

The Path Between the Seas Study Guide

The Path Between the Seas by David McCullough

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Contents

The Path Between the Seas Study Guide.....	1
Contents.....	2
Plot Summary.....	4
Book 1, Chapter 1.....	6
Book 1, Chapter 2.....	8
Book 1, Chapter 3.....	10
Book 1, Chapter 4.....	12
Book 1, Chapter 5.....	14
Book 1, Chapter 6.....	17
Book 1, Chapter 7.....	20
Book 1, Chapter 8.....	22
Book 2, Chapter 9.....	26
Book 2, Chapter 10.....	28
Book 2, Chapter 11.....	31
Book 2, Chapter 12.....	34
Book 2, Chapter 13.....	38
Book 2, Chapter 14.....	42
Book 3, Chapter 15.....	44
Book 3, Chapter 16.....	46
Book 3, Chapter 17.....	48
Book 3, Chapter 18.....	52
Book 3, Chapter 19.....	54
Book 3, Chapter 20.....	57
Book 3, Chapter 21.....	60
Book 3, Afterword.....	64



Characters..... 65

Objects/Places..... 68

Themes..... 73

Style..... 75

Quotes..... 77

Topics for Discussion..... 80



Plot Summary

The Path Between the Seas combines a wealth of detail on politics, economics, medicine and engineering in showing how a handful of remarkable Frenchmen and Americans direct masses of Caribbean workers in joining the Atlantic and Pacific oceans at Panama.

The United States shows interest in a navigable connection between the Atlantic and Pacific oceans from the days of Thomas Jefferson, negotiates access to the Isthmus of Panama with Columbia (the Bidlack Treaty, 1846) and builds a small Panama Railroad, just as fast transportation to the West Coast becomes crucial during the Gold Rush. Various routes across Panama, Nicaragua and Mexico are put forth, but no systematic surveying is undertaken before 1870, when the Navy Department commissions several missions, most notably the Darien Expedition, led by Thomas Oliver Selfridge.

Ferdinand de Lesseps steps in, fresh from his victory over the deserts of Egypt, joining the Mediterranean and Red Seas, the most impressive engineering project to date. De Lesseps repeats the process of gathering financial backers, and through explorer Lucien Wyse, buys from Columbia the rights to build a canal across Panama. Supremely confident of the benefit this project will bring humanity, and the honor it will earn for France, de Lesseps in 1879 organizes and closely controls the Congris International d'Etudes du Canal Interocéanique to legitimize his plans for a sea level, lockless canal. He forms the Compagnie Universelle du Canal Interocéanique and ships in men and material to begin work.

Soaring hopes and misleading propaganda cannot overcome logistical and natural challenges far more massive and expensive than expected. Thousands of ordinary Frenchmen invest in de Lesseps' dream and lose a lot of money when finance charges on loans grow too great. The company goes into receivership with the project less than half-complete. While the Compagnie Nouvelle preserves the work site and makes modest progress in advancing it, it comes out de Lesseps and son Charles have been offering gratuities to journalists and politicians. A great scandal ensues, leaving the U.S. free to challenge the Isthmus.

Theodore Roosevelt brings to the presidency a strong belief in the need for American supremacy on the seas, founded on an isthmian canal. Debate continues over the relative merits of Panama and Nicaragua, while diplomatic efforts go forward to secure access. The Hay-Pauncefote Treaties (1898 and 1901) gain Great Britain's agreement that the U.S. may protect the canal "against lawlessness and disorder," and the Hay-Herrbn Treaty (1903) allows the U.S. to buy-out the Compagnie Nouvelle's interests and control the old French Canal Zone. When Columbian nationalists reject the treaty, a loose consortium of Panamanians and Americans, kept together by the omnipresent Philippe Banau-Varilla, organize and execute a bloodless revolt, creating a Republic of Panama. The Hay-Banau-Varilla Treaty (1904) hastily grants the U.S. the rights sought from Columbia.



Americans set to work along the French route and using French equipment, but quickly ship in larger, more modern equipment and organize to overcome the challenges that thwarted de Lesseps. Dr. William C. Gorgas destroys mosquitoes' breeding grounds, and greatly reduces (but never eliminates) malaria, yellow fever, and other diseases. The first Chief Engineer, John F. Wallace, cannot stand up to Washington red tape. The second, John Stevens, ushers in the "Railroad Era," in which the French inability to remove rock and dirt are overcome. The third, Lt. Col. George W. Goethals, brings in the Army Corps of Engineers' experience with massive hydraulic projects to see the canal to a successful close. Mudslides are conquered only when an old French proposal by de Lypinay is adopted, and dredges clear the last remnants of nature's challenge to human ingenuity.

The locked canal opens to traffic ahead of schedule and under budget, but just as the guns of August are being fired in Europe. After the wars, the Panama Canal becomes the useful, peaceful waterway of commerce envisioned for a century and a half.



Book 1, Chapter 1

Book 1, Chapter 1 Summary and Analysis

"Threshold" examines early interest in joining the Atlantic and Pacific oceans somewhere in Central America, concentrating on U.S. expeditions through 1875. There are at least 19 points narrow enough for a canal. On Jan. 10, 1870, Navy Secretary George M. Robeson orders Cdr. Thomas O. Selfridge to the Isthmus of Darien at Caledonia Bay, 150 miles east of the Panama Canal Railroad, to gather botanical and geological specimens, take astronomical observations, and report on the climate and the natives. Plans call for six more expeditions, whose cumulative results the Interoceanic Canal Commission (ICC) will appraise.

The Navy remembers 1850, when Lt. Isaac Strain's party nearly perishes trying to find a path at Darien, which Dr. Edward Cullen has claimed to find. Adm. Daniel Ammen, chief of the Bureau of Navigation, finds in the Strain Report evidence of a low-lying valley running inland. Interest is high in an era of exploration, discovery and building. The Union Pacific Railroad and Suez Canal have made the planet seem smaller. Science and engineering are bringing mankind close to unity. London salutes Ferdinand de Lesseps, the Frenchman behind the Suez project, which shortens passage between Europe and India by 5,800 miles.

Fifty years of debate and popular interest have not been enlightened by reliable data. The earliest authoritative study, *Political Essay on the Kingdom of New Spain*, appears in 1811, penned by Alexander von Humboldt. Based on secondary sources, it is sketchy but widely quoted and misquoted. No one heeds Humboldt's warning to do nothing before experienced people compare the advantages and disadvantages of all possible routes. When Spanish rule dissolves in the 1820s, French, English and Dutch engineers, officers, promoters and journalists invade with little technical competence but with visions of financial bonanza for both investors and impoverished governments. Most, like John Lloyd Stephens, the lawyer and author of popular travel books, take the "manifest destiny" view that a canal will cost \$25 million. In fact, all early 19th-century canal plans are preposterous. Every survey is flawed by bad assumptions and inaccurate data.

On Dec. 12, 1846, chargé d'affaires Benjamin Alden Bidlack signs a treaty with President Tombs Cipriano de Mosquera, granting the U.S. exclusive right of transit across the Isthmus of Panama, in exchange for a guarantee of "perfect neutrality" of the region and Columbian sovereignty. The Bidlack Treaty makes possible building the Panama Railroad, which becomes the backbone of the later canal project. President Roosevelt will brazenly ignore its second provision, creating a legacy of distrust toward the U.S. across Latin America for decades.

When gold is discovered in California in 1848, three routes develop from the East Coast. The first route is directly across the continent. The second route is around the



Horn of Africa. The third route is over the isthmus, which cuts 8,000 miles off the Horn route. The Panama onslaught begins when the *Falcon* anchors at the mouth of the Chagres River, and 200 Americans storm ashore and plunge into the jungle. Amazingly, all survive the broiling heat, sudden rains, muck and fever. In 1850, a little railroad is begun. Expected to take two years at a cost of \$1.3 million, it needs five years and \$8 million. However, for a generation of Americans, the three-hour crossing is the essence of adventure. The Pacific Mail Steamship Company receives a federal subsidy to carry the mail. John Lloyd Stephens becomes President of the Panama Railroad Company, and the monopoly clears over \$7 million in its first six years. This leads, as early as 1849, to calls for a canal.

Surveying for the railroad reveals a gap 12 miles from Panama City at Culebra. Known as a pesthole from Spanish times, Panama abounds with horror stories, as the railroad pushes forward, claiming 6,000 lives. Laborers, drawn from around the world, are overwhelmingly black. The worst year is 1852, when cholera claims 48 of 50 American technicians and 150 soldiers and dependents from the Fourth Infantry en route to garrison duty. One survivor is young Ulysses S. Grant, who remembers the horror vividly in the White House.

The U.S. and Britain nearly go to war over Nicaragua at the start of the gold rush, resolving their differences by agreeing in the Clayton-Bulwer Treaty of 1850 to joint control of an eventual canal. Nicaragua is two days faster and cheaper than Panama, and it's not a death trap. In 1851, Orville Childs, a qualified engineer, surveys the narrow neck of land separating Lake Nicaragua from the Pacific. He finds the summit 122 feet lower than in Panama.

The impetus to establish *some* canal increases, when the steam engine transforms ocean travel. It appears American trade can save \$36 million in operating costs and world trade \$48 million. That's enough to pay off a \$100 million project in a few years. Explorers do not use standard measurements, are unavoidably subjective, and easily misled. French and Americans distrust one another's findings. Selfridge lands during the dry season at the Caledonia Gap, where the summit, at 553 feet, proves Cullen a fraud. Selfridge's diary records dangers, mishaps, hardships, and miseries overcome by persistence. Steaming 100 miles westward to the Gulf of San Blas, Selfridge explores another low pass as the rainy season returns, but finds the summit stands at 1,142 feet. Later that year, he explores the Gulf of Urabb and Humboldt's Napipi route, and in 1873, reaches the Atrato headwaters. In his official report to Robeson, Selfridge recommends a strait with no locks or impediments, through-cut at sea level like at Suez.

Chapter 1 introduces several recurring themes, most notably the patriotic fervor that will govern both French and American endeavors in Panama, and the consistency with which time and money are underestimated. That the jungle conceals horrors is made clear, but will be brought out in terrible detail through the rest of the volume.



Book 1, Chapter 2

Book 1, Chapter 2 Summary and Analysis

"The Hero" refers to the veneration that surrounds Ferdinand de Lesseps after the opening of his Suez Canal. Here and in the next three chapters, we learn how he motivates and directs the Panama project, which tarnishes his reputation. The other characters sketched in Chapter 2 are scarcely heroic, but we see how the threshold is passed, and progress begins on a canal.

De Lesseps is a gifted, passionate nobleman, born in 1805 to a family of distinguished diplomats, including father Mathieu and uncle Barthylemy, whose youthful adventures fill his mind. Ferdinand enters diplomatic service at age 19, and grows interested in canal building in the 1830s while posted in Egypt, when Prosper Enfantin arrives, wanting to channel across Suez. Enfantin succeeds the radical philosopher, Comte de Saint-Simon, in advocating building a network of highways, railroads and canals to save humanity from poverty and war. Enfantin attracts financiers, business people, journalists and civil engineers, and heads to Cairo, where he achieves little more than uplifting de Lesseps with his message of enthusiasm.

With no technical background, no experience in finance, only modest skills as an administrator, and is easily bored by routine, de Lesseps is hardly the "Great Engineer." However, having been used by Louis Napoleon, he has to resign from diplomacy and, at 43, find his way out of debt and public disgrace. He researches an Egyptian canal, and when in 1854, the fat, friendless boy de Lesseps had befriended years earlier becomes Viceroy Mohammed Said, de Lesseps hurries to join his entourage. For the next 15 years, de Lesseps raises money, courts journalists, supervises construction, and earns the enmity of British Prime Minister Palmerston, who sees him as an interloper in the Mediterranean. When the Rothschilds demand a 5% handling fee, de Lesseps dares raise money personally, about half from France and the rest from Said and Said's successor, Khedive Ismail, whose largesse by 1869 bankrupts Egypt. Nerve, persistence, energy, diplomacy, imagination, a talent for propaganda, and a capacity for deception serve de Lesseps well. At the Grand Opening, Nov. 17, 1869, de Lesseps stands with the empress aboard her yacht, as tens of thousands line the canal banks. De Lesseps receives the British Grand Cross of the Star of India, and the French hail him as the "Great Patriot."

In the Franco-German War of 1870, Bismarck needs only two weeks to force surrender at Sedan, an event that for the rest of the book will be a marking point for progress on the Panama Canal project. Terms aim at keeping France crippled and subservient for a generation, but the Third Republic bounces back, and money becomes available for foreign investments. Geography is the rage across France, and at an international congress in 1875, de Lesseps makes his first public declaration of interest in an interoceanic canal. He upstages the explorers and dominates debate about what kind of canal to build, declaring for one at sea level and lock-free. De Lesseps loses interest in



Suez, when the British buy-out Egypt. Word comes the ICC has voted for a Nicaragua route, and the Society de Gyographie announces that because U.S. efforts have been weak, it will sponsor an international conference on the isthmus.

It is debatable whether de Lesseps is a willing confederate, the guiding spirit, or an innocent dupe of the small, newly formed T'rr Syndicate (the "Society Civile Internationale du Canal Interocyanique de Darien"), which takes over exploration and surveying for the Society de Gyographie, abandoning its non-partisan, international orientation. The T'rr Syndicate is capitalized at 300,000 francs by 60 prominent French stockholders. The three directors include the celebrated German-born Gen. Istvan T'rr, Baron Jacques de Reinach, a wealthy and influential banker and speculator, and Navy Lt. Lucien Wyse, who invests his wealthy wife's money in the enterprise. Bogotb allows surveying a route east of the railroad, and Wyse commands a 16-man force, all of whom get malaria. Wyse makes the trek to inaccessible Bogotb and negotiates a contract with President Aquileo Parra a week before Panna leaves office. Conditions include a down payment of 750,000 francs, competent international surveys within three years, organization of a canal company within two years after that, and construction within 12 years after that. Columbia receives 5% of the gross revenue for 25 years, 1% increases at the 50- and 75-year anniversaries, and 8% in the final years. The amount is promised never to fall under \$250,000. The company receives public lands on both sides of the canal. The terminal ports and canal itself are to be neutral. After 99 years, the canal reverts to Columbia. Most crucially, the Wyse Concession may be transferred to other individuals or syndicates, but not to a foreign government.

Wyse returns to Panama, pays a precursory visit to Nicaragua, and proceeds to Washington, meets surveyors Cmd. Edward P. Lull and A. G. Menocal, but is refused access to maps, plans and Adm. Ammen. Back in Paris, Wyse and Ryclus put together a plan for a sea-level canal while de Lesseps organizes a congress. Wyse tries to purchase the Panama Railroad Company from Wall Street speculator Trenor W. Park, who has the leverage to demand twice market value. In Washington, Wyse sees Adm. Ammen, Secretary of State Evarts, and President Hayes. Evarts remains suspicious of French motivations, years after the attempt to put Maximilian on the throne of Mexico, but eventually agrees to send Ammen and Menocal to Paris as authorized delegates, but not diplomatic functionaries.



Book 1, Chapter 3

Book 1, Chapter 3 Summary and Analysis

"Consensus of One" shows how only de Lesseps' preconceived notions matter at the 1879 Congris International d'Ytudes du Canal Interocyanique in Paris. He personally selects and invites 136 leading engineers, naval officers, economists and explorers from 22 countries, controls the agenda, rules, committees and entertainment. The deliberations of the Technical Committee, dominated by French non-engineers, are the only ones that matter. Selfridge, Amman and Menocal present reports. Selfridge advocating the Darien route, and the others Nicaragua. Menocal, in a polished, confident, five-hour "technical exposition," shows how engineering can be minimized by damming the San Juan River to create a navigable body of water with only ten locks at either end. The crossing is three times longer than at Panama but requires no more digging and, at \$65.6 million, can be achieved for a third of Wyse's estimate. Wyse's vague presentation and inability to discuss the Chagres River or Pacific tides makes clear that there had been no real Wyse Survey. T'rr and Ryclus speak for hours but contribute little to promoting the railroad route. Based on first-hand observation in 1875, Menocal predicts disaster in dealing with the Chagres and Culebra. The official U.S. plan for a lock canal passing over the Chagres on a 1,900-foot long viaduct, requires 12 locks at each end and a startling \$94.6 million. That's double Wyse's estimate. Ammen declares the whole thing impractical.

