. Environmentalism and staggering obstacles - financial, political, logistic, and technological - slowed efforts to tap the North Shore of Alaska and the North Sea. America's ability to deliver "surge capacity" was gone. Europe needed oil, particularly while the Suez Canal and pipelines were shut down after the Six Day War, and the massive Libyan elephant proved to be convenient. King Idris's strategy of

granting small concessions to many companies played into his usurper's hands by leaving them all vulnerable. Blinded by delusions of grandeur, Qaddafi began raising the base price and nationalizing companies. Business-based leaders like Yamani preferred gradually to attain a greater share of sovereignty over oil resources through the mechanism of "participation." This would be less disruptive to their revenue flow. The peaceful interlude Yergin covers here is less dramatic that the preceding and following hot wars, but it nonetheless marks a significant revolution in the history of oil: D'Arcy's concession-based system and the venerable 50/50 principle are declared dead.

Part 5, Chapter 29

Part 5, Chapter 29 Summary

On October 6, 1973, Egypt and Syria launched a massive coordinated attack on Israel. Since 1967, the U.S. and Soviet Union had poured weaponry into the hands of the combatants, but it was oil that would prove most effective weapon in this Fourth Arab-Israeli War. The tight supply-demand situation this time made embargo a powerful tool.

Richard Nixon entered the Oval Office with oil and energy on the agenda. He established a Cabinet Task Force on Oil Import Control, headed by Labor Secretary George Shultz, to recommend changes to the Mandatory Oil Import Program. Nixon ignored Shutz's recommendation that quotas be scrapped in favor of a tariff and self-allocation. Oil and gas shortages during the winter of 1969-70 preceded a summer of electrical brownouts, and "energy crisis" entered the political vocabulary. Nixon imposed oil price controls in 1971 to fight inflation, but this removed incentive for new exploration and conservation. Utilities pressed nuclear power plants into service. James Akins, a leading State Department oil expert, submitted a secret study, which declared that by 1975, the U.S. would have to reduce the growth rate of consumption, raise domestic production, and shift imports secure sources. Though it surely would be unpopular and costly, it was essential to survival in a permanent sellers' market. As a gasoline shortage loomed for the summer driving season, Nixon delivered the first-ever presidential address on energy, announcing he intended to abolish the quota system. By August, U.S. independent refiners were competing with Europeans and Japanese in a near panic, sending oil prices sky-high. Market prices exceeded posted prices. Producing countries sought to revise their participation and arrange buy-backs in order to obtain a larger share of rising prices. Libya was most aggressive, nationalizing 51% of all companies it had not yet taken over. Nixon's reminder to Qaddafi that Mossadegh's nationalization backfired overlooked the fundamental change in the marketplace. There was no spare capacity to restrain Qaddafi in late 1973. Iraq and Algeria joined Libya in demanding increases over the Tehran and Tripoli agreements, in order to counter inflation and the dollar's devaluation. Prices doubled in 1970-73.

Anwar Sadat, who was considered a non-entity, merely an interim leader, succeeded Nasser in 1970. Sadat wanted to break the cycle of conflict with Israel to lower the military burden (20%) on the Egyptian national budget. Israel had no incentive to negotiate. Sadat prepared for his new initiative by purging pro-Soviets from the government, and in July 1972 expelled 20,000 Soviet advisers (though he continued to accept Soviet military supplies). He expected the U.S. to respond favorably, but was disappointed. He conceived a fatalistic and risky plan to go to war, not to gain territory, but rather to provoke a crisis that would prompt reactions and pave the way to negotiations. In April 1973, he formulated strategic plans with Syria's President, Hafez al-Assad, although he withheld his true motivation for a new war. Only Faisal of Saudi Arabia knew that his objective was to bring oil into the coming conflict. Though thoroughly anti-Zionist, Faisal had resisted calls to mix oil and politics; 1967 had

showed its futility, and he doubted the U.S. would be vulnerable until at least 1985. Convinced that Saudi oil held the advantage and disheartened at the decreased revenues stemming from two devaluations of the dollar, Faisal agreed to back Sadat. In May 1973, Faisal urgently told Aramco executives that the U.S. had to disavow Israeli policies and actions. Texaco, Chevron, Mobile, and Howard Page called for a change in U.S. policy. Faisal gave press interviews, claiming that American unquestioning support for Zionism hampered his efforts to remain friends with the U.S.

Soviet General Secretary Leonid Brezhnev warned Nixon at a summit meeting of the likelihood of another Middle Eastern war. He called for a new diplomatic initiative, lest Soviet-American détente be interrupted. Henry Kissenger, however, dismissed the warning. In Riyadh, Sadat obtained a $500 million contribution to his war chest. Faisal wanted the battle to last long enough to fully mobilize world opinion. By September, oil companies and the U.S. government were planning reactions to a Libyan shutdown. Nixon began to include Israel in his condemnations of the Middle Eastern impasse. Germany and Japan were wary of their situation, with Japan openly siding with the oil-producing countries. In mid-September, OPEC declared the Tehran and Tripoli agreements dead and aimed to capture the companies' windfall profits. Yamani led a team that confronted oil company representatives in Vienna. In October, the Antitrust Division of the U.S. Justice Department gave clearance for joint negotiations by the companies. The U.S. intelligence community saw no sign that war was near. Indeed, even OPEC delegates were surprised by the Egyptian-Syrain assault.

Sadat chose to attack on Yom Kippur to surprise Israel. Neither Israelis nor Americans had taken Sadat's words seriously. Israel fell back in disorder as Egyptian and Syrian forces rolled. Nixon tried to avoid direct involvement and sought a truce based on pre-hostility lines. Hurting Israel was acceptable - but defeat was not. Within days, it became clear that previous swift victories had caused the Israelis to under-plan for an extended conflict. Egypt and Syria were well armed this time and devouring Israeli materiel at an alarming pace. Washington arranged a clandestine re-supply mission. Aramco chairmen warned that OPEC would retaliate if the U.S. increased aid to Israel, but Israeli Premier Golda Meir pleaded for her people's survival. U.S. airlines feared that participation in an airlift would prompt an embargo or terrorist attack, so the task fell to the U.S. military. They crafted plans to time the airlift so that the massive C-5As would arrive in and depart Tel Aviv under cover of darkness; weather, however, thwarted any such hope. The U.S. could no longer claim to be an honest broker in the Middle East. Israel was reconquering the Sinai by the time OPEC Gulf countries met in Kuwait City to announce a unilateral 70% price hike, bringing post oil in line with those on the panicky spot market. The countries intended this move as a declaration that the countries were in control of their commodity. They had data to demonstrate the unfairness of the old negotiated systems; henceforth, prices would be based on what consumers were willing to pay. The time was finally right for the Arabs to use the oil weapon.

Still reluctant to take the step, King Faisal warned Nixon to discontinue his support of Israel. Nixon and Kissinger held cordial meetings with four Arab foreign ministers, and during this time, Nixon pledged support for a solution within the framework of U.N. Resolution 242 that called for Israel to return to its pre-1967 borders. The Saudi minister

appeared to recognize Israel's right to exist within those borders. Kissinger insisted that the re-supply effort was a strategic U.S./Soviet confrontation rather than a hostile move, and Nixon promised Kissinger's services as negotiator. No one at the Washington meetings mentioned oil. That was not the case in Kuwait, where U.S. vulnerability to the oil weapon was the prime subject. Radical Iraq wanted to nationalize all U.S. businesses in the Arab world, withdraw all Arab funds from American banks, and embargo all oil bound for Israel's allies. Algeria dismissed this as impractical. When Yamani stated Faisal's refusal of outright economic warfare against the U.S., Iraq left in protest. The remaining Arabs decided immediately to impose an embargo and cut production 5% from the September level. They would continue to cut another 5% every month until its objectives were met. This move would not affect "friendly states." A secret resolution targeted the U.S. for the most severe cuts. The progressive drops in available oil supplies were sure to defeat the reallocation strategy that defeated their 1956 and 1967 efforts. Uncertainty, tension, and rivalry would mount and ultimately split the industrial countries. When Nixon publicly proposed a $2.2 billion military aid package for Israel, to keep up with Soviet aid to Egypt and Syria, Libya embargoed all oil shipments to the U.S. Saudi Arabia and the other Arab states soon followed. Kissinger, en route to Moscow to devise a ceasefire formula, spoke of "political blackmail." No one had foreseen a total embargo, but the airlift and budget request were too public and too offensive to handle mildly. Before Kissinger returned home, Nixon erred a second time by firing the special prosecutor investigating the Watergate Scandal. Two top aids resigned in protest, and all hell broke loose in Washington.

Nixon became too entangled in Watergate to deal with the Middle East crisis. Kissinger, named Secretary of State as well as Special Assistant for National Security, took effective control of U.S. policy, and his public personality filled the authority vacuum. The coincidence of so many crises led to conspiracy theories, and revelation of illegal contributions by some oil companies to Nixon's 1972 campaign revived the traditional distrust of the industry. In Riyadh, Yamani used computer printouts to explain the complicated system that Aramco would have to implement in order to guarantee completion of the embargo. He intimated that Aramco faced an even worse fate. The ceasefire arranged in Moscow nearly broke down when Israel appeared intent on wiping out the encircled Egyptian army in the Sinai. Brezhnev could not allow this insult to Soviet credibility in the Middle East. U.S. intelligence indicated that Soviet air- and ship-borne troops were on alert in the Mediterranean and detected nuclear weapons on a Soviet freighter, likely bound for Egypt. Nixon was too distraught to join the top-level meeting that put U.S. forces on nuclear alert around the world for the first time since 1962. The next day, the superpowers pulled back, Egyptian and Israeli military representatives met for direct talks, and Egypt and the U.S. entered into dialog. Sadat had reached his objectives, but the oil embargo was to remain in place for some time.

Part 5, Chapter 29 Analysis

Chapter 29, "The Oil Weapon," provides a fast-paced analysis of 1973's so-called "Yom Kippur War." Egyptian President Sadat conceived it as the only available means to initiate a peace process with Israel. Central to his strategy was enlisting the Arab oil-

producing states to back him by disrupting the economies of Israel's supporters - first and foremost, the U.S. -He planned to accomplish this by cutting off their oil supply. The oil shortage in 1973 would prevent the West from reallocating bountiful supplies as they had in 1956 and 1967. For the first time, an American administration suggested forcing Israel to accept U.N. Security Council Resolution 242, which called for Israel's return to pre-1967 borders in exchange for recognition of its right to exist. This had long been the position of all but the most militant of Arabs. Under Saudi King Faisal's direction, the embargo was envisioned to be limited. However, a bizarre confluence of events led to total economic warfare. Weather conditions revealed the military re-supply of Israel, forcing into the light Nixon's massive new military aid to Israel. The Watergate Scandal so highly distracted him that he did not attend a pivotal meeting that put U.S. nuclear forces on alert. The U.S. appeared more than ever as a virtual client of Israel (rather than vice-versa), with no credibility as an honest broker in the region. OPEC's sudden seizure of control over the world economy will fill the following chapters.

Part 5, Chapter 30

Part 5, Chapter 30 Summary

Kissinger knew nothing about oil and little about international economics before 1973. The "Arab oil embargo" consisted of two elements: 1) the rolling 5% production restraints and 2) the total ban on the export of oil to the U.S. and the Netherlands. With no spare production capacity, the U.S. lacked influence on the world oil market. Iran and Iraq defiantly increased output, while Saudi Arabia discovered that soaring prices translated into a net increase in income. Fear and uncertainty gripped oil companies and consumers alike. Schumacher's *Small is Beautiful,* which challenged the tenets of unbridled growth in the 1950s-60s, became the talk of the day. The psyches of Western Europe and Japan were transported back to the bitter postwar years of deprivation and shortage. Many Americans did not know that the U.S. had imported oil prior to October 1973, and could not understand how gas prices could climb 40% within months. President Nixon addressed an alarmed and fearful nation, calling for a grand new national undertaking that would make the U.S. energy-independent - "Project Independence." It would require technological advances, vast amounts of money, and a swerve away from environmentalism. Nixon named William Simon his new energy czar, commissioned to rule with the kind of "absolute authority" that Albert Speer had wielded in the Third Reich. Blame for the situation added to Nixon's Watergate woes, and the government seemed paralyzed. Nixon needed something "spectacular" involving oil and the Middle East to divert attention from Watergate.

The Aramco partners wanted the U.S. to jettison Israel - or at least restrain its support - to restore normalcy to the oil industry. Europe preferred to cool demand and establish formal energy security measures. RDSG wanted to implement an intergovernmental agreement to share supplies. The shrewd Arab strategy had worked splendidly. Aramco exceeded the ordered 10% cutback to avoid being nationalized, reasoning that moving 5-7 million barrels a day to U.S. friends was better than shipping nothing at all. The companies agreed on a policy of "equal suffering" and "equal misery," based on consumption data for the first nine months of 1973. This required frenetic improvisation, customer relation work, and explanation of supply/demand balance to counter daily press attacks. The logistics were complex: each specific crude oil had to be sent to refineries equipped to process it, and each refined product - gasoline, jet fuel, and heating oil - had to be distributed to the markets required in the balance. The various exporting governments continued leapfrogging. Different governments responded differently to the pro-rationing cutbacks. The U.S. said only that it hoped companies would take care of Holland. Japan warned the majors not to divert non-Arab oil to the U.S., but backed off confrontation. Despite presence on the "friendly nations" list, Great Britain was particularly vulnerable; a major coal strike threatened, and any oil shortfall would play into the miners' hands. BP and Shell refused to be bullied into giving Britain preferential treatment, for fear of having their European operations nationalized. The government could only remind them that it had the power to decide who received exploration licenses in the North Sea.

OPEC oil ministers met late in December 1973 to discuss the official price. Saudi Arabia feared skyrocketing prices could spark depression, and Faisal wanted to maintain the "political character" of the embargo so that it would not look like a pure money grab. The Shah, eager to finance his grand ambitions, called for a "new concept" that would base the price of oil on the cost of alternative energy sources. All parties agreed to a posted price of $11.65 per barrel - a fourfold increase over pre-embargo prices - as a "marker" on one particular Saudi crude, "Arabian Light." Prices on all other OPEC crudes rested on this, with "differentials" added for quality, gravity, and transportation costs to major markets. The Shah haughtily cast himself as the moralist for world oil: the West should find new energy sources and tighten its belt.

As Kissinger undertook dramatic "shuttle diplomacy" that brought disengagement agreements in 1974, France led the European Community in supporting the Arab position, in exchange for a suspension of the 5% December cut - provided they continue putting pressure on the U.S. and Israel. Tokyo issued a pro-Arab statement to gain Japan a December exemption, as well as removal from the "unfriendly" list, and pressed its case by sending high-level representatives to the Middle East to discuss a wide variety of economic deals. Fearing that the existing rifts could cause permanent harm to the Western alliance and undermine prospects for an Arab-Israeli settlement, the U.S. called for an energy conference in Washington. To prepare for the *next* crisis, it created the International Energy Agency (IEA), with a mandate to harmonize Western energy policies and deflect bilateralism through a framework of common response, politically and technically. In January 1974, Kissinger suggested that the embargo was becoming "increasingly less appropriate," but two trips to Saudi Arabia brought no progress. Sadat concurred with Kissinger, but the Saudis made action contingent on assent from Syria, which was still technically at war with Israel. On March 18, 1974, OPEC lifted the embargo; by May, Kissinger had secured a Syrian-Israeli disengagement. In June Nixon toured Israel, Egypt, Syria, and Saudi Arabia. The ailing president behaved oddly, bitter over his anticipated impeachment. He enjoyed only the triumphal reception he received in Cairo, where Egyptians were celebrating Sadat's restoration of Egyptian prestige, which had suffered during Nasser's final years.

Part 5, Chapter 30 Analysis

Chapter 30, "Bidding for Our Life," examines the panic that gripped the industrialized world during the Arab Oil Embargo of 1973-74. Watergate prevented Nixon from exercising effective leadership domestically or internationally, and traditional U.S. allies distanced themselves to strike the best deals available. Iran and Saudi Arabia were both apologetic for the inconvenience, but clear in their stance. Kissinger split his efforts between peace mediation through shuttle diplomacy and attempts to maintain U.S. allies. Europe and Japan, however, issued pro-Arab statements, driving another wedge between them and Washington, which sniffed at the idea of kowtowing to OPEC. Unprepared, once again, by the 1973 crisis, Europe began planning for the next, sure to be inevitable. Kissinger's decision to make an Israeli-Syrian shuttle mission contingent on the lifting of the embargo brought swift action in March 1974. True to his word, in May Kissinger removed the last hurdle to opening a comprehensive peace process,

which allowed his broken boss to make a triumphant tour of the Middle East before losing his presidency. The Arabs had finally learned to use the "oil weapon" effectively at every stage - the initiation, enforcement, and termination of the embargo on terms that harmed only the West.

Part 5, Chapter 31

Part 5, Chapter 31 Summary

By the mid-1970s, OPEC had turned the international order upside down. Its members were no longer exploited and ignored; now they were both courted and denounced for their collective ability to cause inflation or recession. They were the world's new bankers, determined to wield economic and political power and to serve as an example for the rest of the developing world. The years 1974-78 were "OPEC's Golden Age." The exporters' combined petroleum earnings rose from $23 billion in 1972 to $140 billion in 1977, and they did not bank their money idly. They went on a dizzying spending spree on weapon systems, which served only to heighten regional and national rivalries. Overheated economies caused galloping inflation, and a $67 billion surplus in balance of payments in 1974 turned into a $2 billion deficit by 1978. The "OPEC tax" - the industrialized countries' reduced purchasing power as a result of rising oil rents - caused gross national products to decline and unemployment to rise, while price shock spoiled the efforts of the poorest developing countries to overcome poverty, creating a "fourth world." OPEC's annual meetings became media events, and "oil talk" entered the lexicon. OPEC was not yet a true cartel, capable of regulating output, but merely an "unruly oligopoly." Saudi Arabia alone set production to achieve price objectives; everyone else produced at full capacity. OPEC reminded disgruntled citizens of the West that their governments' excise taxes, which exceeded the "OPEC tax," were responsible for high prices.

The Shah considered the December 1973 price increase a great personal victory, and thought of the seemingly endless revenues as divine providence for creating Iran's Great Civilization. He pushed his country's modernization obsessively, ignoring the resulting agitation and disorientation. His goal was to make Iran the world's fifth-largest industrial power. Saudi Arabia had opposed the size of the last increase, fearing the economic consequences - cycles of recession and inflation - were harmful. With far greater oil reserves than Iran, the Saudis had a stake in long-term markets, which rising prices could compromise. The Saudis were also restrained by social and political considerations that did not seem to bother the Shah. In August 1975, Yamani told the U.S. ambassador frankly that the Shah was a mentally unstable megalomaniac and that in his wake, he would leave a violent anti-American regime.

"Sheikh" Ahmed Zaki Yamani had become the symbol of the new age of oil, his face familiar worldwide. Adept at handling the press and skilful in analysis and negotiating, he was assumed to be more than a spokesman for Saudi Arabia. He was merely a prominent commoner, born into a family of Islamic lawyers and educated in Cairo and at the New York University Law School. There he learned to communicate comfortably with Americans. It was as a legal journalist that Yamani called the attention of Prince Faisal, who installed Yamani as oil minister instead of the too-nationalist Abdullah Tariki. By 1973, Yamani was a polished performer, unflappable and methodical. Like a chess player he exploited his opponent's weak spot, which for Westerners was a penchant for

short-term thinking - the inevitable result of democracy, he said. Yamani was a consummate strategist who never went directly to his goal. Many Westerners admired him, while some OPEC colleagues saw him as overly visible, and jealous rivals deigned him overrated. Yamani was Faisal's protégé, given carte blanche in making oil policy - although everything was subject to the king's final control. When Yamani lost his royal patron to an assassin's bullets in March 1975, he also lost his independence and began reporting to Crown Prince Fahd. In December Yamani was the top target of terrorists who invaded the OPEC Building in Vienna, and after his release, he obsessed about security. He remained, however, the visible front man for Saudi Oil, often the target of caustic Iranian and Iraqi criticism.

Under Nixon, Ford, and Carter, the U.S. agreed with the Saudi position on limiting price hikes, but did not want to see prices aggressively forced down for fear that this would destabilize Saudi Arabia and Iran, and ultimately undermine development of the North Sea oilfield and alternative fuel sources. Washington was sure that stability would allow inflation to whittle away at prices. The IEA discussed setting a "minimum safeguard price." A deal with the Kremlin that would have exchanged Soviet oil for American wheat - breaking the OPEC stranglehold - fell through. America's commitment to price stability put it on a collision course with Iran, an ally not to be undercut. Jimmy Carter maintained his predecessors' Iranian policy. The oil boom had wrecked the fabric of the Iranian economy and society, however, and opposition to the Shah's corrupt regime was broadening. The Shah understood that cooperation with the Saudis in moderating oil prices would drop him from Carter's human rights campaign and would allow him to continue receiving unlimited U.S. arms. Between them, Iran and Saudi Arabia controlled 48% of OPEC production and could dictate prices to the rest. The years 1974-78 saw only two minor OPEC-wide price increases, later wiped out by inflation. By 1978, prices were 10% below pre-embargo levels, adjusted for inflation - not cheap, but controlled.

Concessions, the backbone of the oil industry since 1901, were now deemed degrading, and the three still in effect were eliminated during OPEC's Golden Age. Early in 1974, Kuwait acquired 60% participation in the Kuwait Oil Company, leaving BP and Gulf with 40%; in March 1975, the emirate announced it would take over completely and sever special links to the companies. In December, Kuwait granted Gulf and BP $50 million in compensation, a tiny fraction of the $2 billion the companies thought fair. Gulf's President, Hebert Goodman, was an experienced oil trader accustomed having to foreigners pay attention to Americans, but he encountered Pittsburgh-trained professionals who were willing to allow him only enough oil to meet refinery needs, but not for third-party customers in Japan and Korea. The Kuwaitis would sell directly in those markets, which Goodman had worked so hard to develop. Kuwait had paid for everything it got from Gulf; the company had done it no favors. Kuwaitis had always felt patronized and were determined to throw off the last vestiges of colonial power.

In 1971, Venezuela passed a "law of reversion," under which the companies' concessions and other assets would revert to the nation with only restricted compensation, beginning in 1983. In reaction to the government's "no new concessions" policy, companies slowed investment, and production capacity declined. By 1972, government laws and decrees gave it effective administrative control over all aspects of

the industry, and raised the effective tax rate to 96%. OPEC's apparent victories strengthened Venezuelan nationalism, and it was agreed that 1983 was too long to wait. The international companies had grown fatalistic and sought only to retain access to oil. They would be given service contracts to run the nationalized facilities and long-term contracts to market the oil. Exxon signed first. Venezuelan oil men were unwilling to roll over, however. The solution: formation of a state holding company, Petróleos de Venezuela (PDVSA), which would play a central role in financial, planning, and coordinating. This would serve as a buffer between the politicians and the oil men, who consolidated into three fully integrated companies. Quasi-competition between them would prevent the problems that Pomex caused in Mexico. Nationalization took effect on the first day of 1976.

Aramco was the last great concession. In June 1974, Saudi Arabia took a 60% share, but by year's end demanded 100% from Exxon, Mobil, Texaco, and Chevron. Resolving the vast operational and financial questions took a year and a half. The two sides needed each other too badly to sever the links. The kingdom took over ownership of all Aramco's rights and assets, and hired it to manage 80% of Saudi production at $0.21 a barrel. In 1980, Saudi Arabia paid net book value on Aramco's holdings but did not sign the agreement for 14 years.

In the mid-1970s the former concessionaires found themselves mere contractors, with production sharing contracts that covered the exploration for, and the production and marketing of, oil. Both parties recognized national sovereignty. Increasingly, the exporting countries developed downstreams and entered the international oil business directly. By 1979, 42% of OPEC output was state-marketed.

Part 5, Chapter 31 Analysis

Chapter 31, "OPEC's Imperium," follows the organization's maturation after the 1973 Arab-Israeli War. Western economies were at its mercy. Iran and Saudi Arabia, with polar opposite philosophies on policy and aims, wrestled for dominance. Iran's Shah had delusions of grandeur and was willing to use up his limited resources quickly for premium prices. The Saudis had vastly greater resources and wanted to preserve them for the long run. The Shah was oblivious to the political, social, and religious tensions beginning to boil in his kingdom, while the Saudis acutely feared Islamic fundamentalists and communists, and did not wish to antagonize them. The Iranians enjoyed unlimited access to American armaments and bought lavishly. Yergin fails to mention that Saudi access was severely limited because of the royal family's strongly anti-Israeli position. He acknowledges that Iran was the "Big Pillar" in America's twin pillar Middle Eastern strategy, but does not explain the difference. By the end of Chapter 31, the oil industry was radically changed yet again. The oil companies, one-time owners of resources around the world, had been reduced to the role of hired hands. Colonialism had been overthrown, but with due attention to the technological savvy needed to keep the business running smoothly and profitably.

Part 5, Chapter 32

Part 5, Chapter 32 Summary

For Hydrocarbon Man the 1970s were a time of rancor, tension, unease, and pessimism, and he made massive adjustments to the new realities. The IEA provided a framework for the industrialized countries to evaluate their national policies and research energy sources, as virtually all of them reacted idiosyncratically to the marketplace's changed "objective conditions." In addition to an emphasis on conservation, Japan also embraced "resource diplomacy," wooing oil producers and energy suppliers in the Middle East and around the Pacific Rim. Overcoming the shock and panic of the embargo days as well as apprehension over the functionality of conservation, Japan set the standard for the rest of the world. Already in 1971, MITI had called for the country to invest in "knowledge-intensive" industry rather than energy-vulnerable industries. The 1973 crisis triggered implementation of the new strategy at breakneck speed. France set out to replace oil-generated electricity with nuclear-generated, and achieved its goal by the early 1980s. In the meantime, it reverted to coal to remove the Arab threat and implemented the continent's most aggressive conservation program, fining overheated buildings and banning advertising that encouraged consumption in any way.

In the U.S., Senator Henry ("Scoop") Jackson conducted a new series of demagogic, populist investigations into the oil companies' activities. He demanded to know whether the so-called energy crisis was a pretext to cover up price cheating, hike prices, repeal environmental laws, and gain tax subsidies. The oil executives were no match for him on television, completely unprepared for his accusations about "obscene profits" (which became a new national catchphrase). Jackson, as well as public opinion in the U.S. and Japan, was still reacting to Rockefeller's dark empire broken up in 1911. Nevertheless, calls for regulation and the breakup of the integrated Standard companies into totally separate firms, with singular responsibilities, met strong reactions. Oil men decried this "dismemberment." Profits had, in fact, been nearly flat for five years up to 1972, before rising rapidly and peaking in 1974. U.S. inventories and chemical operations also did well. In 1975, however, profits dipped below the 1973 level as demand fell in a depressed economy, and producing nations raised taxes and royalties - just in time for Congress to curtail certain tax advantages. After 1977, profit increases merely kept up with inflation. In absolute terms, profits were huge, but rates of return were below average for American industry. Downstream operations were bloated, a third of the tanker fleet was in surplus, and companies began questioning whether the large downstream system they had built in Europe made sense any more.

A legacy of suspicion about the energy crisis remained after Nixon's resignation in 1974. In 1971, he had imposed price controls on the economy to stamp out inflation. Only oil controls were not scheduled to expire in 1974. The American public demanded that Washington do "something" to return prices to the "good old days" *and* assure adequate supplies. Much time was wasted in hearings, and lawyers grew rich. Ford picked up

Nixon's Project Independence theme and proposed expansion of nuclear, coal, and synthetic plants, as well as 30 new oil refineries. His new Vice President, Nelson Rockefeller (grandson of Standard's founder), championed a $100 billion synthetic fuel project, which did not pass. Congress finally gave approval to the $10 billion Trans-Alaskan Pipeline (TAPS), and in 1975 established fuel efficiency standards for the automobile industry. That legislation also established the strategic petroleum reserve first proposed in 1956 and suggested again in 1969. If it had been filled rapidly, the U.S. again would have had surge capacity. However, it was not.