Within a week, 14 proposals are advocated and rejected, leaving only the Wyse and American plans on the table. Had de Lesseps been allowed a vote, Nicaragua would have won, but behind the scenes, he wins over bankers and the French population. As the week ends, and consensus vanishes, de Lesseps convenes another general session. Like an actor, he points out on a map as to where the canal will be built. One must trust in inspiration, he tells the rapt audience. Later that day, Godin de Lypinay, the brilliant and stubborn chief engineer of the French Department of Bridges and Highways, who has worked in the tropics, brings up Panama's deadly climate. He is ignored. He agrees with Menocal that the Chagres cannot be tamed. He suggests that Suez is deceptive, because it and Panama are environmental opposites.

Lypinay proposes applying Menocal's method to Panama, damming the rivers to create artificial lakes 80 feet above sea level and excavating a channel through Culebra. At each ends, stair-like flights of locks would move shipping to and from sea level. The plan requires minimal digging and not only eliminates the Chagres' threat but uses it to advantage as the lifeblood of the system. Ships will move at higher speeds, pass one another, and make the passage in 12 hours. Lypinay estimates six years of work at \$100 million, including buying the Panama Railroad. They will also reduce the health hazard, based on "scientific" understandings of "noxious vapors." Lypinay's speech, eloquent and prophetic, as we will see in Part 3, is immediately passed over by de Lesseps.



Closed subcommittees report that the Nicaragua canal is practicable, will cost \$140 million, and take six years. The Wyse Plan, also practicable, will cost \$209 million, take 12 years, and must include locks. De Lesseps' followers make clear that he will not accept a canal anywhere but Panama, and wavering delegates fall in line. Selfridge raises Nicaragua's history of earthquakes and volcanic disturbances. As the spirit grows less diplomatic, Menocal decries the shift from objective, impartial professionalism. A brawl nearly breaks out. when de Lesseps forces the Technical Committee to vote his way. Twenty walk out and of the remaining eighteen, only three vote nay. The next day, May 29, 1879, the full congress is told that the Panama Canal will be complete by 1892 at a cost of \$214 million. Interest payable will raise the total to \$240 million, which was triple the cost of Suez. In the alphabetic voting, Ammen abstains on the grounds that only engineers should make such decisions. The totals are 74 yea, 8 nay, 16 abstaining, and 38 absent.

De Lesseps' holds a congress only to give the Wyse Concession legitimacy when approaching financiers. Its purpose is not deliberation, but the consecration of the Wyse Plan. The scientific Americans almost manage to spoil the effect and go home furious and skeptical. De Lesseps demonstrates all of his weaknesses. He disregards technical problems, and refuses to trust authorities, have faith in the future of technology, and recognize his own fallibility.



Book 1, Chapter 4

Book 1, Chapter 4 Summary and Analysis

"Distant Shores" describes de Lesseps' five-month visit to the New World, where nothing changes his views or lessens his enthusiasm. Before sailing, he raises \$400,000 selling founders' shares to rich and influential friends and buys out the T'rr Syndicate. Prospectus in hand, he drums up \$80 million from small investors. An initial stock offering goes badly, when French bankers are wary and the press is hostile. Less than 10% of the 800,000 stocks sell. De Lesseps refunds investors and, undaunted, prepares another issue. He begins publishing a propaganda organ, *Bullet in du Canal Interocyanique*, forms a new International Technical Commission of famous engineers, and announces he will carry out the survey required by the Wyse Concession.

In December of 1879, a large entourage sails to Panama, arriving in the dry season. De Lesseps is hailed as second only to Columbus, and fills hearers with confidence. Colun (called Aspinwall by stubborn, older Americans) is a squalid shantytown, built by the railroad on coral flats at the mouth of Limon Bay. Most inhabitants are black Jamaicans, living in squalor. Travelers catching the train dread spending any longer than necessary here. The only pleasant section is reserved for the white Americans, who run the railroad. Park and other New Yorkers join the party, and the train plunges into the jungle. They stop briefly at Gatun Station before entering the valley of the wide, brown, looping Chagres River. After crossing miles of swampland, they again meet the Chagres, now swift running and 600 feet wide. The worst flood on record has wrenched apart the massive iron bridge at Barbacoas, so travelers cross on planks and board another train. This ought to have been a warning. At Matachnn, de Lesseps learns everything must be imported, including workers, supplies and equipment. The armies of forced laborers de Lesseps enjoyed in Egypt are not available here. The train leaves the Chagres bottomlands and follows the Rio Obispo to the summit at Culebra. Scenery during the 10.5-mile descent to Panama City resembles a Chinese landscape. The *Bulletin* claims the six-hour crossing takes only three.

Panama City, sitting on a tongue of volcanic rock, is a miserable, crumbling place. The harbor is too shallow to service large ships, fire ravages it periodically, streets are narrow, sanitation is unknown, and huge rain barrels collect fresh water everywhere. Tuberculosis, smallpox, cholera, yellow fever and malaria are common. Still, Panama City is a step up from Colun. Patrician landowners and professionals form a society, a bilingual newspaper, *Star & Herald*, is published daily, and the climate is less oppressive. In preparation for de Lesseps' arrival, the city has been scrubbed and painted. All 14,000 inhabitants turn out for an enthusiastic welcome. De Lesseps settles into the handsome new Grand Hotel on Cathedral Plaza. In the morning, President Demaso Cervera is inaugurated in the cathedral, and some 600 people watch de Lesseps make good on his promise to strike the first blow for the canal on the first day of the New Year. The New Yorkers go home, Park having suggested he will sell the railroad, once de Lesseps has the cash.



On Jan. 6, 1880, de Lesseps briefly addresses the first business session of the Technical Commission. He then leaves it alone to work, while he entertains himself and keeps his eyes open. The commission's 300-page report rubberstamps what it knows de Lesseps wants. This includes a sea-level canal, the Chagres held in check by a dam, and the Pacific tamed by a tidal lock and breakwater. Construction will take eight years and cost \$168.6 million. This is a drop from the Paris figure of \$ 71.4 million, obtained by stripping out legitimate interest and administrative costs, monies due to the T'rr Syndicate and Columbian government, the purchase of the railroad, and reducing the contingency fund to 10%. This is in spite of the fact that direct observation has convinced the members that the volume of excavation will be 50% greater than anticipated in Paris. De Lesseps complains the reductions are too timid, maintaining the task will be easier than Suez. He dismisses talk about the deadly climate as the "invention of our adversaries." En route to New York, de Lesseps chops the estimate to \$131,720,000, 45% less than Paris.

In New York, de Lesseps lionized as youthful, intellectually vigorous, magnetic, and impulsive as ever. The papers show enormous interest in him personally, but are guarded about his Panama Canal. In Washington, DC, de Lesseps is received cordially, and eloquently presents his plan on Capitol Hill. He politely listens to James B. Eads' plans to build a massive railway system that will port ships sea-to-sea across Mexico at Tehuantepec, at a cost one-third less than de Lesseps' canal. He emerges to be asked by reporters about his reactions to Hayes' vow not to surrender control over any isthmian canal to any European power and warning corporations and private citizens investing in such an enterprise not to look to Europe for protection. Contrary to Hayes' intention, de Lesseps sees this as a guarantee of the canal's security, and begins barnstorming, making news at every stop. The French disclaim any involvement in his project. Before returning to Paris, de Lesseps assembles a Comity Amyricain to handle stock sales. Three New York firms participate. They are J. & W. Seligman & Company, Drexel, Morgan & Company, and Widlow, Lanier & Company. For all his popularity, de Lesseps sells nothing and determines to concentrate on France alone, "where one is in the habit of working for the civilization of the world."

Book 1, Chapter 5

Book 1, Chapter 5 Summary and Analysis

"The Incredible Task" chronicles the early years of the Compagnie Universelle, marked by soaring hopes, misleading propaganda, real but costly progress, and massive logistical and natural challenges. De Lesseps' second attempt at going public is the biggest financial undertaking to date, exploiting Frenchmen's blind faith in venture capitalism. The cost of individual shares (\$100) represents a full year's income for half of France's working population, but de Lesseps demands only 25% down and allows six years to pay the rest. Suez stock offered at the same cost is now worth \$500 and pays 17% dividends.

When de Lesseps discretely "subsidizes" the press to the tune of some \$319,000, Panama becomes a "magic word." Within three days, over 100,000 people subscribe for 1,206,609 shares, which was double the number available. At the first shareholders' meeting in January 1881, de Lesseps declares all problems have been solved, and all difficulties smoothed over. The company incorporates on Mar. 3 1881, with de Lesseps as President, Henri Bionne as Secretary General, and Charles de Lesseps as a Director. Start-up costs for the Compagnie Universelle come to \$6.4 million. Early in 1881, de Lesseps turns over 10,000 shares of stock withheld from sale to the T'rr Syndicate and relinquishes his own rights and privileges to the Compagnie Universelle.

French civil engineers in the 19th-century are justly proud of their heritage of innovations. The cream of the crop are trained at the Ycole Polytechnique and the Ycole des Ponts et Chaussyes. Rigorous entrance examinations exclude all but the most brilliant from the former, and only its top graduates go on to latter. There, they study engineering and graduate to serve the state, building the infrastructure and influencing the whole economy. A second career path, through the Ycole Centrale, produces engineers who serve private enterprise. Polytechnique graduates regard themselves as men of science and look down on American colleagues as merely adroit at improvisation. Thus, the French engineers who go to Panama find improvisation under pressure difficult. Suez had been too simple to prepare the French for Panama, as Lypinay warns. De Lesseps, however, cannot get the Suez success out of his head. Questions of labor supply, housing, and health, none of which matter in Egypt, have to be faced. Those who transfer from Suez to Panama must unlearn everything.

The first group of 60 engineers, led by Gaston Blanchet and Armand Rycus, reaches Colun in late January of 1881. Ryclus has overall control, but Blanchet, in fact, runs things. Decisive and forceful, he proposes devoting a year to clearing a 400-foot wide swath but is ordered to settle for 50 feet, which proves too narrow for surveying and has to be expanded. It is a difficult and dangerous task beset by poisonous snakes, predator cats, and a variety of insects that make life a living hell. Beyond Gatun, the line cuts through seven miles of marsh and swamps, which swell during the eight-month rainy



season that commences in May, when torrential rain falls in bursts most days, dropping 120-130 inches per year.

Blanchet clears a path by May, and Colun becomes a beehive of building and warehousing. Towns are constructed at Gatun and Emperador, as are machine shops and dormitories for black workers. White technicians live in comfortable cottages. In Panama City, the company buys the Grand Hotel to serve as Ryclus' headquarters. He finds it nearly impossible to maintain an adequate work force because of frequent turnover. Three health facilities are planned. These are the massive Hfpital Notre Dame du Canal on Ancon Hill, a smaller hospital at Colun, and a sanitarium for convalescents on Taboga Island. It will later be charged the French plunge into the jungle without concern for disease. However, de Lesseps, who lost a wife and son to cholera in Egypt invests a staggering \$7.1 million in hospitals that a Canadian physician declares the finest in the tropics. An American, decades later, puts it ahead of all U.S. care givers.

The climate quickly rusts, rots or disintegrates everything. The Yankees running the railroad create difficulties for the French whenever possible, and Ryclus urges de Lesseps to pay Park's price, which has increased \$200 per share to \$250 cash. In June of 1881, de Lesseps does so, consuming a third of the company's resources. The railroad remains an American entity, and the 1846 Bidlack Treaty remains in effect, binding the new owners to guarantee uninterrupted traffic on the line. U.S. gunboats remain offshore to provide security. In June, stockholders approve de Lesseps' request to borrow \$60 million more. Blanchet leads a serious mapping and surveying party up the Chagres, and de Lesseps establishes yet another technical advisory board to review the data, largely as a public relations ploy.

In the summer of 1881, 200 French and European technicians and clerical workers are in Panama, and 800 laborers are making test borings, constructing buildings and readying equipment. In May, yellow fever returns, and the first employee dies in June. Deaths continue all summer, but de Lesseps tells a Vienna congress that there is no epidemic. In November, Blanchet dies, apparently of malaria, the most common tropical disease, which takes many forms, Chagres fever being the deadliest. Everyone in Panama gets a dose sooner or later. Those who survive the chills followed by high fever and burning thirst are debilitated and often depressed. Recurrences are common. By contrast, yellow fever survivors enjoy lifelong immunity. Malaria is always present. Yellow fever comes and goes in waves, but the death it causes is so gruesome, that it causes instant panic. To the shivering, fever, and thirst malaria patients suffer are added savage head and body aches and restlessness. In half of those infected, the trouble appears to subside, but they turn yellow, spit up blood, cool, grow sedate, and die in 8-10 hours. Bodies are buried as quickly as possible. Many whites believe Caribbean blacks are immune, but in fact, most have survived mild cases in childhood. The 1880s know no remedy or palliative for yellow fever, but for malaria, quinine offers hope. The French distribute regular preventative doses.

That both diseases spread according to "miasma theory" has gone unchallenged for centuries. Decomposing vegetation is to blame for malaria, and sewage and putrefying carcasses for yellow fever. Night air is particularly deadly. In 1854, Dr. Josiah Clark Nott



claims insects, perhaps mosquitoes, spread both diseases. In 1882, Dr. Albert Freeman Africanus King proposes a mechanism for transmission and a means of eradication. He urges the screening of windows, draining of swamps and ponds, and trapping of insects. He is mocked. Buried in reports of the Nicaragua Expedition of 1872-73 and Panama Expedition of 1875 are observations that mosquito netting reduced the spread of the fever. However, these go unnoticed. In 1880, Dr. Alphonse Laveran in Algeria links the wriggling bodies in blood samples taken from malaria victims with the disease, but colleagues reject his claims.

When two doctors in Rome isolate a bacterium in soil from a malarial region and infect rabbits with it, scientists are won over. However, mosquito theory remains foreign in Panama, being mentioned only once, in 1881, by Dr. Carlos Juan Finlay, who links yellow fever to just one of 800 species of mosquito, the *Stegomyia fasciata* (later renamed *Aedes aegypti*). He fails to prove his theory and is ignored. Dr. Girard demonstrates new workers are infected within a month, but no one suspects conditions in the hospital are responsible. Ants are kept out of plants and patients' beds by containers of standing water, windows and doors are not screened, and patients are not segregated by disease. It is also "known" in Panama that all people are not in equal jeopardy, but survive in direct proportion to their moral fortitude. The cosmopolitan French live as they had at home, drinking wine with meals, gambling, visiting prostitutes, brawling, rioting and murdering, to the horror of Anglo-American observers. Debauchery and moral or physical cowardice, the critics believe, lead to ruin. However, a clean, blameless, confident, courageous life can be long, even in the tropics.

Digging the Great Trench begins at Emperador on Jan. 20, 1882 and moves faster than expected during the dry season. Two American firms are subcontracted to dredge both ends of the canal and excavating begins at Culebra, Monkey Hill, Gorgona and Paraso. Ryclus resigns and is not adequately replaced. Couvreux, Hersent et Compagnie withdraws quietly. The death toll mounts alarmingly. Moreover, a violent earthquake destroys buildings, damages the railroad extensively, and panics the population. In Paris, de Lesseps does damage control among investors, who have been told Panama is immune to earthquake. He claims more progress has been made in two years than at Suez in six. In fact, no harmonious system can be achieved in Panama. French track, for instance, differs in gauge from that of the Panama Railroad, and their cars come in a variety of sizes and gauges. The situation is serious, but de Lesseps' public composure is total. When events in Egypt distract him, his son, Charles, takes over day-to-day management and travels to Panama. A new chief engineer accompanies him.



Book 1, Chapter 6

Book 1, Chapter 6 Summary and Analysis

"Soldiers under Fire" is a rather obscure title for this examination of the second part of the French effort. Raging tropical diseases, previously discussed, raise such fear in Paris that professors encourage young graduates in engineering *not* to volunteer for Panama, but they are fired with the kind of patriotic zeal one normally associates with warriors.

Jules Isidore Dingler, a physically unimpressive man in his mid-40s, a graduate of the Polytechnique, and successful engineer, is as qualified as possible to serve as the first Directeur Gynyral. During the month Charles remains, Dingler restores order and confidence, distributes the workload, and purges the cowardly and disloyal. He inspects the line, examines data, and formulates the only master plan the French will have in Panama. Taming the Chagres is the heart of the matter, and Dingler envisages the largest earth dam ever built. A tidal lock will handle the Pacific. Dingler's most important change is to reduce the slope of the cut to prevent cave-ins, resulting in an increase in the so-called "cube" of the excavation by 60% to 120 million cubic meters. That was the total volume removed at Suez. De Lesseps concurs, massive amounts of equipment are imported, and buildings go up to house and maintain them.