Jimmy Carter, inaugurated in 1977, promised during the campaign that he would deliver a national energy policy during his first 90 days, and assigned that task to economist James Schlesinger. Schlesinger had served under Nixon in several capacities, finally as Secretary of Defense. Under Ford, he clashed with Kissinger over détente and left government. A close friend of Senator Jackson, he figured he would have an "in," serving as Carter's energy czar. Carter and Schlesinger shared concerns about the foreign policy implications of a tight oil market — and a resentment of the greatest nation on earth being "jerked around by a few desert states." Carter refused to give him more time to unveil his carefully concealed proposal, and was unhappy with its complexities. Carter's plan, which he termed "the moral equivalent of war," called for rational pricing, reduced imports, and price-control relaxation. A "crude oil equalization tax" was implemented and natural gas price controls were removed. Conservation, coal use, competition in electrical generation, and solar power all found a place. Convinced there was no crisis, Americans rejected Carter's plan, while special interest groups tore it apart. Schlesinger likened the bloody political battles required to gain passage of the watershed National Energy Act as "the political equivalent of the Chinese water torture."

Price hikes created a wild and instantaneous boom in oil exploration. Wary of involvement in the Third World, investors turned to Canada and the British and Norwegian sectors of the North Sea. As U.S. oil and gas reserves dropped, oil companies diversified into new industries where investment dollars had a major impact. The equipment and supplies that had sat idle on the Yukon River since 1968 were mobilized, and by 1977, the 800-mile pipeline was completed. Within a few years, it would move a quarter of America's total crude oil.

After the nationalization battle of the 1930s, Mexico's national oil company Pemex focused on the domestic market and husbanded resources for future generations. It could not keep up with the "Mexican economic miracle" and had to import Venezuelan crude from Shell. In 1972, explorers struck "Little Kuwait" near Tabasco. Further large discoveries followed offshore in the Bay of Campeche. In 1974, Mexico resumed limited exporting, but a new president in 1976, José López Portillo, and his Pemex appointee, Jorge Díaz Serrano, saw that the vast new oil fields could provide borrow money to reinvigorate the economy. International bankers responded without restraint, and investments poured in as oil was pumped, reaching 1.9 million barrels in 1980 - a fourfold increase in less than a decade. Mexico looked to be another challenge to the OPEC Imperium.

In the mid-1970s, floating drilling rigs and platforms crowded fishermen out of the North Sea. No major company dared be left out. Despite disappointing onshore drilling in Europe, a vast gas field was discovered at Groningen, Holland, and offshore explorations also struck gas. Phillips Petroleum ordered a halt to drilling after one dry hole too many in 1969, but allowed one more attempt because the oilrig was already rented. Riding heavy seas, *Ocean Viking* brought up high-quality samples from 10,000 feet below the seabed, and all of the companies resumed exploration. BP discovered a huge reservoir on the British side in 1970, and in 1971, Shell and Exxon discovered the Brent field. The 1973 oil crisis turned the North Sea rush into a roar. A new generation of technology made feasible exploitation of the undersea resources. Permanent platforms had to be able to survive 90-foot waves and winds of 130 miles per hour. The first North Sea oil flowed into a British refinery in mid-1975. With North Sea reserves shown to be commercially viable, the British government established the British National Oil Corporation (BNOC) to hold its oil interests, and one company executive saw no difference between British and OPEC tactics. Prime Minister Wilson, determined to affect the balance of oil power in the world, said he looked forward to chairing OPEC by 1980.

Oil price forecasting blossomed after 1973 as fluctuations intensified. Oil companies, governments, central banks, international organizations, brokerage houses, and banks all exercised this blend of art and science. 1978 brought consensus on the following: Alaska, Mexico, and the North Sea would merely supplement the Middle East; another shortage and crisis were inevitable by the late 1980s; the "energy" gap between demand and supply would widen; and a second oil shock in prices would occur. An "Iron Law" was hypothesized, linking economic growth and oil consumption. Income was the main determinant of energy and oil consumption. Yamani, the leading proponent of a long-term strategy for OPEC, began arguing for regular, small increases, to encourage conservation and development of alternative energy sources. Carter and his wife celebrated New Year's Eve of 1977 in Tehran, toasting the Shah's position and progress on human rights as an island of stability in the Middle East. Oil insiders there, however, held a different view: the Shah was in big trouble.

Part 5, Chapter 32 Analysis

Chapter 32, "The Adjustment," surveys how Japan, France, and the U.S. combined the three tools available - 1) the use of alternative fuels, 2) the search for diversified sources of oil, and 3) conservation - to minimize the effects of future Middle Eastern crises. Post-Watergate distrust of government and "big oil" guaranteed that the American response would be the most volatile and the least effective. Yergin devotes several humorous pages to French efforts to prevent advertisers from promoting consumption, as well as (to a lesser extent) Jimmy Carter's mistake in announcing his administration's overly complex program, and Great Britain's quick conversion to an OPEC mentality. Development of new oil fields in Mexico, Alaska, and the North Sea showed promise for breaking the OPEC Imperium, but oil price forecasters soon discounted their contribution, certain that new price shocks loomed within a decade. The chapter ends on an ironic note, with Carter feting the Shah of Iran. In the next

chapter, we will see the president prove to be a poor prophet, as well as the tragic results of the long U.S. courtship of the Peacock Throne.

Part 5, Chapter 33

Part 5, Chapter 33 Summary

A week after the Carters left Tehran, a member of the Iranian [ress anonymously attacked an elderly Shiite cleric exiled in Iraq, Ayatollah Ruhollah Khomeini, causing Iran to be thrown back to the fierce battles of the 1920s-30s. The reallocation of petrodollars to extravagant modernization (and loss to waste and corruption) was creating economic chaos and social and political tension. Inflation bred discontent. The backward infrastructure could not cope with new demands. Traditional Islam offered solace, and fervent fundamentalism caught hold. Khomeini, born into a family of religious teachers, had emerged as a popular lecturer on Islamic philosophy and law by the 1940s, promulgating the idea of a sternly controlled Islamic Republic. He became involved in politics only in 1962, opposing the Shah's "White Revolution," for which he was jailed and later exiled to Iraq. He hated the U.S., which he viewed as the main prop of the Pahlavi regime, and spoke intensely of blood and vengeance. Carter's victory in the 1976 U.S. election gave hope to the Shah's opponents. Khomeini's supporters rioted in the holy city of Qom in protest against the press libel, and during the mayhem, troops killed some demonstrators. The Shiites were quiescent during the prescribed 40-day mourning period for the slain, but soon afterwards resumed demonstrations, creating new martyrs. The relentless cycle later became known as "doing the 40-40." The U.S. was concerned about its "Big Pillar," but, based on cursory intelligence, doubted the Shah could fall. Washington did not know the Shah suffered from leukemia, a disease that increased his indecisiveness and fatalism. In October 1978, Iraq expelled Khomeini, and he settled in a Paris suburb where access to telecommunications and mass media facilitated his propaganda blitz against the Shah. Strikes immobilized the Iranian economy, foreign oil workers were expelled, production plunged, and empty oil tankers were left queued up at Kharg Island. The oil revenues essential to the government's survival were cut off, and the Shah installed a military government to restore order. During this time, Washington was preoccupied with the Camp David peace accords, SALT II talks with the Soviets, and normalization of relations with China. Out of deference to the Shah, however, the administration limited contacts with his opponents, thereby depriving itself of vital channels of communication. Some thought the uprising was a Soviet plot. The Iranian military wavered between supporting the Shah or getting on his likely successor's good side, in hopes of maintaining continuity. The U.S. never sent a clear signal. The international media romanticized Khomeini and his objectives. Only in November 1978 did Ambassador Sullivan outline the stark reality in Tehran, prompting Carter to demand why he had not been previously informed. Ruling circles prepared to form a coalition government once the Shah left, ostensibly to seek medical treatment abroad. Still calm and detached, the tired Shah flew to Egypt on January 16, 1979, and Tehran erupted in jubilation. Khomeini came home and set up a revolutionary council headed by Mehdi Bazagan, as a rival to the coalition government. Bazagan had been Mossadegh's oil minister during the nationalization in 1951. The army backed Khomeini and a bitter power struggle followed for two years, generating the Second Oil Shock.

Through the autumn of 1979; the shock was muted by boosted production in Saudi Arabia and other OPEC countries. However, with Iranian oil accounting for 4%-5% of the total world supply, a steep price increase was inevitable, fueled by five factors: 1) no one had implemented the strategies to ameliorate dependence on Middle Easter oil; 2) Iran was tied by contract to a tightly integrated world system, and loss of its oil caused a scramble on the spot market; 3) Kissinger's 1974 energy security system remained untested, and consumer nations did not restrain their companies from bidding up the price; 4) oil-exporting nations saw an opportunity to capture additional rents; and 5) the situation was enhanced by the sheer power of uncertainty, anxiety, confusion, fear, and pessimism. The prophecies of a new crisis came true. Would the Iranian revolution now spread to Kuwait, Riyadh, Cairo, and beyond? Fear of an ideologically hostile Middle East was powerful. As in 1973, panic buyers built inventories rather than allowing oil to relieve the emergency. As hoarding of crude oil created shortages at the gas pump, consumers in turn hoarded, compounding the problem. An evenly distributed shortfall might have contained the panic, but BP, the company most dependent on Iran, could not meet long-term contracts to third-party refiners and invoked the *force majeure* (Act of God) provisions in its contracts with buyers. Without access to Aramco oil, BP and Shell were hit hard. The dominoes began to fall as other companies invoked *force majeure*. The chain reaction hit Japan hard. By February 1979, spot prices were double the posted prices on the "Rotterdam Market," Europe's huge oil part. The exporting nations seized the opportunity to fatten their profits by adding premiums to their official prices and by shifting supplies as quickly as possible from long-term contracts to more lucrative spot markets. They too cancelled contracts through *force majeure.*

In March 1979, Iranian exports resumed at reduced levels, and spot prices settled back toward official prices. IEA members agreed to cut demand by 5% to stabilize the market. OPEC authorized members to add surcharges and premiums to their posted prices according to what they deemed justifiable. Official price structure was replaced quickly by a free-for-all in which producers leapfrogged one another and purchasers trampled one another for supply, fearful that conditions would worsen with each new day. The Saudis stayed out of the fray, following the "Yamani Edict." When they cut back production, however, spot prices again soared; people speculated about the reason for the cutback: Was it to make room for renewed Iranian production, or did it reflect dissatisfaction with Camp David? Or did it, perhaps, seek to conserve resources when revenue needs were being met? It was clear that the Saudis held the spare capacity to quell panic the way the U.S. formerly had. Just after the OPEC meeting, the Three Mile Island nuclear plant near Harrisburg, PA, malfunctioned, expelling radioactive water and causing a panic of another sort: Could nuclear power be trusted as an alternative to oil?

Western governments were loath to invoke the IEA's emergency sharing system, even as they reached the 7% shortfall trigger point. Their highest concern was to keep domestic consumers - voters - adequately supplied in the short run, and as they began to champion aggressive acquisition deals for crude, prices continued to climb. The return of gas lines embodied the panic. Emergency regulations around the U.S. only made matters worse: price controls discouraged conservation, while oil companies again came under accusations of hording and gouging. The gas lines marked the beginning of the end of the Carter presidency. The preacher/engineer who had tried to

micromanage the crisis took all the blame for a crisis he had forewarned. In April, he delivered a major speech on energy policy, decontrolling oil prices, and windfall taxes on oil companies' excess earnings. His words infuriated liberals and conservatives alike. His success in signing the SALT II agreement meant politically. Gas lines were his fault. Inflation was soaring, independent truckers were striking nationwide, and Three Mile Island closed the door on nuclear power. Synthetic fuels would take too long to implement and additionally raised environmental questions. Preoccupied with foreign affairs, Carter lost touch with the black mood of the country. The Saudis' decision to increase output in July did little to cool tempers. Announcement of a major campaign to develop synfuels was unfairly labeled Carter's "malaise speech." Wholesale cabinet changes, intended to bolster presidential leadership, sent tremors of uncertainty throughout the Western world. The U.S. government appeared to be collapsing.

When spot prices eased off in the summer of 1979, OPEC reduced output, Iraq embargoed oil to Egypt in punishment for Camp David, and Nigeria nationalized BP in retaliation for reputed sales to South Africa. Oil buyers continued to hoard, offsetting the first effects of conservation and a general economic downturn. BNOC behaved like OPEC with North Sea crudes, contributing to the price spiral. Johnny-come-lately traders entered the market to profit from quick resales of oil en route to market. By the fall of 1979, the world oil market was in a state of anarchy worse than that of the early 1930s, when Dad Joiner's discovery of East Texas oil flooded a market still in its infancy. Consumers dug deeper into their pockets and saw no end in sight to the increases. Leaving the cabinet, Schlesinger invoked the warning against the Royal Navy's growing dependent on Iranian oil that was contained in Churchill's history of World War I. The situation shortly afterwards grew worse.

Part 5, Chapter 33 Analysis

The title to Chapter 33, "The Second Shock: The Great Panic," could have been aptly shortened to "Greed." It discusses the first half of the Iranian crisis of 1978-80 and the greed displayed in virtually every sector of the oil industry and among consumers that fanned the flames of panic. The crisis began when the secretly ill Shah, pushing forward his plans to create a great new Iran, insulted an exiled foe, Ayatollah Ruhollah Khomeini. Exiled to Paris, the fiery, elderly cleric gained access to the modern media he had scorned and used them effectively to fan the fires of rebellion. The Shah's hard-handed tactics to put down the Shiites backfired, creating new ranks of revered martyrs. Preoccupied with other foreign affairs, the U.S. was surprised by the imminent downfall of a crucial ally. Ironically, Carter's Camp David Accords, which brought peace between Egypt and Israel, were denounced in the rest of the Middle East as a self-serving betrayal of the Muslim cause, and thus did nothing to achieve the broader peace needed for the stability of Middle Eastern oil. During the panic that ensued, following the collapse of the Iranian oil industry, worldwide oil prices soared out of control. Western preparations collapsed in a wave of self-serving spot purchases. OPEC, seeing an opportunity for fast profits, broke its price-setting system and opened a free-for-all. Uncertain of the future, buyers hoarded whatever they could get, regardless of price. Saudi Arabia alone stood on principle but exercised its swing capacity only modestly.