In April of 1883, Herne, Slaven & Company (later known as the American Contracting and Dredging Company), tows to Colun its first massive steam-powered dredges that chew out earth by an endless chain of massive iron buckets and wash it clear of the work site down chutes. Tough, independent American dredgers live on board, some with wives and children. In the mudflats of Limon Bay, they make rapid progress but slow inland. The Slaven alone complete its allotted task on schedule and accounts for a third of all digging in the French canal project.

The work is organized into three divisions. These are the Limon Bay and the lower reaches of the Chagres, the upper Chagres and hills between Matachnn and Culebra, and Culebra to the Bay of Panama. Each is headed by a French engineer and involves multiple contractors drawn from many nations. Dredging predominates in the lowlands, steam shovel, pick, shovel and wheelbarrow in the uplands. Wages are better than workers receive at home. Visitors hear progress exceeds 2 million cubic meters a month, when in fact it is well under 10% of that. Official mortality rises steadily - 125 in 1882 and 420 in 1883 - but only a third of those who get sick report to the hospital, and their deaths go unrecorded. Notable among the deaths in 1884 are Dingler's son, daughter, and the daughter's fiancy. As the death toll reaches 200 a month, it can no longer be kept quiet. Engineering school professors try to talk graduates out of going, but volunteers for this glorious French cause abound. By May, the payroll reaches 19,000. Among them is proud, ambitious, energetic, self-confident and likeable young Philippe Banau-Varilla, who goes to run operations at the Culebra and Pacific end.



Hard as they work, the engineers are plagued by problems, some of which, notably the Chagres River, appear insoluble. To Dingler, it is "the great unknown," and his dam, while reasonable on paper, cannot be built. In Paris, de Lesseps believes something will turn up, and the crucial question is tabled. More immediate and discouraging are slides in the Culebra Cut that worsen as excavation proceeds. The Cut is reasonably stable in the dry months, but come the rainy season, the porous saturated clay sloughs off the underlying impervious strata and slips like an avalanche into the canal. Over eons, the Isthmus has received a complex structure that fascinates geologists but is a nightmare for engineers. Drainage ditches dug parallel to the Cut to carry rainwater away has little effect. More effort goes into making the slopes less steep, seeking the "angle of repose," at which gravity should not cause slides, but it is never enough. The "total cube" of the cut grows steadily, until it appears the top of the cut will have to be three-quarters of a mile wide to achieve a mathematically stable 1:4 ratio. The French haul the resulting "spoil" by train to adjacent valleys, systematically terraced to accommodate the volume. This is quick and economical, but fundamentally flawed, because the terraced dumps are unstable and temporary track is constantly dislodged and buried. As natural watercourses are blocked, swamplands form in which mosquitoes breed. It never occurs to the French it is a problem of transportation rather than excavation, and that the key to solving it is the Panama Railroad. Contractors grow frustrated and quit, and successors demand better terms. The canal company buys equipment and rents it to contractors, but is obliged to furnish an adequate work force. It and regularly fails. Contractors are responsible for wages alone. Housing, provisioning, and health care are on the canal company. In October of 1884, there are 19,243 employees, 16,249 of them black. A bloated French bureaucracy manages them. Observers with technical background are beginning to report that the work is not going well, but the French press withholds the truth for a price.

Mme. Dingler dies of yellow fever, which unaccountably ceases to be cyclical and joins typhoid fever, smallpox, pneumonia, dysentery, beriberi, food poisoning, snakebite and sunstroke as continual threats. Malaria remains the deadliest, and new arrivals suffer worst. Banau-Varilla estimates 20% perish, and only 20% of the survivors are strong enough to work. Others estimate up to 75% mortality among French immigrants. To prevent panic, yellow fever and malaria are not mentioned in the hospital. Some report beds are at such a premium, the dying are laid in coffins to await the end. Most who fall sick die without seeing the hospital. Buzzards circle overhead. Four funeral trains a day shuttle to Monkey Hill. American physicians estimate that at least a third of the work force is ill, at any given time. Company doctors advise people to stay out of the hot sun and avoid getting wet to protect themselves against night air. This is impossible. They're also urged to eat no fruit. All agree the only safe course is to leave the Isthmus quickly.

The French lack jurisdiction over the port cities, where sanitation is non-existent. On Mar. 31, 1885, Colun burns to the ground at the climax of the "Prestan Uprising." The election of Rafael N'sez as President of Columbia touches off liberal insurrections in the Isthmus. Former Panamanian President Rafael Aizpuru briefly seizes Panama City, while across the Isthmus, Haitian-born, xenophobic Pedro Prestan leads a dozen barefoot followers in commandeering the prefecture. On Mar. 29, Prestan takes six American hostages and demands weapons, and the U.S. consul orders an agent to



comply, but Cmd. Kane moves the gunboat *Galena* in to take control. Prestan flees into the jungle after setting a fire that kills 18 and leaves 8,000 homeless. U.S. forces join Columbian troops in restoring order. In Panama City, Aizpuru offers to declare Panama independent if the U.S. will recognize his regime, but on orders from Washington, he is turned down. American railroad officials rebuild Colun.

This first manifestation of U.S. naval power impresses Banau-Varilla, Dr. Manuel Amador Guerrero, and Capt. Alfred Thayer Mahan, on the verge of a career that will influence Theodore Roosevelt, as we will see in Chapter 9. Dinger grows short-tempered and abusive. Key people resign before he admits defeat and leaves. Banau-Varilla becomes acting director. Word reaches Washington that the work is under 10% complete and bogged down. Health facilities cannot keep up with disease, food prices are too high, and workers fear new political violence. Blacks flee home faster than they can be replaced, but high wages keep the project moving forward.



Book 1, Chapter 7

Book 1, Chapter 7 Summary and Analysis

"Downfall" opens three weeks after the Colun fire, showing Ferdinand de Lesseps achieving the ultimate honor, induction into the Academie Franzaise. The press is earning its keep, refraining from printing the derogatory things being talked about on the streets. Panama shares are slipping in value, but de Lesseps lies to stockholders about the task as being half finished. The bubble bursts in August of 1885, when *Yconomiste Franzaise* warns of disaster, unless the canal company is reorganized. The New York *Tribune* writes of gigantic speculation, and London *Financial News* carries blistering allegations of systematic deception and press collusion. When a deadly storm smashes Colun and floods the track and diggings, de Lesseps reminds people of setbacks at Suez. In July of 1886, he asks for and receives a vote of confidence and proposes a Suez-style lottery bond issue to raise \$20 million.

While stockholders lobby the Chamber of Deputies to authorize this, de Lesseps announces he will inspect Panama personally. The Chamber dispatches a noted civil engineer, Armand Rousseau, as an independent inspector. He arrives ahead of the old man but simultaneously with Charles de Lesseps, who installs Lyon Boyer as Director General. In stockholders' minds, Ferdinand is revered, but there is concern over how much longer he can last. His large retinue of technical advisers, company officials, and special guests includes no one from the first expedition. They arrive after Rousseau completes his work and departs. Charles and Banau-Varilla, feeling slighted, answer technical questions.

Back in Paris, de Lesseps concedes Panama is ten times more difficult than Suez. The company has trouble paying its bills, as France awaits Rousseau's report, released in May. It declares abandoning the project will be harm French prestige and advocates both a lottery and abandonment of the ill-founded sea-level plan. When Deputies require an audit, de Lesseps withdraws his application and launches another conventional bond issue. The company is paying \$15 million a year in interest on borrowed money. Rumors of squabbling, collapse, bankruptcy, and the use of political influence abound. The popular *Petit Journal* remains loyal to de Lesseps, who stays as active and visible as ever. To quash rumors he is terminally ill, de Lesseps goes to New York to stand beside President Grover Cleveland at the unveiling of the Statue of Liberty. He wrongly predicts they will do the same soon in Panama. Banau-Varilla suggests an ingenious solution that will let de Lesseps extract himself honorably and get income from tolls flowing in. They should build one kind of canal to dig another kind. A lock canal linking artificial lakes across the Isthmus will allow dredging down to a sea-level solution to replace the dry excavation that mudslides thwart, and the locks can later be removed. His back is to the wall, so de Lesseps endorses the plan but says publicly that 20 ships a day will pass through the canal by 1890, earning \$20 million a year. Still, Panama stock continues to decline.



On Nov. 15, 1887, de Lesseps renews his request to sell lottery bonds and announces Eiffel will design and build two huge flights of locks to lift ships over the level of the Chagres at flood stage and lessen the amount of excavation still required. The new price tag is \$331.2 million. De Lesseps confidently asks the French public, which has already contributed over \$200 million, to give him another \$12.5 million for an engineering approach he has consistently rejected. Eiffel's locks, gates and operating apparatus are modifications of those designed for Nicaragua ten years earlier. Lock basins are contracted to Banau-Varilla. The new premier refuses to submit a lottery request and *Yconomiste Franzaise* predicts liquidation. De Lesseps' eighth bond issue in eight years is a fiasco, even though it is promised bonds can be converted to lottery bonds should the Chamber act. When it does on Apr. 28, company stocks soar. Company and bank officials argue over how to stage the issue, with the financiers insisting only a big payout will attract attention. The sale runs six days, and lottery drawings are held bimonthly thereafter, awarding \$200-\$100,000 annually. Over \$ 1.4 million is spent on publicity, and the French talk of little else.

On the morning the bonds go on sale, someone sends false telegrams around the world announcing de Lesseps' death. Denials do nothing, as raiders dump stocks. Less than half the bonds sell, bringing in only \$2 million in working capital. That should have killed the company, but de Lesseps spins the story, claiming the Panama Canal will bring them half-again more than the \$400 million Suez has earned the nation. He organizes hundreds of committees to line up new investors. Charles has to do most of the speechmaking, as father and son barnstorm France and Britain. The law stipulates that unless 400,000 bonds are taken, the subscription must be annulled. When only 180,000 sell, people are dazed. The company suspends reimbursements and asks the government for a moratorium. Newspapers around the world report "The Great Canal Crash," and the Deputies order the company into receivership. Demonstrations of popular support are staged across France, and it is announced major contractors will continue essential operations on credit, lest machinery be ruined and harm come to the excavation. A liquidator is appointed Feb. 4, 1889, ending the Compagnie Universelle.



Book 1, Chapter 8

Book 1, Chapter 8 Summary and Analysis

"The Secrets of Panama" serves as a postscript to Book 1, revealing what comes out in the courtrooms and the in the wake of a massive corporate failure that affects some 800,000 French investors, who could ill afford any loss. The liquidator's order to halt work on the Isthmus provokes no demonstrations. Instead, shareholders politely petition for redress. Many hope the government will rescue them, while others want only to put it behind them. There would have been no scandal without Ydouard Drumont, a devout Roman Catholic lover of history, childless widower, variously employed until his *La France Juive* makes him famous in 1886. Drumont holds Jews responsible for disease, crime and economic woes. French Jews, notably the Rothschilds, are numerically few but conspicuous as financiers. When the Compagnie Universelle fails, Drumont looks for a connection. *La Derniere Bataille*, Drumont's self-styled "history" of the company, becomes a best seller in 1890. It demands an audit and de Lesseps' imprisonment for massive fraud and corruption. Drumont gives special, vicious attention to Dingler and the massive death count among workers.

Drumont finds an illustrated anti-Semitic daily, *La Libre Parole*, which receives attention only in September 1892, when it begins featuring exposes on the "Jewish plot in Panama." The Minister of Justice orders an audit and interrogation of the former company. De Lesseps has lived in seclusion for two years, assisting the liquidation process until he grows dim and is confined to bed. Against his doctor's orders, de Lesseps testifies before Henri Prinnet, defending his management. Police search the homes and offices of company officials and Eiffel and seize documents. The Deputies vote unanimously for "resolute and speedy action." A court appointed accountant absolves officers of profiting personally but charges them with misuse of funds and willful deception of the public. The articles in *La Libre Parole* are signed "Micros," a pseudonym for Ferdinand Martin, the banker who handled the 1885 lottery petitions and has subsequently fallen out with Charles de Lesseps. The articles charge 20 legislators vote for the bill after being bribed by de Reinach and others. The actual bagman, Lyopold-Ymile Arton, a flashy swindler, has vanished.

Other papers catch the scent. The government acts, interrogating de Reinach, Henri Cottu, Louis Blanc, and Charles de Lesseps. De Reinach admits giving Arton publicity money and distributing \$600,000 to the press, but denies bribing public officials. The others deny the allegations or refuse to reply. Premier Loubet is reticent to launch an investigation that might snare old friends. He relents, when the prosecutor declares he wants only to gain restitution for ruined shareholders. Ignorant, Minister of Justice Louis Richard has already ordered criminal prosecution. De Reinach is discovered mysteriously dead, but de Lesseps, Cottu, Marius Fontane and Eiffel are served warrants. Speaker Jules Delehaye tells a packed Chamber their common honor is at stake, but refuses to name the 150 deputies who have shared \$600,000, until the body



votes for an inquiry. Rumors fly about how, or if, de Reinach died, and an inquiry is ordered. Loubet falls, and Alexandre Ribot forms a new government.

The much-publicized Committee of Thirty-Three holds 63 sessions, receives 158 depositions, compiles over 1,000 dossiers, and issues a report that embarrasses no colleagues. De Reinach's body is too decomposed to determine a cause of death, and he becomes the nominal villain, but attention also focuses on bland, 47-year-old Cornelius Herz. Born in Besançon in 1845, Herz grows up in the U.S., graduates college, and qualifies as an assistant surgeon in the Franco-Prussian War. He never earns a medical degree, but works as a doctor in Chicago, New York and San Francisco. Fleeing to Paris when he is investigated for defrauding patients and partners, Herz poses as a successful young American, publishing, investing, and getting to know everyone who matters. Herz's most valuable friendship is with the ruthless, brilliant, outspoken Deputy Georges Clemenceau. Herz's name surfaces, when banker Anthony Thierye names him as recipient of the largest checks de Reinach issues to various "Bearers." Herz flees to London, but gives his lawyer photographs of a list of names matching bank stubs already discovered and refers to another \$200,000 check divided up by Arton among 104 deputies. A legislative investigation reveals Herz as the crucial but long-concealed figure.

Herz's lawyer reveals de Reinach is Drumont's inside source for the "Micros" articles, but Drumont refuses to testify, unless he is pardoned for a libel conviction that has him in prison. It is learned de Reinach, while bleeding the company and Panama contractors, ostensibly to subsidize the press, has kept nothing for himself and is being bled by Herz. Herz does nothing detectable, legal or illegal, for the Compagnie Universelle, but receives some \$2 million, entered on the books as "publicity." When the company refuses a final payment to Herz, he blackmails it and de Reinach. The press next targets Clemenceau, and in 1893, finds a *femme fatale* to complete the story, Lyonide LeBlanc, whose home is the center of the whole intrigue, but she so successfully ties everything up that no one dares talk about her.

Secluded in his country place, de Lesseps improves physically but is oblivious to the world. Charles is arrested discretely but treated thereafter as a dangerous public enemy. He and his co-conspirators are jailed separately in the old metropolitan jail and denied visitors. Charles faces two separate trials. The first, for fraud and mal-administration, is held in the Paris Court of Appeal in 1893. As Ferdinand is excused from appearing, Charles bears the weight of defense. With "Panama" a universal term of abuse, the prosecutor demands strict application of the law. Defense attorney Barboux speaks for two days about all Ferdinand de Lesseps has done for France, and how his clients have taken nothing personally. He says that all large projects go over budget. Charles gets little sympathy. No one questions his good faith, but he admits to remunerating financiers and politicians without due diligence. All five defendants are found guilty and sentenced severely. The de Lesseps each receive five years in prison and \$600 fines. Fontane and Cottu get two years and \$600. Eiffel gets two years and a \$4,000 fine.



Charles is allowed to visit his anxious father between trials. The police chased Arton across Central Europe but fail to catch him. Herz's doctors certify he is too ill to return for trial. Herz tells journalist Emily Crawford of de Reinach's involvement in a vast European intrigue to readjust diplomatic alliances and to enrich the politicians cooperating with him. Crawford says the story sounds fanciful, but she is certain that Herz is key to scandals worse than Panama. France is spellbound. The second, "Great Bribery Trial" opens on Mar. 8, 1893, and the audience finds some of the testimony by high official witnesses uproariously funny.