The stage is set for Part 2 of the Iranian drama - the U.S. Hostage Crisis - which is covered in Chapter 34.

Part 5, Chapter 34

Part 5, Chapter 34 Summary

Before dawn on November 4, 1979, the U.S. State Department began to receive a stream of increasingly urgent messages from Tehran: "We're going down." A mob had surrounded the embassy, forcing its way inside and threatening to kill Americans. After the skeleton staff of 63 was paraded out and blindfolded, they let 13 of the hostages go. The "students" had seized the embassy to protest Carter's reluctant decision, on October 23, to admit the Shah to the U.S. for medical attention unavailable in Mexico. Bazargan suspected a plot, and young militants, remembering Mossadegh's CIA-engineered downfall, took steps to prevent a repeat. For 444 days, "Americans in Captivity" filled the media. Carter realized, "they have us by the balls." The situation worsened as Islamic fundamentalists rioted in Mecca and al-Hasa, threatening the U.S.'s only remaining regional ally, the Saudis. At that point, the Soviet Union, taking advantage of Western disarray, invaded Afghanistan. The "Carter Doctrine" was enunciated: the use of outside force to control the Persian Gulf region would be considered an assault on vital U.S. interests and repelled by any means necessary. Carter remained a distant hostage for the rest of his presidency. The Shah's return to Panama and later Egypt - and even his death there in July 1980 - did nothing to break the hostage situation, nor did Carter's embargo on Iranian oil imports and freezing of Iranian assets in the U.S. Though these actions hurt Iran's finances, they further disrupted supply channels, causing another round of buying on the spot market. "Supply protection" - insurance through stockpiling - became part of the industry language.

OPEC's1979 meeting in Caracas was marked by leapfrogging and a sharp fissure between Saudi Arabia and Iran. Yamani argued that demand would be forced down if prices continued to climb, and OPEC would not only cause a world catastrophe, but would harm members' own interests. Everyone scoffed. No prices were set and OPEC was turned into a bazaar. Exporters lost touch with reality.

In April 1980, Carter authorized a military rescue mission, but things went awry quickly. A blinding sandstorm left the force under-equipped, and Carter aborted the mission, leading to a new round of panic buying. When OPEC next met, the Kuwaitis joined the Saudis in another futile effort to end the bazaar mentality and stabilize prices. Yamani lamented that the producers would pay for their greed. Later that summer, the glut did indeed turn the market, forcing OPEC to accept a voluntary 10% cutback by September. OPEC was in disarray as it celebrated its 20th anniversary.

Weeks of border clashes between Iraq and Iran preceded a broad attack by Baghdad, which began a long, bloody war between two countries with four millennia of mutual enmity. The Shah had been at loggerheads with Baghdad since the revolution of 1968. The oil infrastructure of both nations was concentrated along the Shatt al-Arab waterway, which formed a 120-mile border between them. Khomeini hated the treatment he received during his exile in Iraq. His opponent, Saddam Hussein,

embraced the militantly pan-Arab, anti-imperialistic philosophy of the Ba'ath ("renaissance") party. His home village, Tikrit, cherished the values of desert survival - suspicion, stealth, surprise, and the use of force. He gained renown as a political assassin, and had to flee to Egypt in 1959 to avoid a death sentence. He returned to Iraq in 1963, however, to organize the underground militia, and in 1968 assumed the presidency. Though Hussein had not been in office while Khomeini was in Iraq, the Ayatollah nevertheless held him personally responsible for his treatment in exile and condemned Ba'thism as the "racist ideology of Arabism." Because half the Iraqi population was Shiite, Hussein felt threatened by agitation from across the border. Anarchy in Tehran and the purging of a demoralized army gave Hussein the opportunity to attempt to seize the Shatt al-Arab and additional oil fields. Sure that victory would position him as the new leader and champion of the Arab world, he cloaked his aggression in historical terms: this would be a renewal of the "Victory of Victories" in 642 C.E. that sealed the doom of the Persian Sassanid Empire. OPEC shared Hussein's view that the Iraqi *blitzkrieg* would succeed within weeks, but the Iranians held their ground, as young Shiites by the hundreds of thousands sought martyrdom in "human wave" assaults on Iraqi positions. Khomeini was able to consolidate power, silence critics, and purge non-clerics from the government. Hussein had not counted on a counterattack on his oil fields.

The Iran-Iraq war abruptly removed nearly 4 million barrels a day from the world market - 15% of the total OPEC output and 8% of free world demand. Spot prices jumped, but brimming storage tanks and weakening demand helped keep the calm. The IEA convinced the oil companies to open their oil reserves, while the Saudis pushed production to the limit of sustainable capacity in order to put a cap on their OPEC brethren by engineering a glut. Single-handedly they replaced almost a quarter of lost Iranian/Iraqi production. Mexican, Alaskan, the North Shore production also accelerated and dropped their prices to win a portion of the OPEC market. Yamani's prophecy was coming true. Carter lost his bid for reelection in 1980 to Ronald Reagan, who radiated anything but malaise. Out of spite, Khomeini held the hostages until Carter left office.

Part 5, Chapter 34 Analysis

Chapter 34, "We're Going Down," continues the story of the Iranian Revolution and the expansion of its violence into the beginning of the Iraq-Iran War. Young Iranians, refusing to accept that President Carter had allowed the ailing Shah into the U.S. for humane reasons, occupied the U.S. embassy in Tehran and kidnapped the skeleton staff. Carter used the only non-military weapons available against the country - an embargo of Iranian oil imports and seizure of Iranian assets. The Soviets, sensing weakness, occupied Afghanistan to fulfill the dreams of the czars. Iraq's Saddam Hussein then resurrected the glory days of Arab conquest to attack its ancient Persian enemy, personified by Ayatollah Khomeini. Waves of eager Iranian martyrs halted a Nazi-style Iraqi *blitzkrieg*, and the conflict settled into a World War I-style standoff. Panic and greed pushed oil prices ever upward; only the Saudis urged restraint. In time, the West learned enough restraint to cut off demand, and soon oversupply sent prices

downward. Yamani's prophecy that greed would kill OPEC came true. Turning the page to Chapter 35, we encounter the beginning of a very different story.

Part 5, Chapter 35

Part 5, Chapter 35 Summary

The Second Oil Shock at the end of the 1970s was the greatest boom in history, symbolized by the television program *Dallas*. Oil companies plowed earnings into new development. Costs climbed out of control up the "oil mountain," towards the cliff. In 1980, Exxon spent a billion dollars on shale oil development, only to see oil prices and demand drop; nothing, it seemed, could make shale oil viable. Virulent inflation provoked a very restrictive monetary policy, which brought on the deepest recession since 1929. Demand for oil dropped substantially in both the industrialized and developing worlds. Egypt, Malaysia, Angola, and China joined the ranks of minor producers/exporters who together had significant volume. A chemical additive nicknamed "slickem" boosted TAPS's flow by 81%; U.S. fields that could not be developed economically at the old prices were put into production in the 1980s. Meanwhile, oil was being ejected from electricity generation by coal, nuclear power, and liquefied natural gas. Oil's market share slipped from 53% in 1978 to 43% in 1985. Conservation ("energy efficiency") was ridiculed but had a profound impact. Economic recovery began in 1983, triggered by three factors: 1) a collapse in demand, 2) a build-up of non-OPEC supply (which, including Soviet exports to the West, surpassed OPEC in 1982), and 3) the "Great Inventory Dump." Demand for OPEC oil fell 43% from 1979 levels, resulting in a massive glut. Much of the new oil was sold on spot markets, which were highly responsive to market conditions. Buyer flexibility caused a decrease in prices, requiring OPEC to choose whether to cut prices or production. The former threatened loss of political gains and a shift of rents back to consuming nations' treasuries. In March 1982, OPEC decided to defend pricing by limiting production. Individual producing countries (except Saudi Arabia) were assigned quotas towards the overall target of 18 million barrels per day. By adopting the TRC model, OPEC became a true cartel. Within months of this decision, new factors were added to the mixture. Iran began to gain an upper hand in its war with Iraq and grew more belligerent towards the conservative Arab states. Israel's intervention in Lebanon in 1982 brought calls for (but no action on) another embargo against the U.S. The North Sea production boom showed no signs of slowing. OPEC oil was still overabundant and overpriced, and in March 1983, OPEC slashed its price by 15%. Saudi Arabia, assigned no quota, was designated as the swing producer that would balance the market.

In the new free-for-all between buyers and sellers, oil was becoming "just another commodity." Decentralized commodity trading replaced integration as the industry norm. Computer models gave way to snap commercial judgments, such as Aristotle Onassis' offer to BP of his entire tanker fleet, whose value was doubling daily. No "sacred cows" remained at BP. Necessity became a true virtue. Other companies followed suit, even when they saw commodity-style trading as uncouth, immoral, and inappropriate. In a buyers' market, one had to be as completive as possible. By 1984, the four Aramco partners had to tell Yamani that they could no longer afford to accept large volumes of Saudi oil at official prices; they needed to diversify their sources.

Decontrol of oil prices and elimination of other controls tied the U.S. into the world market, and American influence on the industry returned. In 1983, the plentiful West Texas Intermediate (WTI) crude displaced Arab Light as the proxy for world prices. The 110-year-old New York Mercantile Exchange (Nymex) expanded futures contracts to petroleum products, offering oil the same mechanism for minimizing buyers' and sellers' risk that it historically had offered to dairy products, potatoes, plywood, and platinum. Prices on crude oil, gasoline, and heating oil could be locked in through speculators, who profited by positioning themselves successfully in swings in supply and demand. Traders aggressively and successfully elbowed into a skeptical and hostile oil industry. Nymex came to control oil prices much the way that Standard Oil, the TRC, and OPEC had earlier. Completely deregulated in the U.S. in 1981, oil became vulnerable to wholesale consolidations, spinoffs, takeovers, and other corporate changes. Institutional investors demanded higher returns on investments. Companies' "value gaps" - the difference between the value of its stock shares and the actual value its reserves would fetch on the market - were closely studied, and those with the greatest gaps were targeted for takeover. It cost two or three times more to add a barrel of oil by exploring than by buying the assets of an existing operation. Shareholders wanted a larger portion of the money being plowed back into still-declining U.S. exploration. Wall Street warriors entered the corporate fray.

In Amarillo, TX, a confident, outspoken oil independent, T. Boone Pickens, developed an ideology for pushing the oil industry back to basics, fighting self-serving waste and excess, and protecting disenfranchised shareholders' rights. As a young geologist, he could not "keep his mouth shut," as Phillips Petroleum corporate culture demanded, and in 1954 he set himself up as a consultant and deal-maker. In 1964, he rolled his various drilling deals into a single company, Mesa Petroleum. After Mesa went public, Pickens became fascinated by the value gap, and in 1969 executed a hostile takeover of the larger Houghton Production of Kansas. After 1973, Pickens joined the overseas search for oil in the North Sea and Australia, becoming a veteran of futures marketing (in cattle-raising) long before other oil men had heard of it. Sports conditioned Pickens to quick reflexes and constant improvisation, and this gave him an advantage over the bureaucratic companies on which he set his sights. The first was Cities Service in 1982. Mesa acquired a block share that appreciated by $30 million when Occidental won a price war with Gulf. Restructure and megamergers spread throughout the oil industry.

Meanwhile, the global oil boom was turning sour. Smaller companies were forced to refinance or seek bankruptcy. The majors began belt-tightening. By 1982, Mexico had run up over $84 billion in international debt. Finance Minister Jesús Silva Herzog, Jr., recognized that the country could no longer pay interest, let alone repay principal. The president refused to listen, forcing Silva Herzog to fly secretly to Washington to arrange a $900 million emergency loan from the U.S. Federal Reserve System. Capital flight from Mexico dissipated this within a week, and default loomed - enough, it seemed, to be able to pull down the nine largest U.S. banks, who had 44% of their total capital tied up in Mexico. During a "Mexican Weekend" in August 1982, Silva Herzog convinced Treasury Secretary Donald Regan that the U.S. had an enormous stake in bailing out Mexico. Regan attached an unacceptable $100 million service fee to the agreement but later withdrew it because Americans could not risk a collapse. After seeking to allay

panic on Mexican television, Silva Herzog returned to Washington to learn the details of the "roll-over" of his country's debt - a euphemism for default. It stabilized the global financial system and brought home to all the realization that the oil boom was over. The oil industry was less powerful than had been assumed. In Oklahoma City, tiny Penn Square Bank was investigated and subsequently shut down for the imprudent loans that brought it to insolvency. Penn Square had invested heavily in Continental Illinois and in 1984, it was discovered that these and other loans were worthless. Investors yanked their money out of Continental Illinois, and the Federal government again had to intervene with a huge bailout - a virtual nationalization. Banking guidelines for energy lending were rewritten so strictly that exploration and development capital dried up.

In Mukluk, AK, prospects for an elephant rivaling the Saudi fields created wildcat excitement but resulted in the most expensive dry hole in history. Mukluk reinforced the view that acquiring proven resources was more prudent and less costly than fresh exploration. Mobil acquired Superior Oil for $5.7 billion. Texac acquired Getty Oil for $10.2, but Pennzoil sued, claiming its offer had definitely been acquired. Pickens also owned a great deal of Texaco stock, and his prior commitment to drilling rigs in the Gulf of Mexico left him short of cash. He identified Gulf Oil as an acquisition ripe for the picking; it was undervalued, politically compromised by Watergate, legally challenged for uranium trading, organizationally split, deprived of its Kuwaiti concession, and indebted by a disastrous gas contract. In August 1983, Mesa enlisted partners for a Gulf Investment Group (GIG) to amass sufficient financial clout to outmaneuver a Gulf reorganization. Pickens courted Gulf's institutional shareholders. Gulf survived the first proxy fight Pickens launched, only to be approached by ARCO. Accepting that Gulf was on the block, chairman Jimmy Lee began phoning the CEOs of the majors, inviting them to prepare bids. Chevron's chairman, George Keller, a vocal opponent of takeovers, was forced by his losses at Mukluk to consider this safe investment. Getty also approached Keller about a buy-out, and within a week he had analyzed the value of several of the world's largest companies. On March 5, the Gulf board met in Pittsburgh to accept one-chance-only bids. Granted full discretion by his own board, Keller offered $80 a share - $13.2 billion in cash, the largest offer in history. Gulf Oil thus faded into history. Pickens hailed the stockholders' victory; his GIG made a $760 million profit, and, after taxes, Mesa's share was precisely the $300 million that Pickens in the summer of 1983 had said the company needed desperately. Despite failure to take them over directly, Mesa made tidy profits in moves against Phillips and Unocal; ARCO also managed to fight him off. RDSG paid $37 billion for the shares of Shell Oil U.S.A. it did not already own, and BP teamed with Sohio to assure itself an American downstream. Exxon in the 1970s was stung by poor acquisitions. The company used its vast cash flow to protect itself from Pickens and others by executing a $16 billion share buy-back in 1983-90, and consolidated its operation. Throughout the industry, shareholders and executives profited at the employees' expense.

In 1985, the great powers' annual economic summit in Bonn discussed free market politics, deregulation, and privatization. Oil use was flat. The only contentious question the leaders faced was Europe's plans to purchase Soviet natural gas. Reagan opposed for fear of increased Soviet political influence on the continent, and also to block the hard currency the Soviets needed to strengthen their economy and military machine.

Washington banned the export of American equipment necessary to implement the project. The clash between Europe and the U.S. was more severe than at any time since the 1973 oil embargo. The two sides worked out a compromise: a limit of Soviet imports to 30% of total gas consumption, as well as promotion of the Norwegian Troll field. With oil supplies deemed safe again, "West-West" trade issues had supplanted the old "North-South" concerns. The conflict between Iran and Iraq did not rate mention in the Bonn communiqué.

Part 5, Chapter 35 Analysis

Chapter 35, "Just Another Commodity?" looks at phenomena that fundamentally transformed the oil industry in the late 1970s and early 1980s. Nymex succeeded OPEC as the effective price setter. Bankers over-extended themselves, investing in oil companies, and the threat of insolvency caused investors to shun oil in general. A series of expensive dry holes led oil companies to look for less risky ways to make big profits to keep their stockholders happy, and a wave of corporate mergers and acquisitions followed. Gulf Oil, with a legacy going back to Spindlehead, was the first of the majors to disappear into history. *Dallas*' rapacious protagonist, J. R. Ewing, supplanted amiable Jed Clampett as the television icon of the oil industry. Though high, prices remained level as the world economy adapted to reality by slowing and stopping consumption growth. The question raised by the chapter title remains unanswered: oil *was* being treated like just another commodity, but its strategic importance still exceeded all others. Yergin will discuss this in the final chapter of his book, as well as in the Epilogue.

BOOKRAGS

Part 5, Chapter 36

Part 5, Chapter 36 Summary

How long oil's precarious price could be balanced was a major uncertainty in the mid-1980s. The powerful allure of higher prices was great in the established exporters and in a Soviet Union desperate for hard currency. Low prices were desirable to the importers, led by Germany and Japan. The U.S. had interests on both sides of the divide; how it lined up would determine the future course. OPEC's 1984 quota system was not working. Non-OPEC production, the shift to other forms of power, and outright conservation were shrinking markets and dwindling countries' revenues. Quota cheating became widespread as countries made up their losses on price with volume. OPEC hired an international accounting firm to police the quota, to little effect; some countries were able to get around quotas through direct barter for weapons systems and industrial goods, increasing the world oil glut. In the spring of 1985, British Prime Minister Margaret Thatcher, a proponent of "free markets," abolished BNOC, which was increasingly a drain on the Treasury. This knocked out another important prop on the OPEC price. Iran and Iraq both recovered their ability to export oil, despite the continuing war, and Nigeria adopted a policy of maximizing exports. Saudi Arabia, whose role as OPEC's swing producer proved costly, warned OPEC and non-OPEC competitors alike that it would no longer accept a loss in market share. It was prepared, if necessary, to flood the market and give everyone a Rockefeller-style "good sweating." The Saudis settled on netback deals with the Aramco partners and companies in key markets, collecting percentages of the sales of products refined from Saudi crude. The refiner's profit was locked in, giving them an incentive to move as much product as possible. This was a perfect recipe for a price collapse. Wanting only to regain the quota level due them, the Saudis capped the volume subject to netback. This, in effect, eliminated an OPEC oil price, and other exporters adopted the same mechanism, as it provided a way to make money from their downstreams. On Nymex, WTI prices peaked at $31.75 on November 20, 1985, belying fears of a price collapse, and OPEC met again to declare open warfare on non-OPEC producers in order to regain lost markets.

Over the next few months the WTI price plummeted 70%, producing the Third Oil Shock. This time, both buyers and sellers played leapfrog with prices. The market was victorious, and this shocked the oil world. Iran, Algeria, and Libya wanted OPEC to restore quotas at a lower level, but the high-volume exporters, particularly Saudi Arabia and Kuwait, would have no part of it. Mexico, Egypt, Oman, Malaysia, and Angola looked to open a dialog with OPEC and attended its 1986 meeting as observers. It yielded few results, and the "good sweating" continued. Shell's planners in London geared up for an "Oil Collapse Scenario" (OCS). Oil companies slashed expenditures, cutting back exploration and production in the U.S. in particular. Consumers, of course, were jubilant.

Vice-President George Bush proceeded with a planned trip to the Middle East. After his graduation from Yale in 1948, Bush had passed up Wall Street offers in order to return

to the family roots in Texas oil. He worked his way up from the bottom in Midland and "caught the fever." He partnered to form the Zapata company, quickly mastered the skills of an independent oil man, and tied these in with his father's powerful connections in Washington. When Zapata split, Bush took the offshore oil operation and turned it into a pioneering success. By the mid-1960s, Bush was satisfied with his fortune and gave up oil for politics. A series of diplomatic, political, and intelligence jobs led to an unsuccessful bid for the presidency in 1980. He settled for an appointment as Reagan's vice-president. Reagan wanted to get the government out of energy and thus removed Carter's oil controls. The new oil wars threatened to depress the southwest, raise U.S. oil use, wipe out domestic production, and encourage importing. Reagan opposed a new tariff, preferring to send Bush to "jawbone" OPEC into getting its act together. Bush was to underline U.S. support for moderate Arab states and push prices back up. On the eve of his trip, Bush came close to disavowing the White House by suggesting that market forces had gone too far. He was corrected and dispatched to Riyadh and Dhahran, to discuss with King Fahd Saudi fears about the Iranian military threat. Oil was mentioned only in passing: Fahd favored market stability and was tired of being misrepresented in the U.S. media. Bush's refusal to give up his view - that falling price threatened U.S. national security - put his future political ambitions at risk everywhere but in the oil states. The Saudis understood that he was threatening a tariff, and were eager to stabilize prices for their treasury's sake and to ensure a continued flow of U.S. arms for their defense. The OPEC cheaters appeared to have learned their lesson, and the Saudis were ready to accommodate Bush.

Venezuela's learned Alirio Parra feared the demise of OPEC, and observed that the industry was committing "hara kiri" by overproduction; all saw the remedy, he said, but no one would adopt it. Parra and a few colleagues met secretly in Vienna to hammer out a rationale for a new price, rolled back to the levels of the mid-1970. This would reignite demand and constrain non-OPEC competitors. In May 1986, six oil ministers met in Saudi Arabia and agreed on $18 per barrel plus a new quota system. Producers, consumers, and Wall Street were satisfied. It would give a strong incentive to economic growth, restrain inflation, and reduce pressure for a tariff. The Arab Gulf states were hurt least, but Algeria, Libya, and Iran were badly hit. Iran eventually dropped objections to new quotas, and OPEC reached agreement with non-OPEC countries, including the Soviet Union, to cooperate in various ways.

After 24 years' service as Saudi oil minister Yamani was fired in October 1986, following a speech at the 350th anniversary of his alma mater, New York University. After calling for price stability and recognition of oil as a "special commodity," Yamani took questions from the audience. One offhand comment angered the Royal Family. He was allowed to attend an October OPEC meeting in Geneva and presented the official Saudi line on quotas and pricing, before learning from a newscast that he had been "relieved" of his post. He had precious few friends left in the government and many enemies. Iraq alone refused to go along with the new policy that Yamani's successor, Hisham Nazer, supported, ending the Third Oil Shock.

Attention turned to the seven-year-long Iran-Iraq War. In 1986, Iran appeared poised to conquer Basra, which could have torn apart the Iraqi state. Iranian forces bogged down

in the marshes, however, and Khomeini turned to a campaign to attack not only Iraqi oil tankers, but international ships as well. Kuwait was rocketed. Arabs were infuriated by revelations of U.S. arms sales to Iran in an effort to win freedom for American hostages in Lebanon. Kuwait demanded naval protection from both the U.S. and the Soviet Union for its fleet. Washington was shocked into action, and promised to reflag 11 Kuwaiti tankers, making them eligible for U.S. naval escort. U.S., Soviet, British, French, Italian, Belgian, and Dutch patrols entered the Persian Gulf. Iraq began to gain the upper hand by using chemical weapons, as Iran's economy crumbled and Khomeini's days appeared numbered. Ali Akbar Hashemi Rafsanjani, Speaker of the Majlis and deputy commander of the army, who was deeply involved in the "arms-for-hostages" negotiations, worked to end Iran's diplomatic and political estrangement from the world. The accidental downing of a civilian Iranian Airbus in July 1988 by the U.S.S. *Vincennes* led many Iranian leaders to believe the U.S. intended to enter the war as an Iraqi ally. Rafsanjani overcame Khomeini's hatred of Hussein, and a U.N. ceasefire was arranged. Both sides remained determined to dominate the Middle East.

The Venezuelans, Saudis, and Kuwaitis acquired downstream outlets in Europe. In 1987, Thatcher sold off the British government's 51% stake in BP, and forced the Kuwaitis to reduce the 22% they snapped up to 10%. Saudi Arabia and Texaco announced a new joint venture to enhance Saudi access to markets. "Reintegration" was calculated to restore long-term stability to the oil industry and limit risks to producers and consumers. Bush succeeded Reagan in an era of unprecedented prospects for global peace and even economic competition. However, hopes were dashed in 1990.

Part 5, Chapter 36 Analysis

Chapter 36, "The Good Sweating: How Long Can It Go?" returns to Rockefeller's tactic of giving competitors a "good sweating" through price wars that Standard Oil alone could afford to wage. In the mid-1980s, Saudi Arabia grew tired of bearing the financial brunt of stabilizing prices by limiting production. When OPEC and non-OPEC countries refused to cooperate on quotas, the Saudis announced open economic warfare for which only their vast oilfields were adequate. The bottom fell out of oil prices, to the glee of consumers, but to considerable concern on the part of economists and politicians. Low prices would undo the conservation gains of recent years and discourage exploration and the search for viable alternative fuels. A veteran oil man, George Bush, called for a return to stable prices, contradicting Reagan Administration policy and endangering his political future. Yamani also misspoke in public and was summarily sacked. His final plea was that oil continue to be viewed as a special commodity. The seven-year Iran-Iraq War ended in a draw after pulling Western naval forces into the Persian Gulf. Peace allowed the oil producers to maneuver for new ways to profit through competition rather than conflict. Yergin takes up the First Gulf War in an epilogue rather than as Chapter 37.

BOOKRAGS

Epilogue

Epilogue Summary

The summer of 1990 was marked by euphoria over the end of the Cold War. Consumers were happy with low oil prices and prospects of abundant oil. Caution was in order, however, for several reasons: two-thirds of the world's reserves were in the Persian Gulf, demand was growing, American production was plummeting and imports rising, and the "security margin" - the gap between demand and production capacity - was shrinking. The conditions that triggered the 1973 oil shock had ominously returned, even as politicians and futurists discounted any possibility of another crisis.

On August 2, 1990, 100,000 Iraqi troops invaded Kuwait. Iraq was the only producer that had not rebuilt relations with Western customers, and Hussein had warned that the oil weapon could be applied again. Hussein was a brutal throwback to Stalin, and his aim was to dominate the Arab world. His nuclear weapons program was set back in 1981 by an Israeli air strike, but he pushed forward. Since 1985, Iraq had been the world's largest purchaser of conventional arms. It devoted 30% of its gross national product to the military, even after having suffered 500,000 casualties in the war with Iran that ended in stalemate. The relocation of Iraqi troops to the Kuwaiti border in July was viewed as a ploy to coerce the gulf emirates into obeying OPEC quotas, which would force oil prices upward and allow Hussein to pay his international bills. Kuwait obeyed, leaving Iraq as the only quota cheater. The West did not suspect Hussein's true aim: the outright annexation of Kuwait. Hussein reasoned that Kuwait had belonged to Iraq before Western imperialists snatched it away after World War I - a flawed historical scenario, given the situation under the Ottomans. Hussein had nearly lost his war with Iran by miscalculating that it would be a quick campaign. He erred again in 1990, believing that the world would accept his absorption of Kuwait as a *fait accompli* and that the Arab world would hail his heroics. Instead, many Arab governments joined the international community at large in opposing his aggression. Allowing Hussein to remain in Kuwait raised the specter of his controlling 20% of OPEC production and 20% of the world's oil reserves, and instigated fears that he would use the profits on to resume war with Iran or take even larger steps. The Saudis were particularly nervous. President Bush gathered remarkable consensus to back his declaration that "This will not stand, this aggression against Kuwait." The U.N. did to Hussein what the League of Nations failed to do to Mussolini: it imposed an embargo and deployed troops to Saudi Arabia to protect it from Iraq. This made good on Truman's 1950 promise to Ibn Saud. Bush was determined to avoid "another Vietnam" and also to head off another costly Nazi regime. Ba'th party doctrine called for the creation of a Greater Iraq, which others feared was on its way back to becoming a nuclear power. The "oil factor," much debated, came down to fear that money would translate into political, economic, and military power. Hussein clouded the prospects of a benign post-Cold War world. Oil proved to be as critical an element in the global balance of power at the end of the 20th century as it had at the beginning.