Charles is the center of the drama, and people notice that he is now determined to fight to the bitter end. He refuses to blame his father and insists no company official has bribed anyone, but have constantly been victims of extortion. Seeing no one charged for wrecking the sale of lottery bonds by alleging de Lesseps had died, the company had to protect itself in the press, and the government had encouraged their paying enormous sums for the truth to come out. The judge orders the government left out of the matter and, when the audience clamors for the truth, clears the court. Co-defendants Floquet, de Freycinet and Clemenceau had begged Charles to pay off de Reinach "for the good of the Republic." The guilty verdict comes on Mar. 21, 1893, but extenuating circumstances reduce the sentences. Charles gets one year in prison, Blondin two, and Baphaut (who confesses) gets five years and a \$15,000 fine on top of repaying the \$75,000 bribe. If he cannot pay, Charles is responsible.

A mammoth report shows total company payments for political influence and "friendship" on the Bourse come to \$4 million, and payments to the press come to \$2.5 million. Eiffel eventually clears his name, but gives up his career as a builder. The politicians recover and return to office. Herz lives out his days in England, and the secret cache of documents about which he tells Crawford is never found. Arton returns to France, is tried, convicted and imprisoned. Charles falls ill in prison, is transferred to a hospital, and is released in September of 1893. Threatened with a new imprisonment if he fails to repay Baphaut's \$75,000 debt, Charles flees to England, but returns after a partial payment is arranged. Charles never speaks about Panama again. He is with the rest of the family, when Ferdinand de Lesseps dies Dec. 7, 1894. There is no grand funeral, and "Panama" is absent from the eulogies.

In just over a decade in Panama, the French spend \$287 million and expend some 22,000 lives, which does not come out in the inquests and trials. Even Bismarck laments this heavy blow to a gallant people. Drumont's anti-Semitism spills over into the Dreyfus Affair. The massive administrative blunder is generally attributed to de Lesseps, an accomplished swindler, falling in naturally with de Reinach and Herz. Americans see it as a grand comedy. Most French continue loving the grandfatherly hero, are sad he lacks common sense, but understand that is the way of geniuses. They rescue de Lesseps' memory by turning him into a naive simpleton, like Joan of Arc. Later, he will be seen as a tragic victim of earthly forces beyond his control whose fatal flaw is simply old age. It is assumed de Lesseps would have triumphed at Panama had he not grown old.



The failure to decline with age was de Lesseps' problem. He is never able to trust the experts he hires, but insists on things about which he has no expertise, disregards data, and exerts his extraordinary ability to win people to his views. A sea-level canal at Panama is impossible, and with 1880s equipment, a lock canal pushes the limits of technology and finance. Eiffel's locks quickly would have made the canal obsolete. Desperate to gain time to stave off disaster, de Lesseps takes part in bribery, misinformation and outright lying. He lives by the "beautiful illusions" humanity needs psychologically, is as bedazzled as anyone by technology, and Suez has made him dangerously believable when he says technology can move mountains.

On the other hand, nothing would have been attempted without de Lesseps. The liquidator's commission concedes "very considerable" progress and finds the plant in good enough shape to complete a lock canal in eight years. The liquidator, therefore, extends the Wyse Concession through 1903, and a Compagnie Nouvelle du Canal de Panama is incorporated Oct. 20, 1894. Americans look again to Nicaragua, but the Wall Street Panic of 1893 crushes their efforts. Clearly, this must be a national undertaking, and the U.S. appears to be the only nation up to it. Panama appears to be suffering a curse, destined to be a sad monument to an old man's misguided tragedy.



Book 2, Chapter 9

Book 2, Chapter 9 Summary and Analysis

"Theodore the Spinner" opens by portraying Lafayette Square as the center of real power in Washington, consisting of Sen. Mark Hanna, Secretary of State John Hay, and Henry Adams. The focus of power shifts abruptly when President McKinley is assassinated in 1901 and, in Hanna's words, "that damned cowboy" becomes President. At 42, Theodore Roosevelt has wide popular appeal matching the spirit of the day - expansive, confident, and intent on exercising power as never before. Roosevelt clears the fetid atmosphere, seeing people, doing paper work, cutting red tape, and adoring his new role. Hanna (who put McKinley in office) and Adams are not enthusiastic, but reporters and their readers love the short, stocky chief executive and his lively young family. Roosevelt quickly proves effective in getting things done.

Cultivated, worldly, patriotic, inspired by heroic exploits, boundless in his love of life and animal vitality - and crafty, self-glorifying, and self-deceiving - Roosevelt resembles de Lesseps. In his first message to Congress, Roosevelt says the U.S. must construct a Central American canal to rival Suez, not for commercial or humanitarian reasons but as the key to U.S. naval supremacy. His guiding light is Alfred Thayer Mahan of the Naval War College, whose *The Influence of Sea Power upon History* is uncompromising on the need for a canal. Born in 1840 at West Point, NY, Mahan's 30-year career drifts aimlessly before publishing this tome in 1890. Supremacy at sea has always been the key to national and commercial greatness. England, Germany and Japan take Mahan's ideas to heart, as do such American "expansionists" as Henry Cabot Lodge, John Tyler Morgan, and Roosevelt, who as a member of the Civil Service Commission, is the first influential person to review it, glowingly, in *Atlantic Monthly*. Roosevelt has two uncles, who distinguish themselves as naval heroes in the Civil War and has published *The Naval War of 1812* while still a Harvard undergraduate. Mahan declares the Caribbean should be an American Mediterranean, and an American canal will free the U.S. of navpety and myopia and inspire creation of a new navy with bases (and colonies) around the world. In 1897, Roosevelt writes Mahan to advocate a Nicaragua canal and building a dozen new battleships, and Mahan primes Lodge to have Roosevelt named Assistant Secretary of the Navy. As the U.S. establishes a naval base at Cuba, annexes Hawaii, and acquires Puerto Rico, Guam and the Philippines, the canal Roosevelt has been advocating becomes enormously popular. The need is emphasized, when it takes two months for the *Oregon* to steam 12,000 miles in 67 days around the Horn from San Francisco to Havana harbor to avenge the sinking of the *Maine*. A canal would have cut this to 4,000 miles. Roosevelt insists expansionism is not imperialism, and U.S. dominance of the Pacific is his generation's great task.

Roosevelt is governor of New York in 1898, when he first thrusts himself into shaping policy for an American canal, writing (and aggravating) Secretary Hay. Preoccupied in the Boer War, Britain is ready to bow out of the Clayton-Bulwer Treaty, and Hay negotiates an agreement with Sir Julian Pauncefote allowing the U.S. to continue the



French efforts at Panama in exchange for omitting military fortifications and guaranteeing free passage to all in wartime. Rumblings about this neutrality have already arisen, when Roosevelt shrilly denounces it in the New York press, asking why the U.S. should undertake this burden if it can be menaced by it in time of war. The Senate demands amendments that the British refuse, and new negotiations begin. Progress has been made by the time Roosevelt takes office, and the second Hay-Pauncefote Treaty is the most important treaty of his presidency. It omits the clause forbidding fortification and allows the U.S. to protect the canal "against lawlessness and disorder." Knowing this means there will be fortifications, Roosevelt is "delighted" by the signing of Nov. 18, 1901.

Few Americans share Roosevelt's assumption the canal will go through Nicaragua, but he looks to hard-working, independent, irritable, and honest 67-year-old "Old Morgan" of Alabama, Chairman of the Senate Committee on Interoceanic Canals (the "Morgan Committee.") Since 1876, he's made his life's work putting "the American route" through politically stable and disease-free Nicaragua. Morgan's contempt for the Panama route and the failed French efforts there are rabid. American boards of trade, state legislatures, and civic groups rally behind Nicaragua, and in 1900, both party platforms advocate this route. They await only the release of a Presidential study to confirm the "most practicable and feasible route."

Chaired by Rear Adm. John Grimes Walker, the "Walker Commission" of eminent civil and military engineers has reviewed two years' worth of fieldwork. Three days after the Hay-Pauncefote signing, and before Roosevelt can review and send it to Congress, the report is leaked. Few politicians or editors read it closely enough. Preference for Nicaragua depends on how much the Compagnie Nouvelle wants for its holdings. If the figure is low enough, the Commission makes a strong technical case for Panama. The press generally denigrates the "Panama Lobby," and in December of 1901, the House puts the Hepburn Bill authorizing a Nicaragua canal on its calendar. Over Christmas break, word comes that the Compagnie Nouvelle wants \$40 million, precisely the amount the Walker Commission feels the excavations, documents, railroad and other assets are worth. The figure is and far less than the original \$109 million asking price. The House passes the Hepburn Bill 308-2 without reading the report, but Morgan does and announces hearings.

Washingtonians expect the impatient Roosevelt to ignore the last-minute French overtures and let Morgan handle matters, but Roosevelt risks everything and goes all out for Panama. Some suggest the pro-railroad Hanna influences him, and editors look to Morgan to save the public trust. Morgan frequently states Columbia will never abandon its rights and buying Panama is to buy a revolution. The Columbian minister assures the State Department and the press that his government will deal liberally with the U.S. On Jan. 28, 1902, Sen. John Spooner offers an amendment to the Hepburn Bill authorizing the President to acquire the Panama property and concessions for no more than \$40 million, provided Columbia will relinquish sovereignty over a six-mile zone perpetually. Failing this, the President may build in Nicaragua. Clearly, the plan emanates from the White House and its occupant, a true spinner.



Book 2, Chapter 10

Book 2, Chapter 10 Summary and Analysis

"The Lobby" takes up the story, as proponents of the two routes fight out in the U.S. Congress as to where to put an American canal. Sentiment is entirely one-sided in favor of Nicaragua, until William Nelson Cromwell and Philippe Banau-Varilla emerge as spokesmen of the "Panama Lobby." Both are aggressive Napoleonic types. Cromwell is a corporate lawyer with a reputation as a mystery man and puller of strings. "Accidents don't happen" is his motto.

Born in Brooklyn, NY, Cromwell begins as an accountant, works his way through Columbia Law School and, in 1876, founds the Wall Street firm of Sullivan & Cromwell. He builds his own legend and hires promising, young lawyers. He's a multi-millionaire by his early forties, and is a confidant to America's top financiers, on whose friendships he trades openly. As general counsel for the Panama Railroad, he seeks to sell the French properties, preferably the U.S. government. He counts Hanna and Spooner as friends and has access to the White House. Morgan hates him, which Cromwell sees as proof of his effectiveness. Focusing on the Speaker and the Chairman of the Ways and Means Committee, he sees the ICC established with George S. Morison as a member, and next convinces Chairman Walker to begin his investigation in Paris.

Racing ahead, Walker orchestrates everything, seeing each member receives a bound, printed copy of 340 vital documents, arranging a special convocation of the Comity Technique International, so Chairman Henry Abbot can propound the soundness of the old French scheme to inspire investors should the U.S. be foolish enough to prefer Nicaragua. The Compagnie Nouvelle has made progress beyond mere maintenance, and moneyed people will see Panama as a good investment. Cromwell's greatest success is winning over Hanna, who masters the technical aspects and is seated on the Morgan Committee.

Vain, bold, brilliant, practical, personable and energetic Banau-Varilla is hardly the comic schemer later generations depict. He sees himself as a crusader for Scientific Truth, ordained to restore the tarnished French honor and salvage "The Great Idea of Panama." He is certain that fortune is smiling on him. Hay and Morison appreciate his brilliance. His cultivated European manners, actor's timing, and evangelist's flair contribute to the success of his cross-country campaign as had de Lesseps' 20 years earlier. However, he is more successful, because he is asking not for money, but for an understanding of Panama's superiority in strictly engineering terms. Every fact is on the tip of his tongue, and papers hail him as "the Frenchman who is like an American." After losing a bid for a Chamber of Deputies seat, Banau-Varilla came to New York to work with John Bigelow. In 1892, he publishes *Panama: Past, Present, and Future*. He talks to the Russians about investing \$140 million in Panama to enhance the value of the Trans-Siberian Railroad and to balance Anglo-American control of Suez and the transcontinental railroad. The fall of the French government and assassination of Tsar



Alexander II thwart this plan. In 1899, he works on the three pro-Panama members of the ICC, presenting them copies of his book. However, in 1900, the initial report favors Nicaragua.

Banau-Varilla accepts an invitation to address a Cincinnati civic group. En route, he meets Myron T. Herrick, a Cleveland banker and friend of McKinley, who is impressed by Banau-Varilla's story. Cincinnati marks the beginning of a whirlwind tour in which Banau-Varilla delivers a standard speech claiming he represents no private interests but seeks only to defend "a grand and noble conception" of building a shorter, more navigable, operationally simpler and cheaper alternative to Nicaragua. He talks about the existing railroad and port facilities and glosses over the mudslides, disease, political troubles, and his own stock holdings. He introduces a new theme to the debate in the form of Panama's lack of volcanoes.

Herrick's name opens the door to Hanna and 20 pillars of Cleveland enterprise. Appearances in Boston and Chicago are productive, gaining an introduction to Morgan in Washington in an "intimate and friendly way." Banau-Varilla ignores Morison's advice to downplay volcanoes in addressing audiences in Princeton, New York and Philadelphia. Banau-Varilla prepares a pamphlet, *Panama or Nicaragua?* and pays to have 13,000 copies printed and mailed out. It features a photograph of a Nicaraguan postage stamp showing a volcano.

In Washington, Banau-Varilla has a decisive meeting with Hanna and chats pleasantly with McKinley, not "inflicting" a long argument on him, because he has already won over Charles G. Dawes, Comptroller of the Currency. Banau-Varilla's last stop is the "Lion's Cage," Morgan's home. The two nearly come to blows, when Morgan characterizes Panama as a "rotten project." Back in Paris, Banau-Varilla is criticized for profitable arrangements he and his brother made earlier and his part in capitalizing the Compagnie Nouvelle through "penalty stockholders" compelled judicially to invest. Conspiracy theories abound. Only in 1902 do Banau-Varilla and Cromwell meet. They never avail themselves of one another's services, or stop belittling one another and ignoring the other's claims. Neither tells the whole truth.

On Apr. 10, 1901, Walker asks the Compagnie Nouvelle to verify it has clear title to its franchises and property in Panama, but no answer arrives by June, when Walker calls on Cromwell to ask directly how much his client wants. The French are offended by Cromwell's blunt cable and fire him. Banau-Varilla hurries to New York following McKinley's death, knowing Hanna has no influence over Roosevelt and fearing the worst. The signing of the Hay-Pauncefote Treaty and leak of the Walker Commission report convince Banau-Varilla to get the directors to quote a low figure. Back in Paris, he receives a confidential telegram from Chicago *Times-Herald* reporter Walter Wellman claiming the Senate will accept \$40 million. Banau-Varilla thanks him for the tip and pressures stockholders into accepting the figure. Hopes of \$60-\$70 million vanish. Walker receives confirmation and submits a revised decision to the White House. Despairing company officials reinstate Cromwell to conclude the sale.

Book 1, covering the French adventure in Panama has brought out how patriotic and individual fervor conflict with the dollar-and-cents reality of carrying out a complex technological enterprise. We will see these repeated by the Americans in Book 2, the big difference being advances in technology in the interim. The place of the great inspirers, de Lesseps and Roosevelt, will give way to great engineers and administrators, who actually bring it to fruition.



Book 2, Chapter 11

Book 2, Chapter 11 Summary and Analysis

"Against All Odds" describes how the Morgan Committee rejects the recommendations of the Walker Commission, the Senate debates the issues for two weeks, and the explosion of Mt. Pelye and a Nicaraguan stamp turn 100-1 odds against Panama into a narrow 42-34 victory. American national pride and xenophobia are underlying themes.

Chairman Morgan visibly enjoys questioning witnesses in February of 1902. Menocal documents his commitment to Nicaragua but says nothing new for the papers to use. Morgan's badgering of Compagnie Nouvelle spokesman Ydouard Lampry creates overblown headlines but no substance. Old railroad man S. W. Plume tells horror stories to an empty room. Handsome, direct and unaffected, Walker is the first commission member to testify. Since retiring in 1897, Walker has headed with integrity two Presidential canal commissions, despite a lack of engineering background or experience. Morgan considers Walker's support for Panama treasonous and realizes he must shake it. There are rumors that the White House has promised Walker the job of directing canal construction at a large salary and from the comfort of his Washington office.