The embargo removed 4 million barrels a day from the world market - the same scale as the 1973 and 1979 crises. Prices skyrocketed and financial markets plummeted. This time, however, most OPEC producers increased output, feeling that their own national survival was threatened. Lost production was recompensed. Removal of regulatory controls in the U.S. meant no gas lines or significant supply distortions, despite the economic recession. Demand weakened. Debate surged over the use of the U.S. Strategic Petroleum Reserve (SPR), and it was announced that in the event of a conflict, the SPR would be used to flood the market. Prices resided as the supply-demand picture improved. Hussein played for time to complete his brutal absorption of Kuwait, waiting for the unwieldy coalition against him to crumble. He remembered Nasser's success in 1956, and was sure the "Israeli card" would separate the Arabs from the West. He might even win back his old Soviet ally. The U.S. had left both Vietnam and Lebanon when the national resolve broke. Bush understood these same factors, and in November doubled the size of U.S. forces in the region. U.N. Resolution 678 gave Iraq a January 15, 1991, deadline to withdraw from Kuwait or face "all necessary means" to be dislodged. Most believed Hussein would somehow extricate himself, leaving the West looking foolish. On January 12, Congress granted the president authority to go to war. Antiwar protests spread across the U.S. and Western Europe; Bush looked lonely and isolated. The deadline passed in grim silence. On January 17, a massive air assault on Iraq began. Within a month, most of Iraq's command and control centers and a broad range of military and strategic targets lay in ruin. Oil prices soared but settled back within hours. It appeared that Saudi oil was now beyond Hussein's reach. Israel was restrained from responding to Scud missile attacks, removing the threat that the Arabs would bolt the coalition. Hussein continued to bluster about the "mother of all battles" that would face coalition ground troops, but like the air battle, it too proved a rout. Following Rommel's desert tactics - "a war of mobility and lethality" - coalition forces swept in from the Saudi desert to flank Iraqi positions rather than confront them from the sea. Within 100 hours, the Iraqis were in full flight back towards Baghdad. In their wake, they left Kuwait in flames (mirroring Hitler's withdrawal policy), wasting 6 million barrels of oil a day. A ceasefire went into effect on February 28, 1991, but rebellions against Hussein broke out in the two regions where Iraq's oil production was concentrated. Hussein survived in power, but no longer had an offensive military machine.

Petroleum remains the motivating force of industrial society and the lifeblood of the civilization it helped create. It is a business of extreme risk and reward, and an essential element in national power. History has taught to expect the unexpected in dealing with oil. Technology may make alternative energy production feasible. An environmental crisis might alter the energy economy. The Soviet Union, as the world's largest producer - with output double that of the Saudis in 1989 and exports second only to them - might overcome inefficiency, poor organization, and technological backwardness to emerge as a major factor. Or, production could fall off sharply. Western companies are interested in capitalizing and equipping a new New Economic Plan. Ethnic conflicts in oil-rich but underdeveloped Azerbaijan could impede progress. The IEA and strategic stockpiles in the U.S., Germany, and Japan provide hedges against future panics, and the markets have already proven their ability to adjust and allocate. Governments have learned the dangers of controlling and micromanaging the market. The political traumas that

accompanied earlier crises - decolonization in Britain and France, and Watergate in the U.S., for example - no longer exist. Confusion over ownership of oil has been removed. The oil companies can no longer be compared to deadly octopi; instead, they are contractors that provide technological skills and own a host of refineries and gasoline stations. The cancellation of the *Dallas* television show in 1991 reflected the end of the American independent. Environmental concerns have taken center stage. Communism has collapsed and private enterprise is victorious. Oil has become "more like other commodities;" oil power appears not to be as great as had been imagined. Environmental concerns were heightened by the April 1986 Chernobyl nuclear disaster and the grounding of the *Exxon Valdez* in Prince William Sound in May 1989. Global warming and ozone depletion, coupled with burgeoning demand for electricity, have combined to push technology into developing "green" gasolines, alternative vehicle fuels, and solar and other renewable energy sources to join oil, gas, coal, and nuclear. The "price tag" for a safer environment will be borne by companies, consumers, and governments. Exploration and development around the world will accelerate out of security concerns. "Lifestyle" and "quality of life" will increasingly conflict. National conflicts cannot be discounted. The interests of "today" will have to be balanced with those of "tomorrow." For a century and a half since the 1859 Pennsylvania gusher, oil has brought out the best and worst in human civilization.

Epilogue Analysis

The Epilogue first takes up the 1990-91 international crisis precipitated by Saddam Hussein's invasion of Kuwait, then moves to musings about the future of a world transformed by oil. Written before the second Gulf War, in which a second George Bush ousts the Iraqi dictator, it does not address whether the first campaign should have gone further. Nor could he deal with the complete disintegration of the USSR into Russia and the Newly-Independent States (NIS). The discussion of the Gulf War does show, however, that the world had learned many lessons since 1973, and was far better prepared to adjust to the drop in oil production. Prices predictably rose, but then fell back as other producer took up the slack. By embargo and sabotage, oil remained a ready weapon.

Yergin suggests many factors that could take the world in a variety of directions vis-à-vis oil. A third wave of environmentalism appears the most formidable: everything points to a need for a costly technological revolution in the production of renewable energy sources ultimately to supplant petroleum as mankind's great benefactor of mobility and creature comforts. Early warnings that the newly found resource might soon be depleted have proved false, but the immense resources are still finite.

Characters

John D. Rockefeller

The co-founder of Standard Oil, Rockefeller bought out his Cleveland refining company business partner in 1865, and turned the company into the dominant force of the oil industry in its formative period. A remote, solitary genius of management and organization by age 26, Rockefeller was intent on achieving "something big." He played what he called "the Great Game" of making money with gusto, buying tank cars, boats, and warehouses that insulated him from market volatility and improved his competitive position. He had a head for figures, and this, combined with rare vision for where he wanted to go and a ruthless willingness to use Standard Oil's overwhelming wealth, gave competitors "a good sweating." State and federal legislators and courts took interest in his business practices, and in 1911 the Supreme Court ordered the dissolution of the Standard Oil Trust. Rockefeller officially retired, but his ill-conceived retention of the presidency provided a lightning rod to continued investigations and lawsuits.

Henri Deterding

The founder of the Dutch Oil Company, which he merged with Marcus Samuel's British interests to become RDSG. The resulting company had resources sufficient to compete with Standard Oil. Deterding wrested effective control over the company from Samuel. In 1928, Deterding rented Achnacarry Castle for a reunion of leading colleagues to hammer out an "As-Is" agreement to limit costly competition. Described as "Napoleonic in his audacity: Cromwellian in his thoroughness," Deterding bought the Nobels' Russian holdings at fire sale after the Bolshevik Revolution, convinced that the Communists would be ousted quickly. When this failed to materialize, he sold out to Standard Oil. He joined the Nobels, Jersey, and RDSG in the anti-communist Front Uni. His pro-Nazi sentiments lead to fears that RDSG could harm the Allied war effort, and in 1936 he retired to Germany, where he worked to gain support for a crusade to stop the Bolshevik hordes. His reputation in the oil industry was destroyed. When he died in 1939, the Nazis made a bid to obtain his share of the company, but were blocked.

William Knox D'Arcy

An English solicitor who earned his fortune mining gold in Australia. D'Arcy became the founder of the oil industry in the Middle East by chance when he was looking to broaden his investments. He won a 60-year oil concession in Iran, with the support of the British government, which was determined to block Russian overtures to the Shah. Establishing AIOC was a massive gamble facing vast and costly technological and logistical problems. D'Arcy came close to giving up before the British Admiralty agreed to back his enterprise. AIOC became the focus for anti-British sentiments in Iran, finally

played out in the Shah's precedent-setting nationalization of the industry in his nation and in the Islamic Revolution that toppled the Shah and set the stage for the Iran Hostage Crisis. D'Arcy was bought out handsomely, but his name in the world oil industry died out long before his death in 1917.

Calouste Gulbenkian

The business architect behind the founding of the Turkish Petroleum Company, who remarked that "Oil friendships are very slippery." The 1928 contract by RDSG, AIOC, CFP, and a U.S. consortium turned Gulbenkian into "Mr. Five Percent." His Red Line Agreement governed development in the former Ottoman Empire for decades. In 1948, Gulbenkian held out against a Group Agreement to reconstitute the IPC, demanding to retain his 5% of the profits. He was not willing to deal away the greatest achievement of his life (the other being a massive art collection). Gulbenkian died in 1955 fabulously enriched by the new agreement.

Marcus Samuel

The founder of Shell Oil Company. Samuel was a British entrepreneur with an ambition to overcome the political drawback of his Jewish origins. To this end, he launched a tanker fleet, secured passage rights through the Suez Canal, and built local storage capacity throughout Asia. He contracted for half of Spindletop's production for 20 years, developed fuel oil as a commodity, and discovered additional assets in Louisiana and Oklahoma. In 1902, he combined Shell with Royal Dutch and the Rothschilds to form the Asiatic Petroleum Company. His relations with Royal Dutch's Henri Deterding were contentious; he resented his relegation to preside over the joint company while Deterding ran its day-to-day operations. Samuel concentrated on his political career, rising to the office of Lord Mayor of London.

Mark Abrahams

Samuel's cousin who discovered oil in Borneo in 1897-98, and endured jungle life to develop the Shell concession. He went on to explore for the company in Egypt and Oklahoma, where his Roxana Petroleum established a Shell foothold in Standard Oil's America.

George Bissel

The man who, "more than anybody else, was responsible for the creation of the oil industry." His readings convinced him that petroleum could be a profitable commodity, and he hired Yale Professor Benjamin Silliman, Jr., to prove his hypothesis. He then applied ancient Chinese salt drilling technology to the western Pennsylvania oil field.

William Burton

The Standard of Indiana chemist who invented thermal cracking, a promise that increased gasoline yields from crude oil.

George Bush

The Texas oil man who entered politics after earning a personal fortune, rising to the office of Vice President under Ronald Reagan and then succeeding him in the White House in 1988. He was Reagan's point man in the Middle East trip, urging the Saudis to lower production to stabilize the market. However, he also pushed his own views that the free market had gone too far and now threatened U.S. national security by coercing its dependence on imported oil. Despite this disloyalty, he won the presidency, and in 1990-91 organized a worldwide coalition to thwart Saddam Hussein's invasion of Kuwait.

Jimmy Carter

The U.S. President who campaigned for a comprehensive energy policy and human rights. The plan, developed by James Schlesinger, was complex and ineffectively presented to a skeptical public. Carter's Administration was marked by completion of the Alaskan pipeline, the SALT II agreement, Three Mile Island - and, overwhelmingly, the Iran Hostage Crisis, which brought gas lines to America and anarchy to the world oil market. The "Carter Doctrine" declared that Soviet aggression in the Persian Gulf would be countered militarily if necessary. The failure of the military hostage rescue mission sealed Carter's political fate, and the man of "malaise" was replaced by the cheerful Ronald Reagan.

Winston S. Churchill

The British politician who played a pivotal role in many oil-related situations, from acceptance of the "great gamble" of committing the Royal Navy to oil, to leadership during World War II, to the postwar dismantling of the British Empire. He also had a crucial role in acquiring direct ownership of the AIOC Oil Company, and led the Anglo-Franco-Israeli assault on the Suez Canal.

Joseph ("Buckskin Joe") Cullinan

The founder of Texaco. Having built storage facilities in Corsicana, TX, Cullinan had an advantage over competitors at Spindletop. He quickly became the foremost oil man in Beaumont and almost merged with the Mellons' Gulf, but this was blocked by the Texas legislature. In 1913 he lost a proxy fight with his New York investors and returned to exploration and producing.

Henry Doherty

The pioneering advocate of the "unitization" of oil fields to prevent their premature depletion.

Edwin ("Colonel") Drake

The tenacious driller who first struck an oil well in Titusville, PA, in 1859.

Dwight D. Eisenhower

The U.S. president who first dealt with oil when he led a cross-country motor caravan in 1919. As Supreme Commander of Allied Forces in Europe during World War II, he had to manage severe fuel allocation problems in the march from Normandy to Berlin. As president, he dealt with the Suez Crisis of 1956, when he opposed the U.S.'s chief allies in their military campaign to seize the strategic waterway from Egypt. In 1959, despite the weakness of "national security" arguments, he imposed mandatory oil import quotas that remained in effect for decades.

Faisal King of Saudi Arabia

The shrewd, calculating younger brother of the weak spendthrift King Saud. He controlled the kingdom's diplomatic and political business and moved to align with the West. After succeeding his brother, Faisal appointed Ahmed Zaki Yamani as oil minister. Politics and economics fused in Faisal's mind, and in 1973, he supported Anwar Sadat's war with Israel by leading the Arab Oil Embargo against the West. After the embargo was lifted, Faisal opposed the Shah of Iran's continual calls for price increases. Yamani was assassinated in 1975 by deranged nephew.

John Arbuthnot Fisher

The retired admiral who convinced Churchill to convert the capital ships of the Royal Navy to oil. Marcus Samuel called him the "God-father of Oil,"

Henry Flagler

The closest colleague and friend of John D. Rockefeller, with whom he founded Standard Oil in 1870. Flagler was a devotee of compromise and risk reduction. He masterminded the use of "drawbacks," which gave Standard a great advantage over competitors and ultimately led to the Supreme Court's dissolution of the great trust.

Sir William Fraser

The chairman of AIOC who in 1946 joined with Jersey Standard and Socony to reinforce Anglo-American interests in postwar Iran, which were threatened by the Soviets and challenged for European markets. He was an implacable autocrat, notorious skinflint, and classic colonial exploiter, but in 1950 was forced to negotiate a 50/50 deal with Iran.

J. Paul Getty

America's richest man in the 1950s, who built his fortune largely through winning 50% of the concessions in the Neutral Zone between Saudi Arabia and Kuwait.

Charles Greenway

The Scottish trader in Bombay who became the true fashioner of AIOC and dominated the company for two decades. He made it the national champion of Britain and determined foe of RDSG. Stressing Samuel's "Jewishness" and Deterding's susceptibility to German pressure, he won over Churchill, and in 1914 Parliament voted overwhelmingly to become the company's majority shareholder. "Oil, for the first time had become an instrument of national policy."