Sen. William Harris, a former civil engineer, leads off, challenging Walker on such technical issues as damming the Chagres to create a vast inland Lake Bohio covering two-thirds of the Isthmus, and incorporating de Lypinay's locks to lift and lower ships. Morgan questions the difference between Nicaragua and Panama in cost estimates, the number of locks, and massive tides in the Bay of Panama and, having told reporters "cheapness" alone has changed the commission's mind, asks Walker how, with no new facts, his judgment has changed. When Walker fumbles, the former trial lawyer shifts ground to demand why the commission would trust French decisions and plans. Walker concedes no commission members have returned to Panama since the initial two-week *de visu* inspection, which Morgan vividly but unfairly paints as a breezy coach ride. Knowing how Cromwell has stage-managed the Paris mission, Morgan demands details before returning to the failure to survey the canal line personally - unlike the "independent" (meaning American) Nicaragua survey.

Walker realizes that a trap has been set and talks about a thorough boring of the Bohio dam site, but Morgan prods why they should trust the French and asks how the Admiral knows the basin will hold water. Walker has seen nothing that suggests otherwise but confesses he has made no inquiries. Morgan is unsparing, "spluttering" in exasperation at his former colleague's answers about leftover French equipment, engineering precedents, the rainy season, spending \$2 million on maps and surveys, and the quality of the commission's engineers. Hanna takes over the questioning and is genial and respectful. He asks why, price aside, Panama is right. Walker sites better harbors, a shorter distance, easier curves, and surer data than exists on the wilds of Nicaragua, which likely hold surprises. Walker has no misgivings about any aspect of the Panama



plan and, while admitting the French have suffered great loss of life from disease, maintains once the surface material is removed, Panama poses no greater health risk than anywhere in the tropics. Whether seemingly healthy Nicaragua will prove deadly once the ground is turned up cannot be told without trying.

Witnesses are heard into March, boringly and repetitiously, as senators get obscure points into the record. Haupt admits to signing the decision just to make it unanimous, Noble sniffs at the French equipment, and Burr says the French excavations will have to be massively enlarged to meet the requirements of the U.S. Navy. De Lesseps' name comes up repeatedly, like a specter warning against Americans becoming mired in ruin, scandal and dishonor. Engineers maintain industrious, practical and *moral* men - Americans - can turn the pesthole into glory for all the world to see. However, Morgan presents witnesses, who question whether this is realistic and sing the praises of Nicaragua. Slow, deliberate, intractable Morison maintains the Panama plan is sound because, in because of advances in the past 20 years, technology makes it possible to control the Chagres. The Culebra Cut will require two years of preparation. No one takes notice of Morison's contention that killing the mosquitoes can eliminate yellow fever.

On Mar. 10, the committee reports out the Hepburn Bill favorably, recommending 7-4 a Nicaragua canal. The hearings appear to have been a waste of time and chances against Panama are 100 to 1, until two events intervene. First, Roosevelt reads news accounts of how an audience of civil engineers listening to Irving M. Scott in New York unanimously rally for Panama, and then, on May 2, 1902, Mount Pelye explodes on Martinique, 1,500 miles from Nicaragua, wiping out St. Pierre in two minutes and killing 30,000.

Seeing the wheel of fortune turning, Banau-Varilla rushes a letter about the "terrible object lesson" of Pelye to the White House. No longer does it seem prudent to ignore "seismic disturbances" in Nicaragua, which has suffered 14 earthquakes and has 14 dormant volcanoes. The closest, Ometepe, is only 20 miles from the closest planned lock. Bigelow also stirs to action, arranging for the *Sun* to declare the "volcanic menace" in Nicaragua cannot be dismissed as a remote possibility. Incredibly, on May 14, Momotombo in Nicaragua erupts. Later that month, Pelye and St. Vincent both erupt.

The day before Senate debate begins, Ambassador Luis Corea assures Morgan that Nicaragua has had no eruptions since 1835 and passes along a false cable, ostensibly from President Josy Santos Zelaya, denying the damning press reports. To "clear the atmosphere," Morgan reads Corea's letter and two others from his friend, the U.S. Ambassador in Managua, William Merry, before attacking the political violence and seismic disturbances in Panama, including a destructive earthquake in 1882. Based on Bancroft's *History of Central America*, Morgan lectures the Senate on geopolitics to make clear that Panama will eventually compel the U.S. to use force and thereby poison the minds of all Spanish-American republics. By contrast, Nicaraguans welcome the Americans. Not much of an orator, Morgan concludes his lengthy speech with an appeal to help bring prosperity to his beloved South. Not once does he mention engineering considerations.



On June 5, an ailing Hanna begins the most important speech of his career against a dramatic backdrop of blown up maps showing all the volcanoes in the Caribbean - none in Panama. Plainspoken, brilliant, practical, original, and misunderstood, Hanna is finishing out the term of Sen. Sherman, whom McKinley named Secretary of State in 1897. Hanna has documentation on the preference of 83 ship owners, masters, officers, and pilots for the Panama route. None sees Nicaragua saving time, and all fear greater risk there. With graphics and pamphlets prepared by Banau-Varilla and Cromwell, Hanna makes the "stubborn facts" sound easy and simple. Experimentation and sentiment must give way to determining the best route to serve the world's needs for all time. Hanna documents eight reasons for agreeing de Lesseps had been no fool in choosing Panama, including the fact all engineering and practical questions have been settled there and engineers, who ought to have the final word, advocate it. Hanna warns that if the U.S. opts for Nicaragua, Germany may move into Panama and enjoy all its advantages.

Senator Harris garners newspaper acclaim for a pro-Nicaragua speech alleging Hanna and his cohorts have manufactured the volcano scare. The Nicaraguan embassy sticks by its denial and a cartoon in the *Washington Star* mocks the volcano threat. Banau-Varilla recalls a Nicaraguan stamp showing Momotombo "in magnificent eruption," purchases 90 of them, and sends one to each senator with a note this provides "official witness" to the truth. Morgan unleashes years of stored hatred for Cromwell's "humiliating and repulsive" intrusion into U.S. decisions and policies, claims he has fed Hanna every supposed fact he has used, and warns the Senate not to be fooled by talk of volcanoes and clever propaganda. Panama is "death's nursery." On June 19, Panama wins by a narrow vote of 42-34. On June 26, 1902, the House passes the Spooner Bill 259-8 and the President signs it on June 28.

The victors congratulate themselves on the outcome of the "Battle of the Routes," in which the engineers' views are upheld - the opposite of what happened in Paris in 1879. Morison emerges as the key figure, having everyone's ear except Morgan's. There exists a letter from him to Roosevelt dated a month before the President summons commissioners individually to hear their views. Daring and intelligent, Morison is the kind of person Roosevelt admires and trusts. A preacher's son and classics major at Harvard, he teaches himself engineering before studying law and chooses it as the more useful life. Arrogant, inflexible, and unpopular, Morison knows how other intelligent men feel and uses this on Roosevelt. Had he not died in 1903, Morison might have been named chief engineer in Panama.



Book 2, Chapter 12

Book 2, Chapter 12 Summary and Analysis

"Adventure by Trigonometry" is the story of how the U.S. moves from negotiating with Columbia to readying covert support for an armed revolution in Panama. The title comes from Banau-Varilla's comment diplomacy is as difficult for some to understand as trigonometry. Secretary Hay finds negotiating with Columbia the most thankless and exasperating episode in his long career, because he has to deal with amateur envoys poorly in contact with indecisive executives in Bogotb. Before the Spooner Act becomes law, Carlos Martnnez Silva, arrives, claiming his government wants to cooperate, but when Bogotb discovers Cromwell is coaching Silva it replaces him with proud, nervous Josy Vincente Concha. In the fall of 1902, when discussions of sovereignty over the Canal Zone reach the critical point, civil war erupts on the Isthmus and Roosevelt, without consultation, sends in the Marines to secure the railroad. Concha condemns this as a violation of the 1846 treaty and proof of U.S. imperialistic ambitions. Talks are suspended for weeks. Morgan and his allies warn the "reasonable time" allowed by the Spooner Act is fast expiring, but Concha holds out for financial remuneration on the scale of the \$40 million the French company will receive. When ordered to sign the treaty, Concha resigns in nervous exhaustion. A career diplomat, Tombs Herrbn, the chary d'affaires, fluent in English, and popular in Washington, replaces Concha, but proves more cautious than the State Department had hoped. Herrbn fears Roosevelt will seize Panama by eminent domain and signs when Roosevelt threatens to negotiate with Nicaragua.

The Hay- Herrbn Treaty is signed Jan. 21, 1903, and ratified by the Senate 73-5on Mar. 17 without amendment. The Compagnie Nouvelle is authorized to sell all rights, privileges, properties, and concessions to the U.S., to which Columbia grants control over a 6-mile wide zone for 100 years. The two port cities are excluded from U.S. control. The U.S. pays Columbia \$10 million in gold and annual rent of \$250,000. The U.S. may establish courts of law within the zone to enforce its regulations. Columbia provides police protection, with the U.S. as backup in the event Columbia cannot meet the obligation. Columbians find the compensation inadequate and guarantees of sovereignty hollow, Ambassador Arthur Beaupry cables from Bogotb, but several times, he is ordered to use language rarely found in diplomatic intercourse.

On June 13, 1903, Cromwell leaks to the New York *World* the substance of a conversation with Roosevelt about recognizing a secessionist Republic of Panama should Columbia continue being greedy and fail to ratify the treaty by June 20. No one in Washington understands this vast, isolated, destitute and war-torn nation, which has historically admired the U.S. and educated its sons there. Cromwell, who more than anyone else stands to benefit from a treaty and has paid operatives in Bogotb, needs to keep Columbia from dealing independently with his client. Much will be written later about whether the White House wants to provoke a crisis, but the files of Sullivan &



Cromwell are purged of all reference to Panama. Therefore,, the truth can never be known.

The State Department knows Bogotb has unanimously rejected the treaty when, on Aug. 14, 1903, Sen. Shelby Cullom, Chairman of the Committee on Foreign Relations, tells the press matter-of-factly Roosevelt will make a treaty with Panama unless the Columbian Senate comes around. Hay tries to restrain the President and suggests taking the easy course of proceeding in Nicaragua. However, Roosevelt is determined to teach "those jack rabbits" a lesson. Columbia University Professor John Bassett Moore submits a long analysis of the Bidlack Treaty that finds the U.S. has legal grounds to proceed with a canal at Panama. Hay presents three course of action: 1) build under the treaty of 1846, fighting Columbia if it objects, 2) follow the Spooner Act and deal with Nicaragua, and 3) wait until Columbia sees the light and re-negotiate.

A revolutionary movement in Panama is born in July 1903, when 25-26 gather to talk revolution. Leaders are senator, attorney, lobbyist, and land agent Josy Agustnn Arango, civil engineer Carlos Constantino Arosemena, and Herbert G. Prescott of the U.S. In August, Arango recruits Manuel Amador, a popular social figure. He's frail looking, 70-years-old, a longtime political conservative and chief physician of the Panama Railroad. James Beers brings from New York assurances Cromwell stands behind them, and the core group seeks official U.S. guarantees of military support for a revolution. A sick son in Massachusetts offers Amador a cover story and he departs with a 30-point list of codes for relaying back his findings, but no cash.

Troubles commence immediately. J. Gabriel Duque, a Cuban-born American with large interests in Panama, gets to Cromwell before Amador and is promised the presidency of the new republic for \$100,000. Cromwell arranges for Duque to see Hay, who suggests the U.S. will prevent Columbian troops from landing but falls short of offering direct assistance in the conspiracy. Duque heads straight to the Columbian legation and tells everything to Herrbn, who cables Bogotb, alerts the consul general in New York, puts detectives on Amador's track, and warns Cromwell and the Compagnie Nouvelle that they will be held responsible for secession and forfeit the rights and privileges they are about to sell.

Oblivious to all of this, Amador cannot understand why Cromwell turns rude and unreceptive. He cables home "Disappointed," and prepares to depart. At this point, banker Joshua Lindo passes word of support from "another quarter." Herrbn cables home to warn against underestimating Roosevelt's vehement character or his threats, but the President while cavorting on vacation, has resolved to take no action during the summer while contemplating "ways around" the Panama question. Moore, Hanna and Hay offer opinions. Roosevelt knows he has a reputation for going off half-cocked but maintains he always gives enormous forethought before acting. He is awaiting a report from Secretary of War Root's three-man undercover mission to Panama.

Banau-Varilla is Amador's help, arriving - coincidentally, he claims - in New York on Sep. 22. He warns Bogotb of the dark forces trying to destroy de Lesseps' dreams. His Room 1162 at the Waldorf-Astoria becomes headquarters for the conspiracy. Amador



unburdens himself and promises to kill Cromwell if the plot fails. Banau-Varilla says the situation is not hopeless because General Huertas' small garrison is unpaid and the commander sympathetic to the cause. Columbia must be kept from landing additional troops. This will require \$6 million, Amador declares. Banau-Varilla advises Amador to stay out of sight while he devises a solution.

On Oct. 10, 1903, Assistant Secretary of State Loomis introduces Banau-Varilla to Roosevelt. They chat about the Dreyfus Affair and Panama, where Banau-Varilla is certain that revolution is imminent. Roosevelt later recalls Banau-Varilla asks point-blank for U.S. troops and replying he cannot provide them. Loomis support this story, but Banau-Varilla denies asking for support. At any rate, the astute Banau-Varilla knows nothing official will be done but has no doubts what will occur. Bigelow, whom Banau-Varilla visits next, advises they adopt the constitution of Cuba, grant Amador dictatorial powers, and request U.S. naval protection.

Banau-Varilla tells Amador that there is no need to buy gunboats and offers \$100,000 in contingency funds from his own pocket. Amador is frustrated, anxious, and distressed Banau-Varilla is talking only about the narrow Canal Zone rather than an Isthmus-wide revolt. Banau-Varilla replies that, once they have the \$10 million authorized by the Spooner Act, they can wager all the war they want. Amador puts together a revolution kit consisting of a proclamation of independence, military plans, a draft constitution, and secret codes. All he lacks is a flag.

On Oct. 15, Cromwell sails for France to dissociate himself from the plot. Oct. 16, Loomis introduces Banau-Varilla to Hay, who tells Banau-Varilla about a novel he has just read, dealing with a Central American revolution led by a chivalrous Frenchman. That evening, two Army officers report to the President about their mission to Panama. Capt. Chauncey B. Humphry and Lt. Grayson M. P. Murphy say military preparations for a revolution are in place in both port cities and the population is behind it. They leave the White House convinced the U.S. will play no part in the revolution and are amazed at Roosevelt's detailed knowledge of the Isthmus. Banau-Varilla cables Amador to meet him in New York, where he announces the junta will be protected by U.S. forces within 48 hours of proclaiming a new republic, provided they name *him* diplomatic representative in Washington with authority to draw up a canal treaty. Amador objects to this insult to Panamanian pride.

On Oct. 18, Banau-Varilla visits Bigelow and returns with a silk "flag of liberation" sewed by Mme. Banau-Varilla and daughter Grace. Amador finds it perfect. Banau-Varilla wants the revolution timed for U.S. Election Day, Nov. 3, and warns the junta is on its own if this fails. He gives Amador the text of a telegram to send as soon as the republic is proclaimed, appointing him minister plenipotentiary. On receipt of the message, Banau-Varilla will send \$100,000 and military support. While Amador sails home, Banau-Varilla watches the newspapers and worries. On Oct. 29, Banau-Varilla receives a telegram that decodes, as a request, he give the junta a sign of his reliability. Banau-Varilla goes to Washington, runs into Hay in Lafayette Square, and is told the catastrophe of 1885 will not be repeated. Banau-Varilla understands this to mean a cruiser is en route to Colun. The language of diplomacy, he says, is incomprehensible to

many, like trigonometry. New York papers report U.S. ship movements, and Banau-Varilla wires Amador to expect the *Nashville* on the third day.



Book 2, Chapter 13

Book 2, Chapter 13 Summary and Analysis

"Remarkable Revolution" details the events by which the Republic of Panama comes into existence, devoting many pages to Roosevelt's justification - and self-serving exaggeration of U.S. participation. Contrary to the President's opinion, Roosevelt emerges as a minor player.

Amador arrives in Colun looking innocent, with the flag wrapped around his waist, out of sight. His colleagues disapprove of its design, view limiting the revolt to the Canal Zone asinine, and are disappointed Amador brings nothing official from Hay or Roosevelt. Emissaries enter the jungle to drum up popular support. Wealthy, influential Tombs Arias backs out of the doomed junta, and Amador's friend, Gov. Josy de Obaldna, reveals Columbian sharpshooters are en route to Colun. Frightened, Amador tells only Prescott and they agree to "bluff it out." Oct. 28, Amador sends a coded telegram to New York and organizes leadership in both ports. An answer arrives from New York on Nov. 1, raising the conspirators' spirits. Carlos Mendoza and Juan Henrnquez prepare a proper manifesto and improve Banau-Varilla's declaration of independence. A better flag is readied. Amador and Prescott let the contemplative 77-year-old Col. James Shaler, superintendent of the railroad, in on the secret Columbian troops are approaching, in order to get the rolling stock safely moved to Panama City.