James Guffey

The flamboiant, politically well-connected promoter and deal-maker who teamed with John Galey and Captain Lewis in hitting oil at Spindletop, which set off the Texas oil boom of 1901. He became a national symbol of instant wealth, but proved to be a miserable manager. Overproduction dried up Spindletop, leaving Guffey unable to meet the obligations he negotiated with Shell. The Mellons agreed to provide capital to his partner, John Galey, a family friend, but dispatched William C. Mellon to check out the operation. Mellon forced out a resentful Guffey, who died deeply in debt.

Armand Hammer

The founder of Occidental Petroleum, who gave his company world-class status when he discovered Libya's Idris field in 1966.

Adolf Hitler

The Nazi Führer who came to power in Germany in 1933 and six years later initiated World War II in Europe, determined to gain living space and oil resources for his nation. Hitler overruled his generals' strategy to seize the Baku oil fields in favor of a politically symbolic conquest of Moscow. This move left his motorized columns out of fuel and granted the Soviet Army and Western Allies time to prevent his forces from gaining the

even greater oil resources of the Middle East. Hitler promoted the development of synthetic fuels to drive German industry and the military to make up for the region's natural lack of petroleum.

Major Frank Holmes

Known along the coast of Arabia as "Abu Naft" - "Father of Oil" - Holmes conceived and promoted the Arabian oil venture, working through Frank Philby and relying on his nose rather than geological data for oil.

Saddam Hussein

The ruthless Iraqi dictator and Pan-Arabist follower of Gamal Abdel Nasser whose determination to control Middle Eastern oil resources led him to a debilitating seven-year war with Iran (1980-88). This preceded the First Gulf War (1990-91), when he battled a multi-nation coalition including Arabs who feared for their own sovereignty. Hussein survived in power after the conflict, stripped of offensive military capability, but fell during the U.S.-dominated Second Gulf War.

Ibn Saud

The physically impressive and shrew Wahabist ruler of central Arabia who expanded his domains after World War I to include the rest of the peninsula, which he renamed Saudi Arabia in 1932. His expenses were immense, and he allowed Jack Philby to arrange exploration for oil. He was the first Middle Eastern leader to meet with an American president, FDR, en route home from the Yalta Conference in 1945. They got along so well that Ibn Saud declared them "twins."

Harold Ickes

FDR's Secretary of the Interior and Oil Administrator. Ickes successfully managed the industry as Petroleum Administrator for War (PAW), overseeing rationing and distribution. He used threat of resignation as a tool of manipulation, but this backfired when Truman succeeded FDR, and his grand plans for American control of Saudi oil remained unrealized.

Wanda Jablonski

The premier oil journalist of the late 1950s, Jablonski brought together Tariki and Pérez Alfonso, which resulted in the "Gentleman's Agreement." This, in turn, led to the forming of OPEC.

Columbus "Dad" Joiner

The tenacious discoverer of the East Texas gusher in 1930 that grew into the largest U.S. field, "Black Giant." Foolishly, he signed away his claims to H. L. Hunt.

Henry Kissinger

The German-born U.S. diplomat assigned by Richard Nixon to conduct "shuttle diplomacy" between Egypt and Israel, and Syria and Israel. He knew nothing about oil when he came on the international scene, but dealt effectively with the Saudis (despite his Jewish heritage) and the Western allies in managing the first successful oil embargo that began in 1973.

Enrico Mattei

The Italian entrepreneur determined to turn his AGIP company - and later a wider-based energy conglomerate, ENI - into major international force. He coined the term "Seven Sisters" for the majors who dominated the market and angered them in 1957 by signing in an agreement with the Shah to gain entry into Iran. Mattei's 25/75 deal broke the 50/50 principle then considered sacrosanct. No oil was found in his territory. Mattei died in plane crash in 1962, en route to a meeting with U.S. President John F. Kennedy.

William C. Mellon

The founder of Gulf Oil, dispatched by his uncle Andrew to secure the family's investment in Guffey and Galey's mishandling of the Spindletop discovery. He dismissed Guffey and took over management, while uncle Andrew negotiated successfully with Marcel Samuel to get the company off the hook to Shell. William designed a strategy to tie together all activities of the oil industry into a coherent, integrated company. He beat Standard in building a pipeline to get Texas oil to market, and by the time he died in 1949 had made Gulf one of the world's great oil companies.

Mohanned Mossadegh

The theatrical, eccentric, phobic prime minister of Iran, who closed a new 50/50 agreement with Fraser's AIOC. Nicknamed "Old Mossy" by British diplomats, Mossadegh wanted to expel all foreigners and flirted with the Soviets. In 1951, he expelled British employees from Abadan, marking the first Middle Eastern nationalization of a foreign concession. Far more popular than the Shah, he imposed martial law in 1953. As he continued to woo the Soviets, the U.S. CIA and British MI6 conspired to overthrow him. "Operation Ajax" was handled badly, but upon revelation that the exiled Shah wished to dismiss him, the people abandoned Mossadegh and he was arrested as the Shah returned in triumph to Tehran.

Gamal Abdel Nasser

The Egyptian dictator who in 1956 nationalized the Suez Canal, precipitating a war with England, France, and Israel but opposed by the U.S. Arab nationalists looked to him for inspiration in taking control of their oil resources, changing their relationship from landlord grantors of concessions to that of sovereign owners. Israel easily defeated his United Arab Republic in the 1967 war, stripping him control of the Sinai Peninsula, Gaza Strip, West Bank (including Jerusalem), and Golan Heights. Nasser inspired Libya's Muhammad al-Qaddafi and Iraq's Saddam Hussein, who sought to create a Greater Iraq.

Richard M. Nixon

The U.S. president during the "energy crisis" of the early 1970s, whose political problems following the Watergate break-in diverted him from vital foreign affairs. In 1973, Nixon abolished the import quotas imposed by Eisenhower. His decision to resupply Israel during the 1973 Arab-Israeli War motivated the Arabs to flex the "oil weapon," embargoing the U.S. and progressively cutting production to squeeze the rest of the West. His energy czar, William Simon, imposed price controls on oil and gained approval for the Alaskan pipeline and fuel-efficiency standards. His chosen successor, Gerald Ford, continued Nixon's oil policies.

Ludwig Nobel

The lead force, with brother Robert, in founding the Russian oil industry in Baku. Brother Alfred took a smaller part but made the family name internationally famous through his discovery of dynamite and the establishment of an annual peace prize. The Nobels fled the Bolsheviks after the Revolution of 1917 and sold their operation at a fire sale to Deterding's coalition.

Shah Mohammad Reza Pahlavi

The high-spending liberal Shah of Iran who accepted his father's throne as a vascillating youth, and followed his ill-advised campaign to modernize the country. In 1951, his prime minister, Mohammad Mossadegh, nationalized Anglo-Iranian, precipitating the first postwar oil crisis. The Shah was briefly exiled to Rome until the U.S. CIA engineered Mossadegh's overthrow; he returned to his throne determined to restore Iran to its ancient greatness. The Shah built a strong military with U.S. arms and initiated leapfrogging in oil prices in OPEC. By the late 1970s, weakened by cancer, he was toppled by fundamentalist Muslim opponents. His exile in 1979 put Ayatollah Khomeini in charge in Tehran. His admission to the U.S. for advanced medical treatment touched off the Iranian Hostage Crisis, and his death in Egypt did nothing to resolve it.

Shah Reza Pahlavi

The high-spending liberal Shah of Iran who in 1908 granted - and in 1932-33 revoked - concessions to AIOC. Fearful of his pro-Nazi sympathies, the Allies overthrew him and installed his son on the Peacock Throne.

Juan Pablo Pérez Alfonso

The Venezuelan minister of development, determined to break the oil companies' hold on his country's chief resource. Journalist Wanda Jablonski secretly brought him and Saudi oil minister Abdullah Tariki together to sign the "Gentleman's Agreement," which led to the forming of OPEC.

Harry St. John Bridger Philby

A rebellious British civil servant and explorer known as "Jack." As a trusted adviser to King Ibn Saud (his royal sponsor upon his conversion to Islam, when he took the Arabic name Abdullah), he brokered Western efforts to obtain an oil concession in the kingdom. During World War II, Philby failed his efforts to mediate the partition of Palestine, and was jailed in Britain for criticizing the Allies. Philby returned to Saudi Arabia after the war to advise the king, but later lost influence under Ibn Saud's son and successor, King Saud.

T. Boone Pickens

The pioneer of shareholders' value-fueled acquisitions. In 1984, Pickens initiated the bidding on Gulf, the first major to be purchased. Though Chevron triumphed, Pickens' stock holdings in Gulf and other take-over ventures made him rich.

Muammar al- Qaddafi

The Libyan dictator who seized control of the revolutionary movement in 1969 and began "squeezing" the multitude of vulnerable small oil companies developing his country's resources. He used Nasser-style nationalization as a political tool.

George Reynolds

AIOC's tough chief engineer whose single-minded search for oil prevented the failure of the enterprise. Fired by the directors of Berma Oil in 1911, he left bitter and unrecognized.

John D. Rockefeller Jr.

Only son and namesake of the Standard Oil founder, who distanced himself from the oil industry until the Teapot Dome Scandal moved him to defend its "basic integrity" and to oust the compromised chairman, "Colonel Bob" Stewart.

Franklin D. Roosevelt

The four-term U.S. president who led the country out of the Great Depression and through World War II. FDR named Harold Ickes Secretary of the Interior and Oil Administrator, signed an executive order to ban "hot oil," and gave Ickes authority to define state production quotas. FDR pushed to overturn the isolationist legislation that kept the U.S. from relieving Fortress Britain during the early years of World War II, suggesting instead the politically acceptable Lend-Lease Program, which made the phenomenal output of the U.S. oil fields available to the Allies. FDR died before he was able to see the Anglo-American Petroleum Agreement through to completion.

Theodore Roosevelt

The populist U.S. president who coined the term "muckraker" to describe the journalists of the progressive movement, who he feared were moving the people towards socialism or anarchism. He earned the sobriquet "Trust-Buster," although he was not opposed to trusts per se. He differentiated between "good" and "bad" trusts, and made Standard Oil - the "Mother of Trusts" - his administration's prime target. After returning Standard's campaign money in 1904, he filed suit against the company in 1906 under the Sherman Antitrust Act, alleging conspiracy to restrain trade. The case reached the Supreme Court in 1911 after Roosevelt left office, but he exulted in the bully victory while on safari in Africa.

Alphonse and Edmond Rothschild

The most famous Jews at the time, whose French branch bankrolled many of Europe's new railroads. When they took an interest in the fledgling Russian oil industry, imperial law was overlooked in order to gain money to connect the Baku oil fields with distribution facilities in Batum on the Black Sea coast. Alphonse took the lead in the Russian enterprise, which in 1886 formed BNITO. It competed with the Nobel Brothers and failed to amalgamate with them to withstand Standard Oil's increasing threat. In 1902, however, the Rothschilds joined RDSG to form the Asiatic Petroleum Company. Just before World War I, the Rothschilds sold their Russian shares to Royal Dutch/Shell.

Anwar al- Sadat

The Egyptian leader who succeeded Nasser and abandoned his Pan-Arabist policy to promote Egypt's interests. He was convinced that that the only way to shock the world into achieving peace and justice in he Middle East was to launch a war with Israel. Sadat's 1973 surprise attack, in concert with Syria and Jordan, enjoyed early success and achieved his goal: Henry Kissinger was assigned to "shuttle diplomacy" between Egypt and Israel (and later between Syria and Israel). The Arab Oil Embargo, imposed as a weapon on Sadat's behalf, played a major role in convincing the West to reconsider its hard line pro-Israel policy. However, he committed treason in the eyes of the Arab world when he made peace with Israel at Camp David and later, when he addressed the Israeli Knesset in 1977, and he was assassinated by fundamentalists.

E. F. Schumacher

An economist who advised British Coal Board in 1950-70, Schumacher was mocked for his fervent warnings against dependence on oil. He enjoyed vindication, however, during the Iranian Crisis of 1980-81.

Benjamin Silliman Jr.

The Yale University professor of chemistry who agreed to prove the hypothesis that the "rock oil" found in Pennsylvania could be marketed commercially. Though he succeeded in compiling scientific proof, Silliman withheld the results until he received his fee of $526.08. His reputation was soiled by tainted evidence in a California analysis, but his prediction of a major oil strike was later vindicated.

Ida Minerva Tarbell

A muckraking journalist whose series of *McClure's* magazine articles on Standard Oil, based on insider information, shocked readers. Published in hard copy as *The History of the Standard Oil Company* in 1904, it played a pivotal role in the Justice Department's lawsuits, which led the Supreme Court to break up the Standard Oil Trust in 1911.

Abullah Tariki

The Saudi oil minister determined to break the oil companies' hold on his country's chief resource. Journalist Wanda Jablonski secretly brought him together with Juan Pablo Pérez Alfonso of Venezuela to sign the "Gentleman's Agreement," which led to the forming of OPEC. His Pan-Arabist zeal (he was nicknamed the "Red Sheikh:) led to his downfall in Saudi Arabia, but he successfully brokered his services as a consultant to Libya's militant Qaddafi.

Walter Teagle

Head of Standard Oil of New Jersey, following the trust's break-up. Teagle advocated expansion of oil production abroad, leading the U.S. consortium seeking entry to the Middle East and the purchase of the Nobel interests in Soviet Russia.

Ahmed Zaki Yamani

The urbane, unflappable Saudi Arabian Oil Minister who advocated using the kingdom's overwhelming capacity to serve as a swing producer in order to balance the market. He was appointed by King Faisal, whose pro-Western views were at odds with that of the oil minister, Abdullah Tariki. Yamani was the very public face of OPEC for decades. His position was undercut when Faisal was assassinated in 1975, and by the time he was fired for an offhand comment at his alma mater, New York University, in 1986, he had few supporters and many jealous enemies.

Objects/Places

Achnacarry Agreement

The major oil companies' first attempt to coordinate efforts in order to end price wars. Also known as the "As-Is" Agreement of 1928, it left out too many players to succeed in cartelizing production and distribution. The movement died with the outbreak of World War II.

Concession

The first approach to gain access to oil: purchase rights from governments to parcels of land and the underlying resources. It was the method of imperialism, and fell out of vogue after World War II.