On Nov. 2, the *Nashville* appears. Sailing under secret and confidential orders, Cmd. Hubbard knows nothing about the impending revolution. Around midnight, a Columbian gunboat, the *Cartagena*, steams in under the command of Gen. Juan Tobar, who declares he intends to land 500 troops, and Hubbard, lacking orders and seeing no reason to intervene, does nothing. In Panama City, this news kills the rebels' bravado and only the courage of elderly Arango and young Sesora Amador keeps them from giving up. She suggests Shaler greet Tobar and suggest the officers take a special train to Panama City, courtesy of Gov. Obaldna, and when additional equipment becomes available, Tobar's troops will follow. Col. Eliseo Torres is left in charge. Ramun Amaya, Tobar's second-in-command, grows uneasy, but Tobar insists he go along. Shaler dispatches the train, advises Prescott, and promises to keep the troops in Colun. Late night, Hubbard receives orders to prevent the landing of Columbian troops, maintain free and interrupted transit by railroad, and await the *Boston* and *Dixie*. Hubbard advises Washington the troops are already ashore but no revolution has been declared. Shaler and Melyndez plot to get the Columbians to store their weapons in the rear car, detach it after departing, and strand them in Culebra. Cheerful 18-year-old Aminta Melyndez bravely takes this plan to Arango in Panama City - and thereby enters the revolutionary myth.

Amador urges the trap for Tobar and Amaya to be non-violent, and promises a brilliant future to Gen. Esteban Huertas, the ambitious young commander of the garrison, if he cooperates. With American warships approaching, Huertas has little choice, and each of



his soldiers receives \$50 and Huertas an enormous \$65,000. They join the official welcome, headed by Gov. Obaldna. Only after lunch, when the troops have still not arrived, does Tobar grow suspicious. A loyalist slips him a warning to trust no one, but Obaldna assures him all is well. The governor's secretary informs Tobar that Shaler cannot dispatch the troop train until their fare is paid in cash.

At 5 PM, Huertas' troops march out, ostensibly on Tobar's command, but wheel and converge on the surprised generals with bayonets fixed. Capt. Salazar announces the Columbians are under arrest on Huertas' orders. Tobar begs them not to commit treason but surrenders his officers' arms, and they are marched to jail while a crowd of thousands chants "¡Viva!" to the revolution. At 5:49, Prescott phones Shaler and Melyndez to announce the "hour of freedom" has arrived. Amador orders Obaldna arrested pro forma and visits the American vice-consul, Felix Ehrman, to send word to Washington. It emphasizes that the government will be organized that night, and order prevails.

Early morning on Nov. 4, Hubbard forbids Shaler to move Columbian or insurgent troops in either direction, and when Torres resumes efforts to get his men to Panama City, Shaler says his hands are tied. Only at noon does Melyndez explain to Torres what has happened and offers him cash if he and his force depart. Torres announces he will burn the town and kill all Americans unless the generals are released within two hours. Hubbard moves American dependents to safety on ships, gathers the men in a stone warehouse, deploys an armed detachment, and moves the *Nashville* to shelling range. The *Cartagena* speeds away. Torres proposes the two forces disengage, junta leaders agree, emissaries are dispatched, and a murderous showdown is averted.

With the *Cartagena* gone, however, the Columbian troops cannot be evacuated, allowing Bogotb to claim *de facto* sovereignty. Torres is in a strong position to lay waste to railroad interests. Everything depends on Tobar's response. In Panama City, the junta is riding high. Amador talks with Amaya and Tobar before the emissaries arrive, emphasizing that their independence is guaranteed and financed by the U.S. The generals remain loyal to their orders. Tobar refuses to issue any orders to Torres, who knows his duty, and does not change his mind when he learns next day the two forces are again facing one another. The junta decides to take the Columbian officers back to Colun under armed *civilian* escort, lest Prescott break his orders. When the *Dixie* appears, rumored to carry 5,000 U.S. troops, Torres accepts \$8,000 from the railroad's safe and flees. *Dixie* anchors as *Orinoco* casts off, and discharges 400 Marines. Next morning, the formal proclamation of separation "without hatred and without joy" is made, and the new flag hoisted in Colun. At the same time in Panama City, the new paymaster writes checks to everyone that the junta has bought off. Cables are sent to Hay, announcing the new republic and appointing Banau-Varilla Panama's "confidential agent" in Washington.

The U.S. must come to grips with Article 35 of the Bidack Treaty, which obligates it to maintain order only when requested by sovereign Columbia. From Lincoln's time, it had been consistently clear that the U.S. would not be a party to civil war on the Isthmus. The Navy Department's secret orders to Hubbard, confirmed by two cables from Loomis



nine hours before the uprising begins, break precedent. Within a week, the *Dixie* is augmented by eight U.S. warships, in keeping with Roosevelt's adage, "speak softly and carry a big stick; you will go far." U.S. troops protect the entire Isthmus, not just the vicinity of the railroad. Without this show of force, the Republic of Panama would probably not have lasted a week, being defended by at most 600 men against the thousands the Columbians could have been deployed by ship and overland. Although high officials in the State, War and Navy departments issue the orders, Roosevelt is behind them.

Roosevelt brags of accepting the burden of empire to advance liberty and progress. Only 27 minutes after the White House receives Ehrman's cable, Hay recognizes Panama. Next day, on Roosevelt's orders, Hay tells reporters the action is "not only in the strictest accordance with the principles of justice ... but it was the only course he could have taken in compliance with our treaty rights and obligations." Roosevelt disputes the idea the U.S. made the revolution. The faculty of Yale University, the American Bar Association, and many newspapers disagree. Election news keeps the revolt off the front pages at first, but Panama quickly becomes the lead story and the Administration is blistered in editorials and cartoons.

Roosevelt devotes years to explaining his high purpose. In a special message to Congress on January 4, 1904, he claims a U.S. mandate from civilization to build the canal, the "great design" of the 1846 treaty to secure its construction is being violated by Columbia. Hubbard has acted with "entire impartiality" in preventing bloodshed. Roosevelt maintains the people of the Isthmus had risen "literally as one man" and no one in the U.S. government had taken part in preparing, inciting, or encouraging the revolt. No one has prior knowledge other than what appears in the newspapers. The U.S. has done its duty to the peoples of Panama and America. Had the Panamanians not revolted, Roosevelt declares he would have recommended Congress take possession of the Isthmus by force, because Columbia is not a responsible power.

Roosevelt stresses in his *Autobiography* that his action had not been impulsive. Columbia had been demonstrating such irresponsibility it had been necessary to forestall an inevitable crisis. The national defense could not tolerate delay. No bloodshed had resulted. International morality had been upheld. Critics are misinformed, sentimental, mentally weak, or morally twisted. Contrary to some claims, he used illness as a mean of dissenting, Hay sounds increasing like Roosevelt as he emphatically defends the policy. Other cabinet members fall into line without qualm. Speaking at the University of California Berkeley in 1911, the former President gets laughs and applause, claiming the Panama Canal would not have started had he gone through normal legislative channels. Spirited speechmaking would still be going on, and the canal would be 50 years in the future. He had seized the Isthmus to allow Congress to debate not the canal but him.

"I took the Isthmus" is a typical Roosevelt exaggeration; "I took Panama because Banau-Varilla brought it to me on a silver platter," is more accurate, but still there is no evidence of master strategy or collusion in the Oval Office. The plot unfolds tenuously without Roosevelt's knowledge. The junta takes an enormous gamble based on



mistaken impressions of U.S. intentions. Roosevelt's haste and unwillingness to see the Columbian position on the treaty as anything other than a "holdup" is tragically mistaken and inexcusable. Within six months an amicable solution could have been reached. Instead, Roosevelt's "most important action" guarantees Columbia will be financially ruined, stripped of its most valuable asset. Riots break out in Bogotb and trust in U.S. justice and fairness is poisoned throughout Latin America, as Morgan had prophesied. The senator tells his colleagues the country has gotten too large to be just and the people fear this. In fact, Americans are generally satisfied.



Book 2, Chapter 14

Book 2, Chapter 14 Summary and Analysis

"Envoy Extraordinary" ends Book 2, showing Banau-Varilla outmaneuver the Panamanians to give the U.S. greater rights in the Canal Zone than it wants - and guaranteeing problems ahead. Banau-Varilla celebrates news of the birth of a nation but is troubled Amador does not mention diplomatic powers for him when requesting the promised \$100,000. After an exchange of cables, Arango, Boyd, and Arias designate him "Envoy Extraordinary and Minister Plenipotentiary near the Government of the United States of America," and he moves to Washington. Hay informs him a special commission is coming from Panama to make a canal treaty, which Banau-Varilla takes as a personal plot against him. Ehrman believes that they are merely assistants and messengers bringing written instructions. Within seven days, however, the Hay-Banau-Varilla Treaty is negotiated and signed, evoking controversy, provoking angry Senate debate, and becoming a bone of contention between Panama and the U.S. for generations.

Banau-Varilla rushes to New York to arrange from J. P. Morgan a \$100,000 loan against Lindo Bank assets pending the cashing of the U.S. check, and returns to Washington with his son to be presented to the President. The press mocks the comic opera as Banau-Varilla begins reassuring Amb. Jusserand Panama is not intriguing against French interests. In two days, Hay forwards a draft treaty and requests feedback. Banau-Varilla spends a day rewriting it to provide the U.S. advantages needed to get it through the Senate. Frank Pavey, his lawyer, corrects its form, and Banau-Varilla delivers copies to Hay on Nov. 17, the day the commissioners reach New York. Waiting to hear from Hay, Banau-Varilla welcomes the delegates by telegram and instructs them to remain in New York, away from the press. At 10 PM, Banau-Varilla sends word to Hay intrigues will force him to terminate negotiations unless they wrap up immediately. Hay invites Banau-Varilla to come over that night if he wishes.

Hay likes the revisions but realizes Panamanian patriots will object to many points. The Hay-Banau-Varilla Treaty resembles Hay-Herrbn in wording but expands the width of the Canal Zone from six to ten miles, puts the U.S. in charge of all public works in the cities, cedes four islands in the Bay of Panama, and authorizes additional use of eminent domain. In exchange, the U.S. guarantees Panama's independence. The French canal company may transfer its concessions and property to the U.S. and compensate Panama - not Columbia - in the previously agreed amounts. Panama relinquishes the exercise of any rights, power, or authority in the Canal Zone, where the U.S. will *act* as sovereign. The lease becomes indefinitely renewable. Hay convenes Root, Knox, and Leslie Shaw to go over the document All goes smoothly, final drafts are prepared, and Banau-Varilla is invited to Hay's home as word comes his compatriots are en route to Washington. Banau-Varilla obtains an abridged formal reading of the text, and within 40 minutes, it is signed. Banau-Varilla goes to the station to give his colleagues the "happy news."



Amador nearly faints and Boyd insists Banau-Varilla has acted without authority, illegally, and contrary to written instructions. Banau-Varilla declares the point moot and argues Panama must ratify the treaty swiftly to ease its consideration by the U.S. Senate. He warns Bogotb is sending a special mission to deal with the Americans and the best way to head them off is to ratify his treaty. Banau-Varilla goes treacherously behind Amador and Boyd's backs, agreeing to send the treaty to Panama on the *City of Washington*, but cabling the full text to Minister of Foreign Affairs de la Espriella, with a warning of the danger of embarrassing American officials. On advise from Amador and Boyd, de la Espriella turns Banau-Varilla down. However, he intensifies the threat in an astonishing and wholly spurious message that Hay may have helped prepare. The treaty is ratified and signed on arrival, Dec. 2, less than a month after the revolution and five days before Congress reconvenes. Morgan and Hoar lead the assault on the process whereby Panama gained independence, but little fault is found in the generous treaty. It passes the Senate on Feb. 23, 1904, by 66-14. Herrbn closes the Columbian legation and goes home crushed.

Panama convenes a National Constitutional Convention on Jan. 15, 1904, when resolves into a National Assembly and elects Amador President. The precise borders of his nation remain indistinct, but its estimated population of 350,000 faces an economic future bright beyond imagining. Its days as a poor banana producer are over. Resumption of canal construction promises boom times surpassing the French era. As a physician, Amador looks to improve sanitation and end centuries of plague. He invests the U.S. payment of \$10 million to create a national endowment after applying \$2 million to urgent public works projects. J. P. Morgan is Panama's designated fiscal representative and Cromwell its New York counsel.

The Administration is more concerned with completing the transaction with the Compagnie Nouvelle and the liquidator of the Compagnie Universelle. Involving Cromwell, Morgan, Banau-Varilla, and scores of others on both sides of the Atlantic, it is the largest real estate transaction in history to date and the Treasury check issued to J. P. Morgan is the largest issued to date. The U.S. pays for a territory a third the size of Long Island more for the massive Louisiana, Alaska, and Philippine territories combined. Shareholders in the Compagnie Nouvelle realize a 3% return on their investment after 10 years - Banau-Varilla's company collecting \$440,000. The liquidator distributes \$25.72 million to 200,000 bond-holding claimants, while stockholders in the old company receive nothing. Cromwell's fee is \$200,000, and J. P. Morgan earns \$35,000 in service charges. Banau-Varilla resigns as Panamanian envoy, resumes publishing *Le Matin*, and asks the salary due him be reserved to build a monument to de Lesseps. Obaldna succeeds him in Washington. Banau-Varilla and Hay are proud to have accomplished something great together - resurrecting the Panama Canal. The transfer of the Canal Zone on May 4, 1904, disappoints the ceremony-loving Panamanians, as Lt. Mark Brooke receives keys to the storehouses and hospital, signs a receipt, and reads a proclamation. President Amador is not even invited. The Stars and Stripes are raised over the hotel.



Book 3, Chapter 15

Book 3, Chapter 15 Summary and Analysis

"The Imperturbable Dr. Gorgas" opens Books 3, "The Builders, 1904-1914." Gorgas is the only Roosevelt appointee who sees the work through to the finish, in the face of opposition from bureaucrats unwilling to accept the biggest challenge is conquering yellow fever and malaria. Chapter 15 also fills out details on how science in 1904 understands and treats these diseases.

A first-hand New York *Time's* story depicts Colun in the weeks leading up to the U.S. takeover and asks how this vile region can be made safe for White people? Recalling his own experience in Cuba in 1898, watching tropical disease claim 13 times the number of U.S. lives lost in battle, Roosevelt gives sanitation and hygiene higher priority than engineering. The President keeps Walker in the chair of the commission required by the Spooner Act. It specifies two military officers and four skilled engineers, all equal in authority. On the surface it is a distinguished body but lacks experience in organizing gigantic projects, handling problems of supply, labor, or overall planning, and - worst of all - none has any medical training. Dr. William Henry Welch of Johns Hopkins Medical School convinces Roosevelt to assign a sanitary officer, and Welch's former student, 49-year-old Col. William Crawford Gorgas, the foremost U.S. authority on tropical disease, is chosen. An executive order puts them under the new Secretary of War, William Howard Taft and gives them full authority to proceed with the canal. They hire John Findley Wallace as chief engineer with the understanding he need not move to the Isthmus

Assuming he will have full support, Gorgas sets out to end yellow fever, his specialty and the cause of the greatest panic. He had eradicated it in Havana in 1901 by attacking its carrier, the *Stegomyia fasciata* mosquito. It is now realized the *Anopheles* mosquito spreads malaria and encephalitis. In India, the English physician Ronald Ross has proved in 1898 the malaria parasite, *Plasmodium falciparum*, permeates *Anopheles'* system spreads from its salivary gland to anyone it bites. Gorgas is one of the last Army doctors to accept mosquito theory, having been far removed professionally from the scholarly debate. Gorgas is a doctor only because medicine offers him the best way to become a soldier after he is turned down by West Point. Gorgas believes his life has a purpose willed by God, and accepts Army assignments at various frontier outposts, living ruggedly and learning discipline. He ignores orders to avoid infected wards at Fort Brown, where he falls sick and convalesces with his future wife. Permanently immune to the disease, he is summoned to wherever yellow fever breaks out, including Siboney, Cuba, which he burns to the ground to clear of disease.