Embargo

The severing of access to a commodity by a warring government, intended to starve the enemy into submission. Utilizing the U.S.'s overwhelming superiority in oil production and refining, the Allies applied embargoes successfully in both world wars. The Arab position was too weak to implement a successful embargo in 1967, but was able to change world opinion about the Arab-Israeli dispute in 1973. Both Britain and the U.S. applied embargoes against Iran.

OPEC

The oil-producing nations' attempt to control production and prices in the form of a common front against the oil companies. It began in embryo at the April 1959 Arab Oil Congress, and was formalized in September 1960 by the five countries controlling 80% of the world's crude oil exports. It did not gain "muscle" until 1971 meetings in Tehran and Tripoli. After first wielding the "oil weapon" successfully in the 1967 Arab-Israeli War, OPEC succeeded in 1973, and began shifting economic and political power in its direction until 1977. At that time, falling demand for oil and competition from non-OPEC producers led to the "Great Inventory Dump" and falling prices. OPEC battled internally with quotas and pricing, as it lost absolute control over the industry.

Participation

An alternative to nationalization as a substitute for concessions. It recognized the oil company as both the operator of the oil fields and a co-owner with the producing country.

Prorationing

Governmental attempts to control supply-and-demand. It began with efforts in 1931 by the Texas Railroad Commission to quell "insurrections" that resulted from low prices caused by a vast oil glut. Similar bodies were created in Oklahoma and other oil-producing states by the U.S. Federal government during World War II, and internationally during various oil crises. OPEC had limited success implementing voluntary prorationing in the 1980s.

Red Line Agreement

The agreement of oil companies exploiting the lands of the former Ottoman Empire not to undertake any action independent of the other companies involved. Only Persia (Iran) and Kuwait were excluded. It significantly impeded the long-term development of the region, and though long blasphemed, was not overthrown until years later.

Rents

Ricardo's economic theory that the value of the products of different geographical properties varies without reference to the work put into exploiting them. Whether the landlord (the oil-producing country granting concessions) or the tenant (the oil companies, risking capital to explore and produce) deserves to profit from the increased value of the land is widely debated in the oil industry. Rents were first set as a 50/50 split, but to gain entry new companies began agreeing to smaller cuts, and eventually nationalization swept away the entire approach.

Seven Sisters

A derisive term, invented by Enrico Mattei, in reference to the partners in Kuwait: Exxon (Standard Oil of New Jersey), Mobil (Socony-Vacuum), Chevron (Standard of California), Texaco, Gulf, RDSG, and British Petroleum.

Spindletop Gusher

The great oil strike on January 10, 1901, that set off the Texas oil boom.

Titusville, PA

The site of the Edwin Drake oil strike on August 27, 1859, which inaugurated the age of oil.

Themes

Hydrocarbon Society

Hydrocarbons go far beyond the limited number of oil-based fuels sought by the pioneers of oil exploration in the 1850s. They looked to light their houses and businesses cheaply and safely; at the time, they used coal to heat and power their factories. Coal was modern society's most essential commodity. As the gasoline-fueled automobile caught on, the wider application of oil became apparent, and science increasingly improved the refining processes and applications. By the mid-1950s, coal coexisted with oil; soon oil began to prevail, and with the full array of plastics, synthetic fabrics, and other hydrocarbon products, the industrial world was converted into a "Hydrocarbon Society" and its inhabitants "Hydrocarbon Man." It was no longer possible to live comfortably without all that oil offered without returning to primitive way. The problem is that oil is a finite resource, no matter how vast it currently appears to be. Planning for a post-hydrocarbon age is essential but little practiced because of the costs and dislocations involved.

Ownership

Who owns the oil underground? In the closing days of imperialism, the answer was clear: the company purchasing a lease to a parcel of land. Post-World War II decolonization changed the situation; it became a matter of national pride - and national power - to do more than receive royalties on the sale, even when the underground riches proved more extensive than originally believed and demand forced end prices ever upward. Outright nationalization was an option, but the first attempt, in Mexico, had been an economic failure. Another option became apparent: joint ownership. The company, after all, was risking capital on exploration (frequent dry holes before any elephants were struck) and production. A major theme of *The Prize* discusses the inevitable march from concession to nationalization.

Politics

Oil was first exploited commercially in the U.S. in the age of the "railroad barons," among whom John D. Rockefeller ranked supreme. In time, protests against social inequality arose, Congress began to take an interest in constituents' well-being, and popular antitrust legislation was passed. Standard Oil and its chairman were prime targets of early antitrust actions by the Justice Department. Standard Oil was forced to dismember itself, and new companies were rarely free of investigation and prosecution. In time of conflict, however, the military establishment and State Department needed to mobilize all of America's forces, creating an intergovernmental problem. The British and other Europeans could not understand the Americans' preoccupations, and adapted far more easily to new conditions by imposing solutions such as gas rationing. Politics did,

however, impose upon investing decisions in overseas oil operations. Fascist Germany, Imperial Japan, and leftist Mexico had no impediments to nationalizing industries; they simply set quotas and demanded production. Though none of the oil-producing nations of the Middle East was a democracy, any ripples in the economy caused by foreign-owned oil companies - or diplomatic or military ventures by the countries in which they were headquartered - could fill the streets with violent protests.

Self-sufficiency

Ever since the discovery of the commercial and strategic value of oil, oil companies, oil-consuming nations, and oil-producing nations have all sought to become self-sufficient in access to and utilization of the resource. Standard Oil first tried to control all aspects of the production and marketing of oil, but was deterred by the U.S. government. It continued seeking ways to achieve its goal through legal means - to ensure that crude oil was available to its refineries in quantities neither too large nor too small to be handled, that its refineries had affordable means to reach markets. Nations faced the same challenge. Those with meager or no oil beneath their soil - notably Germany and Japan - grew so desperate in their fear of embargo that they were willing to wage war. The U.S., after expending much of its resources during the war effort, was forced to join its defeated foes as an oil importer, and in the 1970s found itself at the mercy of OPEC. Oil-exporting nations also sought self-sufficiency in refining and marketing its oil overseas in order to maximize their profits.

Style

Point of View

The Prize is written in the third person, as befits a formal history.

Setting

The Prize begins on a minute scale, in a professor's office at Yale University and on a West Pennsylvania farm, half a decade before the beginning of the American Civil War. When "rock oil," which the professor scientifically proved to possess marketable properties, was struck in Titusville, PA, a rush began that swiftly encompassed the entire globe. Yergin covers the period from that first gusher in 1854 to the hellish flaming oil fields of Kuwait at the end of the First Gulf War in 1991. In the beginning, he focuses on America as the pioneer in discovery, production, marketing, and consumption of the commodity. Very soon, however, Europe too desires the powerful resource. As demand grows, incentive to find new sources of oil increases, and entrepreneurs explore all possible locations - the Crimea, Romania, Venezuela, Mexico, Persia, Mesopotamia, the East Indies, Arabia.

Language and Style

The Prize is written in straight-forward language, tinged at times with the technical vocabulary of petroleum, but never obscured by jargon. It is no dry academic tome, but focuses on people great and small whose stories of success and failure illustrate the march of oil around the world, often with humor and irony woven in.

Structure and Meaning

The Prize is divided into five parts, with titles indicating the work's basic themes: "The Founders" introduces John D. Rockefeller, Ludwig Nobel, Marcus Samuel, Henri Deterding, and William Knox D'Arcy, and depicts the workings of the industry - exploring, producing, refining, shipping, and investing. In addition, the peculiarly American phenomenon of antitrust action against "big oil" is established. "The Global Struggle" covers World War I through the great Arabian oil concessions of the 1930s, showing the rapid growth of technology (most notably the automobile) that created demand for oil. The chapter also illustrates the influence of the commodity during World War I, both on and off the battlefield, as well as new explorations for the product in the still-backward Middle East. "War and Strategy" shows the unambiguous confirmation of the unique strategic value of oil that had been suggested in World War I. During World War II, it plays a central role in both causing and in ending the war. "The Hydrocarbon Age" covers the expansion of oil production and consumption from 1945 to 1972. The world becomes largely dependent on the Middle East, which surpasses the U.S. as the

leading producer. "The Battle for World Mastery" begins with the first successful use of the "oil weapon" by the Arabs in the 1973 Arab-Israeli War.

Quotes

"Was, then, oil power an illusion, or was it a product of a particular constellation of economic, political, and ideological circumstances? Was it a one-time phenomenon, or will it prove to be a recurring fixture of international life? Control of, or at least access to, large sources of oil has long constituted a strategic prize. Of that there can be no doubt. It enables nations to accumulate wealth, to fuel their economies, to produce and sell goods and services, to build, to buy, to move, to acquire and manufacture weapons, to win wars. Yet it is also a prize that can be overvalued. Moreover, the very reality of a world based on oil is coming to be questioned." Epilogue, pg. 783

"There was the matter of the missing $526.08.

"A professor's salary in the 1850s was hardly generous, and in the quest for extra income, Benjamin Silliman, Jr., the son of a great American chemist and himself a distinguished professor of chemistry at Yale University, had taken on an outside research project for a fee totaling $526.08. He had been retained in 1854 by a group of promoters and businessmen, but, though he had completed the project, the promised fee was not forthcoming. Silliman, his ire rising, wanted to know where the money was." "Indeed, all the other elements - refining, experience with kerosene, and the right kind of lamp - were in place when Drake proved, through drilling, the final requirement for a new industry, the availability of supply. And with that, man was suddenly given the ability to push back the night. Yet that was only the beginning. For Drake's discovery would, in due course, bequeath mobility and power to the world's population, play a central role in the rise and fall of nations and empires, and become a major element in the transformation of human society." Part 1, Chapter 1, pg. 29.

"If simplicity is an element of success, the scheme certainly seems full of promise. For instead of sending out cargoes of oil in cases costly to make, expensive to handle, easy to be damaged, and always prone to leak, the promoters intend to ship the commodity in tanksteamers *via* the Suez Canal, and to discharge it wherever the demand is greatest into reservoirs, from which it can be readily supplied to consumers." Part 1, Chapter 3, pg. 67.

"The drillers took Christmas off and resumed their exhausting work on New Year's Day, 1901. On January 10, the memorable happened: Mud began to bubble with great force from the well. In a matter of seconds, six tons of drill pipe catapulted out of the ground and up through the derrick, knocking off the top, and breaking at the joints as the pipe shot further upward. Then the world was silent again. The drillers, who had scattered for their lives and were not sure what they had seen, or even if they had actually seen it, sneaked back to the derrick to find a terrible mess, with debris and mud, six inches deep, all over the derrick floor. As they started to clean the mess away, mud began to erupt again from the well, first with the sound of a cannon shot and then with a continuing and deafening roar. Gas started to flow out; and then oil, green and heavy, shot up with ever-increasing force, sending rocks hundreds of feet into the air. It pushed

up an ever more-powerful scream, twice the height of the derrick itself, before cresting and falling back to the earth." Part 1, Chapter 4, pg. 84.

"As Marcus Samuel once said, 'The mere production of oil is almost its least value and its least interesting state. Markets have to be found.' Refiners, meanwhile, need both supply and markets; a refinery that goes unused is little more than scrap metal and used pipe. And those who run a marketing system need oil to pass through it; otherwise they, too, have nothing but financial losses. The intensity of those needs varies at different times, but the underlying imperative is a constant of the industry." Part 1, Chapter 6, pg. 114.

"They were searching for a solution to the dilemmas of overproduction and overcapacity in their troubled industry. More than trying to bring another truce to the oil wars, they were after a formal treaty for Europe and Asia - one that would bring order, divide markets, stabilize the industry, and defend profitability. Achnacarry was a peace conference." Part 2, Chapter 14, pg. 261.

"In order to fight Russia, the German forces required petroleum resources on a grand scale, but they far outran their supply lines and lost their advantages of speed and surprise. The irony of Operation Blau was that the Germans ran short of oil in their quest for oil." Part 3, Chapter 17, pg. 337.

"(It was Stalin who had offered a toast at a banquet in Churchill's honor in the darkest days of the war: 'This is a war of engines and octanes. I drink to the American auto industry and the American oil industry.')" Part 3, Chapter 19, pg. 382.

"And indeed, estimates sounded like lunacy - up to 300 billion barrels for the region and 100 billion barrels for Saudi Arabia alone - resulting from his trip. One of the members of his mission told officials in the State Department, 'The oil in this region is the greatest single prize in all history.'" Part 4, Chapter 20, pg. 393.

"With some pride, Betancourt noted that, as a result of the tax reforms of the mid-1940s, the Venezuelan government received 7 percent more per barrel than what was paid to the Mexican government by its nationalized industry. And Venezuelan production was six times that of Mexico." Part 4, Chapter 22, pg. 436.

"It was a most awkward matter: the U.S. government was bringing a giant antitrust case against the major oil companies - the very same companies that it was seeking to push into the new consortium to bolster Iran." Part 4, Chapter 23, pg. 472.

"Part of the answer lay in the marketplace. Much sooner than expected, Middle Eastern oil, not American, had become the supply of last resort. In particular, Saudi Arabia had become the marginal supplier for everybody." Part 5, Chapter 29, pg. 594.

"'America's complete support for Zionism and against the Arabs makes it extremely difficult for us to continue to supply the United States with oil, or even to remain friends with the United States.'" Part 5, Chapter 29, pgs. 596-597.

"'All saw the remedy, but would not adopt it. The remedy was, of course, a reduction in the production.' Although Ise had written the book sixty years ago, the language and the diagnosis sounded all too familiar to Parra. He made notes." Part 5, Chapter 36, pg. 759.

Topics for Discussion

How insidious was John D. Rockefeller's "plan"?

How did the U.S. attitude towards big business set it aside from the rest of the world?

How might oil have changed the course of the two world wars?

How well have oil embargoes succeeded and how have they failed; that is, how potent is the "oil weapon"?

How has oil technology affected traditional societies in Libya, Saudi Arabia, and Iran?

How did Saddam Hussein resemble Adolf Hitler?

How did OPEC change the world?

Why was the Suez Canal worth going to war over in 1956? Would it still be?

How would you defend environmentalism's slowing of oil consumption? How would you argue against this?

Has oil more clearly brought out humanity's good or evil side?