Having determined yellow-fever patients can pass the parasite to other mosquitoes for only four days after infection and the newly-infected host can spread it for only 12-20 days (so-called "extrinsic incubation"), Gorgas' superior, Dr. Walter Reed, assigns him to clean the city house-by-house. By October 1901, yellow fever is eliminated and malaria



deaths dramatically reduced. The Army makes Gorgas its man on tropical diseases, sending him to a world conference in Cairo in 1902, and allowing him to spend months in Paris going over Compagnie Nouvelle records in Paris. The commission tables consideration of Gorgas' request for supplies, experienced personnel, and dispatches him with Dr. Carter, English nurse Eugenie Hibbard, and four companions to Colon without even wire netting or disinfectants. They find a "mosquito paradise," with larvae ("wigglers") in cisterns, rain barrels, and other open-air water sources everywhere. The hospital staff is infested with malaria and the Americans protect themselves by wrapping in citronella-soaked bandages at night. Victory in Cuba required conquering a small area compared to Panama, where fifty miles of infested jungle separate two cities.

Cuba had shown fundamental differences between *Stegomyia* and *Anopheles*. The former can survive only in close proximity to human beings, whose blood is essential to maturing the eggs in clean, open water. Destroy any aspect of this process of propagation, and yellow fever disappears. Applying oil to open water discourages egg-laying and kills larvae. By contrast, *Anopheles* breed in jungle waters and are capable of traveling great distances. Knowing human mortality will be high if malaria is not controlled, Gorgas gathers and files data on how weather and topography affect *Anopheles*, and discovers direct sunlight, rain, and strong air currents are lethal to them.

Governor Davis and Chief Engineer Wallace refuse to believe Gorgas' warnings, and the commissioners consider mosquito theory "balderdash." This is even after Ross wins the 1902 Nobel Prize for his discoveries, and a conference in Paris in 1903 reviews Reed's work and declares it a "scientifically determined fact." Walker insists they get rid of garbage, paint houses, and pave streets. He issues Gorgas a detailed set of rules.

Marie Gorgas provides the best early impressions of the American era in Panama. Colon is "unspeakably dirty" and depressing, but the jungle is astonishingly beautiful. Panama City is muddy. They live on the second floor of the French hospital with no running water and dine in the "Spanish style" in the evening. Chief Nurse Hibbard, Jessie Murdock, and other American nurses are quartered in another ward, enjoying the novel experience despite the flying insects. Unmarried males also enjoy "deluxe" accommodations, but fear finding scorpions in their clothing or shoes. Gorgas speaks little Spanish but appears to do more than any American to win the trust and friendship of Panamanians. His surname dates from the time Spain ruled Holland and his experience in Cuba has helped him appreciate Latin pride and humor. He is tactful, grand, and quiet. Amador is an important ally while Washington bureaucrats incense him. Gorgas loves to read adventure stories - like the one he is living in Panama.



Book 3, Chapter 16

Book 3, Chapter 16 Summary and Analysis

"Panic" covers the first stage of the U.S. enterprise, marked by modest progress under Chief Engineer John Wallace that ends when a mylange of tropical diseases strikes in 1905, resulting in a "Great Panic" and massive exodus of American engineers. It is largely the story of Wallace vs. Walker and marks the first appearance on the scene of William Howard Taft, whom we will see presiding at the eventual triumph of the project.

Wallace believes he has a free hand as chief engineer, but the Washington-based, seven-headed ICC mires him in paperwork as it seeks to prevent graft and extravagance. Shipment of urgently needed equipment and material is delayed, so department heads order things in excessive quantity and far in advance of need, creating massive logistical problems and plunging Wallace into despair. The French have left a fifty-mile cleared corridor, but their equipment, including Eiffel's beautifully tooled locks, is good only for scrap. The buildings are in disrepair and the Panama Railroad is in deplorable condition. Eleven miles of navigable canal joins Colun and Bohio, where the locks were to have gone, and excavation is visible throughout the next 25 miles to Miraflores except the seven-mile stretch just below Culebra. Another open channel of salt marsh links Miraflores with the Pacific. The "magnificence of the French failure" strikes newcomers, but experience earns them respect for their skill in removing 30 million cubic yards of rock - far more than is popularly thought but under half of what the Walker Commission envisions. By December 1904, Wallace has six French excavators at work, and in 1905, puts back in service a hundred Belgian locomotives and 2,000 French dump cars. Some 1,500 of the 2,149 French buildings are gradually refurbished.

Wallace has built railroads and terminals and few American engineers are more honored, but he cannot muster enthusiasm in Panama. He is tentative, withdrawn, and un-inspirational and lacks a clear idea of how to proceed. The impression at home is the canal is under way, but it remains entirely random. Washington wants to "see dirt fly" rather than waste time prioritizing and preparing, and Wallace is not aggressive in demanding this. Workers see him as too taken by trifles and too ready to shift people's jobs without explanation. Washington sends low-quality workers lacking railroad experience, and even the best recruits are pressed into positions of critical importance without preparation or understanding of what is expected. The workers, 3,500 strong by November, endure miserable conditions a far cry from the clean, furnished quarters promised. The two-thirds, who are black, must find shacks in town or in improvised villages along the railroad. Food is meager and over-priced, the water cannot be trusted, and people grow disheartened and some go home.

Wallace installs water systems and sewage facilities in the port cities and organizes various non-digging tasks, but concentrates on the work at Culebra to satisfy Washington. Realizing the Walker Commission's concept is flawed, Wallace stalls



before presenting a comprehensive plan. Borings at Bohio indicate bedrock lies 168 feet below sea level, a fact he confides to Taft in November, when Taft comes to handle disputes with the Panamanians and assure them the U.S. has no imperialistic designs on their territory. Taft returns home convinced the ICC bottleneck must be eliminated. Roosevelt asks Congress to commissioners to three, and debate over a sea-level passage again fills the newspapers. Rolling stock in Panama is insufficient to keep up with the spoil dug out by the enormous new Bucyrus shovels, and there is talk, never serious, of replacing Wallace, who has the support of Governor Davis.

Wallace lives in mortal terror of sharing the Dinglers' fate in this "God-forsaken country." Yellow fever strikes Panama City on Nov. 21, 1904, but the victim survives. The first fatalities occur in January, but panic breaks out only after the cruiser *Boston* is infected in Panama Bay. Mosquito specialists attack the breeding grounds, but the natives resent the nonsensical Yankee game that inconveniences life. Sufferers are isolated immediately and watched. Wallace distrusts the mosquito program and ignores requests for screening.

When Congress fails to act on his request to reorganize the ICC, Roosevelt requires the commissioners resign and summons Wallace to assist in making new appointments. Three now constitute an executive commission, each heading a particular administrative department. The Washington-based Chairman oversees purchase of supplies and liaison with the government. The chief engineer is in charge of actual work and the governor oversees health and sanitation. When Roosevelt's first two choices for Chairman turn him down, he names an Iowa lawyer/railroad executive, Theodore Perry Shonts. He retains Wallace and names Charles E. Magoon, a lawyer specializing in colonial administration, as governor. Magoon is shocked at living conditions and the hazard of disease as soon as he arrives. Several of Wallace's top administrators perish during his absence, 200 employees resign in panic, and those who remain grow fatalistic. Fumigation is impeded by shortage of newsprint to seal buildings. Two-thirds of the Americans flee during the "Great Scare," which is a mild flare-up, compared to past epidemics. James Stanley Gilbert publishes *Panama Patchwork*, poems about disease, alcoholism, death and futility.

On Jul. 3, 1905, a worker dies of bubonic plague, and Gorgas orders a campaign to eliminate rats. Yellow fever incidents are double May's rate, and three cases of smallpox are kept quiet. Malaria, pneumonia, tuberculosis and dysentery claim more lives than yellow fever, but plague causes the greatest panic and outgoing boats cannot keep up with the demand. Magoon informs Taft Wallace has a job offer and cannot fault his colleague for wanting to leave. Having tailored the new ICC to Wallace's wishes, Taft feels betrayed and confronts Wallace in New York. He hears out Wallace's tales of woe, dresses him down, and demands his resignation. The press reacts with dire concern. Wallace spends the rest of his life repairing his reputation.



Book 3, Chapter 17

Book 3, Chapter 17 Summary and Analysis

"John Stevens" details the administration of Wallace's successor as Chief Engineer and Steven's boss, the ICC's authoritative new Chairman, Theodore Perry Shonts. James J. Hill, who has little use for Panama and personally dislikes Roosevelt, puts advertisements that Stevens, his former protégé, is the best construction engineer in the United States. Stevens is scheduled to accompany Taft to the Philippines to advise on railroad construction, but silver-tongued Cromwell, now a troubleshooter for the Republican Party, urges Stevens to go to Panama and Stevens' wife convinces him against his better judgment this is the challenge for which he has been preparing. Stevens, 57, is the kind of rough-and-tumble westerner Roosevelt can appreciate. Self-trained in surveying, railroad engineering, mathematics, physics and chemistry, Stevens is proud of his adaptability and believes hard work can overcome anything. His mid-winter discovery of the Marias Pass through the Continental Divide, which guarantees the success of Hill's Great Northern route to the Pacific, is legendary in the Northwest.

Much of Hill's bluntness and toughness rubs off on Stevens, who is restless and temperamental. In 1903, he leaves Hill to join the Chicago, Rock Island and Pacific Railroad, rising to Vice-President. In 1905, needing a change, Stevens accepts the Philippine assignment. Roosevelt makes clear Panama is a "devil of a mess" and Shonts tells the press Stevens has only himself to blame if the work is not done right, because he is supreme in the engineering department.

Shonts and Stevens land without ceremony at Colón on Jul. 26, 1905, to rescue the venture from humiliating defeat. Some \$128 million has already been sunk on the wretched beginnings. There is no organization or cooperation among those who have not fled. Roosevelt's review board to consider whether to shift to a sea-level canal has not convened, so no plans can be formulated. Most Americans believe Shonts will shut the project down, but he has no such intention and becomes the irritating, authoritative master of the Isthmus. He orders commissaries established immediately, even if this violates agreements with Panama, tells Magoon to forget about creating a model government in the American Zone to edify Central Americans in favor of simply keeping order so the canal can be built, and gives Gorgas four months to eliminate yellow fever.

After Shonts departs, Stevens is everywhere, always businesslike, and accessible. He breathes spirit into the work for the first time. He tells the workers cold feet are more dangerous than disease and summons them to learn much and make up for lost time. He moves the engineering office to Culebra, where he is appalled by the lack of progress. On Aug. 1, he orders work halted and furloughs the personnel, until he can reorganize, clean up and retool. He makes daily rounds of the line, working 12-18-hour days and expecting others to do likewise. He and Gorgas get along well, and the doctor succeeds during the summer in reducing death from all diseases, except yellow fever.



Stevens gives priority to Gorgas' requisitions as he pushes forward the costliest, most concentrated health campaign the world has known.

By November, Gorgas has a staff of 4,000. Red tape is cut to a minimum, and tons of supplies are flow in. The port cities are repeatedly fumigated, cisterns and cesspools are oiled weekly, and running water is provided to the major work sites, eliminating the need for containers. New cases of yellow fever are carefully tracked. Like most laymen, Stevens has little faith in mosquito theory but backs Gorgas, fighting Taft's and Shonts' efforts recall him. Welch and other Johns Hopkins colleagues convince Roosevelt that no one can do better than Gorgas. Roosevelt orders Shonts to establish a Sanitary Department responsible to him directly, which emboldens Gorgas to request millions of dollars. Yellow fever is eradicated in a year and a half.

Stevens ushers in the "Railroad Era," reflecting his experience as Hill's protygy. Stevens is a master of wringing out facts by close questioning, and refuses to rely on guesswork. He promotes those who remain and show promise, including Robert E. Wood, who heads the Department of Labor and Quarters and later becomes Chief Quartermaster. He tells Frank Maltby, who heads the work at Colun, he need not fear being fired for doing things wrong - only doing nothing is an uncorrectable crime. Stevens retains Wallace's ranking engineer at Culebra, W. E. Dauchy, but generally brings in a new regime of experienced railroad men.

De Lesseps had failed to see the project as fundamentally a railroad problem, but Stevens sees it as nothing else. The French equipment and track are "toys" which Stevens replaces within a year. Bridges are strengthened, signals and sidings improved, and equipment rehabilitated or replaced. Communications are installed, and repair shops and warehouses are built to service more than 100 enormous locomotives and rolling stock. An army of conductors, engineers and switchmen is hired. The railroad runs clean water to Colun continually, until the water system is complete. It carries imported food from refrigerated warehouses to commissaries daily. By the end of 1906, there are 24,000 workers, half of them erecting buildings.

As in the French period, workers are drawn from around the world. Virtually all unskilled pick-and-shovel workers are black, now largely drawn from Barbados rather than Jamaica, where the government blocks recruitment. Workers receive free passage and guaranteed free repatriation after 500 working days. They earn 10¢ an hour for ten-hour days, six days a week. "Jim Crow" racial segregation is strictly observed. The color line is expressed in "gold" and "silver" in official documents, because skilled workers - mostly white Americans - are paid in gold, while the unskilled - mostly black - receive silver *balboas*. Recruiters rove the U.S. seeking workers in 40 specialties and deliver 4,892, guaranteeing free passage, free housing, and medical care. The average monthly pay is \$87. Many arrive less skilled than claimed and many disillusion quickly. Union leaders lobby against going to the "deathtrap," and Southern congressmen oppose crippling their economies by allowing American blacks to leave.

West Indians, who frustrate the American overseers and foremen by their inefficiency and technical ignorance, gain a reputation for "childish irresponsibility," aversion to



exertion, and penchant for conversation. From his experience in the West, Stevens wants to recruit 15,000 Asians, but faces opposition in Washington, Panama, China, and Japan. Recruiting at Barbados is successful because work is scarce and wages meager on the overpopulated island. The old, young, and feeble are weeded out during summary physical exams, and the survivors are checked for trachoma, tuberculosis, heart trouble, and rupture. One in 20 passes. Up to 40% of the island's adult males, 10% of the total population, take part in building the canal, and send home over \$300,000 a year to support their families. The average West Indian is initially baffled and frightened by the noise and confusion in Panama, but most find work in the countryside, digging ditches, clearing brush, carrying lumber and unloading supplies. They live in tent cities and are fed so dreadfully that 16,000 prefer to fend for themselves. Many abandon the barracks to the city slums or ramshackle huts in the bush. Stevens correctly judges the West Indians can learn if given a chance and blames their lassitude on their diet, and they become the backbone of the project as Spanish and American workers wilt.

Renovation and new construction proceeds, mountains of supplies gather, scrap is hauled away, and communities take shape. Turnover is slowed by clubhouses, concerts, and baseball. Married men on the gold roll are encouraged to send for wives and families and a complex system is used to determine who gets what accommodations. Apartments for married men have modern amenities and services, while bachelor hotels resemble those on the New Jersey shore, clean and spacious. Engineers face none of the common problems of large projects - property rights, traffic, unions, contracts, and money supply. Only the scale of the undertaking is exceptional, a matter of "magnitude and not miracles." The "overshadowing" challenge is the Culebra Cut, where trains must function like a colossal conveyor belt. They're endlessly being filled by shovels and hauling dirt to wherever fill is needed. Stevens installs double tracking to prevent interruptions and has his system up and running by early 1906.

When he arrives, Stevens assumes he will build a sea-level canal, and the switchover to locks requires he play a political role he detests but proves skilled at. Roosevelt's board, consisting of eight Americans and five Europeans and chaired by Davis, first meets in Washington Sep.1, 1905. Past and current data are reviewed to determine the fastest way to create a waterway. Roosevelt prefers a sea-level passage. The board inspects Panama, interviews Stevens and his staff, and on Nov. 18, votes 8-5 for a sea-level canal as a matter of national pride and honor on the Suez model. Davis sees it as the return of a bad dream. The huge *Report of the Consulting Engineers for the Panama Canal* calls for spending \$247 million over 12-13 years - \$100 million and 3-4 years more than the dissenting members' lock canal plan, which resembles the Walker Commission's recommendations, which the Spooner Act had authorized. The minority plan moves the Chagres dam downstream to Gatun to create a much larger lake that will span nine inland miles at 85 feet above sea level. The model for the plan is the Soo Canal between Lake Superior and Lake Huron, the most heavily traveled canal in the world, with fifty years of proven safety and efficiency. American engineers C. D. Ward and Ashbel Welch have concluded Gatun is the best place to check the river.



While he has no experience in hydraulics, Stevens is won over by the lock plan and is summoned to Washington to explain. He views a sea-level plan "an impracticable futility," ever subject to landslides and promising precarious transit and delays. Even if a lock canal wasn't cheaper, he would back it as safer and less costly to maintain. Stevens feels it can be completed by January 1914 but doubts a sea level one can be built before 1924. He testifies confidently, assuring congressmen that a properly engineered earth dam need not fail as at Johnstown, PA, where 2,000 perished in 1889. The ICC overrides the majority opinion and Roosevelt sanctions a lock canal in a report to Congress. With chagrined determination, Stevens hammers home the point made long ago by de Lypinay that there is no other way to deal with the Chagres River. Pennsylvania Sen. Philander Knox delivers a major speech about the dam's safety without it being known he has interests in Johnstown and the Pittsburgh steel interests that will build locks and gates for Panama. The "Battle of the Routes" is resolved 36-31 in favor of locks, but many people maintain a dreadful error has been made.

Stevens has left instructions on how to proceed once the Senate votes, and a new town at Gatun is begun within 24 hours, the dam site is cleared, and tracks are laid. Joseph Ripley is recruited from the Soo Canal to design the locks and dam. Five surveying parties slowly determine the perimeter of 164-square mile Lake Gatun, which the affected natives cannot comprehend. A new railroad has to be built on higher ground to skirt the new shore. Stevens returns to Panama on July 4, and moves his headquarters to Culebra, 16 months after taking over.



Book 3, Chapter 18

Book 3, Chapter 18 Summary and Analysis

"The Man with the Sun in His Eyes" wraps up the Roosevelt era. The title refers to his 1906 visit to the Isthmus, where he takes in everything with childlike enthusiasm. Emphasis continues on patriotic fervor, as Stevens gives way to Goethals, who accepts the duty of seeing the project through to the end. Roosevelt gives Stevens' and Shonts what they want: freedom to build by contract and a clear line of authority: President - Secretary of War - Chairman - Chief Engineer.

No sitting President has left the country before, so there is great excitement when Roosevelt announces he will visit Panama, timing it to experience the height of the rainy season. Advanced preparations to beautify the towns are successful, and the Republic of Panama declares the day of Roosevelt's arrival a national day of "joy and exalted enthusiasm," but the ship arrives a day early. In order not to ruin Steven's schedule the Presidential party agrees to remain on board, but in the morning, the welcoming party finds Roosevelt already ashore exploring the waterfront. He follows almost none of Stevens' easy-going schedule, slipping off once with a former Rough Rider and another time with Gorgas. He eats with "gold roll" men in the mess hall rather than a luncheon in his honor. At a reception, Amador praises Roosevelt as the superior man needed at this time, and the U.S. President proclaims the two nations partners in the "giant engineering feat of the ages." Three days do not allow Roosevelt to see all he wants, obsessing someone might be hiding something from him. He exhausts anyone who tries to keep up with his pace.

At Gatun, Roosevelt scrambles up the hillside for an overall view of the dam site. The most famous moment occurs when Roosevelt takes the controls of a 95-ton Bucyrus steam shovel, learning how the controls work, and trying them out for 20 minutes. Dynamite and shovels are busily attacking the Culebra Cut from both ends, with dirt trails removing spoil. Large American locomotives and rolling stock have replaced the French equipment and have developed the Lidgerwood system, that Roosevelt is told removes in ten minutes what would take 300 men to do by hand. The project is still in the early stages, but the cavern is already the largest manmade one on earth. Earlier in the year, H. G. Wells had visited Roosevelt at the White House and expressed misgivings about science and technology, but the President had dismissed the pessimism of *The Time Machine*. Now, viewing at Culebra a scene others describe as Wellsian, Roosevelt exults and writes son Kermit he wishes he could stay and collect specimens. For years, workers remember Roosevelt's magical presence in Panama.

Roosevelt's "Special Message Concerning the Panama Canal," illustrated with photographs, praises the French efforts and Congress' good sense in abandoning a sea-level approach. He describes the hospitals, living quarters, and the rain. He wants legislators and the nation to note the size of the work, which already employs some 6,000 Americans. He praises Gorgas, noting health services on the Isthmus are as good



as first-class hospitals at home. The Sanitary Department is spending \$2 million a year. Ancon Hospital has a staff of 470. A dozen new hospitals and dispensaries have been built along the railroad. All employees, black and white, receive free care. Data in the back of the report shows the black majority is suffering nearly 3.5 times more fatalities than whites. Their chief killer is viral pneumonia, unknown to Barbadians at home and aggravated by unhygienic life in the jungle. The "*Anopheles* brigades" have been effective within specified areas, but vast swamps remain. Roosevelt privately reveals that living conditions for the blacks are appalling.

When the rainy season ends, work rolls ahead as never before. Stevens' popularity among workers reaches a new high. On Jan. 22, 1907, however, Shonts resigns. On Jan. 30, Stevens writes a six-page letter to Roosevelt, exhibiting exhaustion and bitterness. "Honor" is his only motivation in life, and digging a ditch does not provide this. When he takes a swipe at the honor of the presidency, Stevens seals his fate. While not a formal resignation, just a request for a rest, Roosevelt tells Taft to remove him. Taft again suggests Goethals, and Roosevelt is ready for some Army discipline. Taft tells Congress that Stevens is overworked and nearing a breakdown. Maltby says Stevens disliked notoriety.

A later, unsubstantiated, theory claims Stevens had come upon information on Cromwell that would destroy the Republican Party. On the Isthmus, most believe Roosevelt has overreacted to an innocent blowing off of steam. Stevens dismisses all explanations and says simply he quit for personal reasons. Many contend Stevens deserves credit for building the canal that his successor had only to avoid gross mismanagement for the project to succeed. This is unfair, but Stevens' railroad system does remain the backbone of the operation. Many problems he never faced, however, will require technical expertise in which Army engineers excel, and railroaders do not. Like Wallace, Stevens lacks the wholehearted commitment to a monumental national task that Roosevelt demands.

At 48, George Washington Goethals is the President's age but does not share his wealthy upbringing. Graduating West Point first in his class, Goethals serves brilliantly in the Corps of Engineers, overseeing projects on various river systems, teaching at the Academy, and in 1903, joins the General Staff, specializing in coastal defenses. He is a model officer but like many non-combatants has little affection for "soldering." He is cool, dignified, and demanding. Roosevelt makes Goethals both Chairman and chief engineer names commissioners, all but one of whom Goethals knows only by reputation, and tells them bluntly Goethals has complete authority. Within a year, another executive order makes Goethals "Czar of the Zone." The engineering officers are detached from the Army but can be relied upon as officers not to quit.

The Panama Canal is built under three American Presidents, Roosevelt, Taft, and Wilson but a generation credits the enigmatic Roosevelt for resurrecting the French project and making it a popular success. In fact, Taft gives the project the most time and attention, traveling there five times as Secretary of War and twice as President, and he finds both Stevens and Goethals. The canal is half-finished when Taft succeeds Roosevelt in 1909.



Book 3, Chapter 19

Book 3, Chapter 19 Summary and Analysis

"The Chief Point of Attack" concentrates on the reorganized project at its peak under Chief Engineer Goethals. Contemporary writers struggle to communicate the scale of the effort, likening it to the Great Wall of China, the Great Pyramid, and the Washington Monument. If this is hard to understand, worse is the climate of Panama and the effect it has on men and machines. At the height of the work, the U.S. removes the equivalent of the Suez Canal every three years, half as much in one year as the French had dug in 17. In any given day, 50-60 steam shovels work in the Cut, 500 trainloads of spoil is hauled off, and a single day's worth exceeds French digging per month. No other method, even today, could be more effective or work half as well. American engineers had been no less naive than the French in underestimating the magnitude. The minority report in 1906 states 54 million cubic yards remain to be removed. This is revised upwards in 1908 to 78 million, to 84 million in 1910, to 89 million in 1911, and to 100 million in 1913- the volume a sea-level canal had been thought to require in 1906. As in the French era, the more they dig the more digging Americans have to do.

Goethals gets a cool reception, but sees the progress since 1905, when he visited with Taft, as extraordinary and credits Stevens. "Slurs" on the Army infuriate Goethals, and he emphasizes he will not instigate a military regime. He takes over officially on Mar. 31, 1907, and skips Stevens' departure as Stevens had his welcoming. Lacking Stevens' easy way with people, Goethals is seen as abrupt and arbitrary. Several of Stevens' assistants resign. His daily regimen is exacting from breakfast at 6:30 AM through morning inspections of the line, through lunch and a rest, and office hours until dinner at 7 PM. Unless otherwise engaged, evenings are for paperwork until 10 PM. Goethals' desk is never clean. He likes to have everything on paper, demands loyalty, abhors waste and inefficiency, and is determined to weed out incompetents. By late summer, Goethals has "the outfit in line."

Roosevelt sends Joseph Bucklin Bishop to Panama as Secretary of the Commission and his own alter ego. Bishop confirms Goethal's success. At Bishop's suggestion and under his editorship, Goethals starts a weekly newspaper, the *Canal Record*, to give an accurate, up-to-date picture of the progress being made and to raise community morale. Crews compete fiercely to top the published excavation statistics. Goethals allows employees to air grievances individually at a Sunday morning court of appeals. Non-English speakers are seen by Giuseppe Garibaldi, but the Colonel hears out about 100 every week on harsh treatment, pay, promotions, food, living conditions, sports, and even domestic disputes. Goethals is a patient listener and investigates anything he deems serious. There is no appeal to his decisions, however. Goethals' approach to labor relations is advanced for his time, and people respond to being treated decently by giving maximum service. Congressional visitors are impressed and praise Goethals to the White House. Goethals never faces money troubles on Capitol Hill.



Within a year, Goethals institutes fundamental changes. First, the bottom width of the channel through Culebra is widened from 200 to 300 feet. Then, the width of the lock chambers is increased from 95 to 110 feet to accommodate the largest planned battleships. A breakwater is planned to prevent silt buildup. Lastly, the Pacific locks are split into two units and moved inland, rendering them less vulnerable to sea bombardment. The Wallace/ Stevens departmental system is replaced by geographic divisions as in the French period. The Atlantic Division, extending four miles inland from Limon Bay to the Gatun Locks and Dam, and is run by Army men under headstrong, ambitious 47-year-old Maj. William Sibert, whose experience with locks and dams is unexcelled. Maj. David Du Bose Gaillard, Sibert's West Point roommate, whose career in the Corp of Engineers has been solid if unspectacular, heads the 32-mile wide Central Zone, including the Culebra Cut. West Point's curriculum is by their time patterned after the Ycole Polytechnique. Goethals assigns a civilian, Sydney B. Williamson, to head the Pacific Division, establishing a rivalry with the Army on the opposite coast. Harry Harwood Rousseau is responsible for the design and construction of support structures, and Frederick Mears is charged with relocating the Panama Railroad. Maj. Carroll A. Devol, a hero of the Army effort to restore San Francisco after the 1906 earthquake, becomes Chief Quartermaster, and Lt. Col. Harry Foote Hodges is put in charge of lock design. Fussy, humorless Hodges proves to be Goethals' most valuable assistant, running the most difficult technical aspects of the project and substituting for him as chief engineer whenever Goethals is away.

The Culebra Cut is the focus of attention in 1907-13. Stretching 9 miles from Bas Obispo to Pedro Miguel, it attracts tourists by the thousands. The press is filled with stories of difficulties. Labor trains deliver 6,000 men every day but Sunday, and they work until 5 PM. During lunch breaks and after hours, dynamite crews blast rock. Overnight, repair and coal crews tend the shovels. Writers have little to say about work hazards, but hundreds are injured and killed annually. Half the labor force is employed unloading, transporting, storing, and utilizing the over 61 million pounds of dynamite, 800,000 sticks monthly, set by hand. The process is learned trial-by-error, and premature explosions are frequent. In the worst accident 8, 22 tons blow up as the last charge is being tamped, killing 23 and injuring 40. The *Canal Record* lauds the shovel teams' efforts in mythical terms. At the peak of the effort, in March 1909, 68 shovels remove 2 million cubic yards. The single-shovel record belongs to Bucyrus No. 123, removing 70,000 cubic yards in 26 workdays. Just north of Gold Hill, shovels are stacked one above another at seven levels, each serviced by dirt trains kept constantly busy. Some 160 trains a day run in and out of the Cut, requiring constant shifting of the tracks.

Drilling, blasting, shoveling, and hauling dirt must be closely coordinated. Yardmasters at either end of the Cut communicate with 60-odd dumps operating from one to 23 miles out. Much spoil is used to build earth dams, embankments, and the Naos Island breakwater. The dumps are carefully engineered, with tracks on several terraces. Lidgerwood unloaders, dirt spreaders, and track shifters do the work of hundreds in keeping pace with the loads being delivered. The largest dumps, covering thousands of acres, become seas of mud during the rainy season, with tracks slipping and sinking. Soft bottom sediments easily give way under the weight of heavier materials being



dumped on top, and some areas can settle 100 feet vertically and slide sideways 300 feet. The Naos Island breakwater eventually requires ten times the volume first estimated. In 1908-09, the years of heaviest work, over ten feet of rain falls annually, and diversions channels fail as under the French. When cut too close to the Canal, they intensify the slides.

The great dam at Gatun, 15 times wider at the base than it is high, is surprisingly easy. "Dry" spoil is laid down a half-mile apart to create "toes," between which "wet" fill is pumped and allowed to dry like concrete. Several times Cucaracha becomes a "tropical glacier," dumping mud into the canal, setting back progress by more than a month. From 1911 onwards, as the Cut grows deeper, the slides become worse. Geologists tell engineers heavy blasting high on the slopes make structural break and deformation slides inevitable. The opening of cracks along the rim serves notice one is developing. The town of Culebra is moved away in 1912, when twice the predicted volume crumbles. Months of quiescence lull engineers into false security. Oxidation of pyrite terrifies workers, who think they are cutting into a volcano. At times, the floor rises 30 feet as the soft strata react like soft dough being kneaded around the edges of a pan. The only sure solution is to cut back the slopes until slides stop. By late 1912, the angle of inclination has reached one on five, but the ground still moves. Goethals calmly orders them to dig it out, again.



Book 3, Chapter 20

Book 3, Chapter 20 Summary and Analysis

"Life and Times" depicts social life in the Canal Zone in the Goethals era, idyllic for the White minority and hellish for the black majority. American tourists crowd passenger trains, and as impressive as they find the Gatun Dam, locks, and Culebra Cut, the "vanquishing of pestilence" inspires the greatest patriotic pride. Local old-timers are no less amazed. For Whites, the "hard times" are long forgotten, they enjoy every creature comfort, and morale is amazing. People are too busy to see the detrimental effect of their structured, paternalistic life. Rewards are based on one's importance to the work -as Saint-Simon had said, "from each according to his ability, to each according to his work" In 1913, 5,362 gold-roll employees draw an average salary of \$150 a month, ranging from nurses and teachers starting at \$60 to steam shovel engineers at \$310. Never more than 300 women are on the payroll. A strong caste system keeps them separate from the majority blacks and the Panamanians on whom they look down as lazy.

Young engineering graduates with 2-3 years experience earn only \$25 more a month than at home, but receive liberal benefits, services, paid vacations and sick days. Bachelors live in hotels and enjoy music and card games officially forbidden by ICC regulations. They pay 30¢ for meals that in the U.S. cost 75¢, need only work clothes, and for \$10 a year enjoy full privileges as the YMCA ("Uncle Sam's Fight with the Devil"). Those so inclined can misbehave in the scrubbed and sanitized port cities. Saloons there have no closing time, and red-light districts flourish. Marriage is encouraged, because it stabilizes workers' lives. Married men are assigned apartments pegged to their monthly salary range. Wives shop in well-stocked commissaries at subsidized prices lower than at home. Imported books and newspapers keep residents more up-to-date than at home. Saturday nights feature dances at the Tivoli Hotel, and Sundays see concerts by the ICC Band. The Fourth of July is the biggest day of the year.

Clubs are organized for every interest, geographic or ethnic group. Various occupations have "brotherhoods," and fraternal and secret orders abound, with the Order of Red Men most prominent. Everyone belongs to something and is someone's "brother" in some fashion. Most have 3-4 affiliations listed in *The Makers of the Panama Canal*, a college yearbook-like publication in 1911. There are 39 churches in the Zone, 26 of them built and owned by the ICC. The salaries of 15 full-time chaplains are charged to the Sanitary Department. In all, the ICC spends \$2.5 million a year providing "privileges and perquisites."

Unorganized activities also abound. Sundays see hundreds mingle with tourists sightseeing or relaxing at the beach. The history of Panama interests many, including Gaillard and Gorgas. Sibert organizes hunting parties in the jungle. Some visitors criticize the socialist nature of life and worry about the effect of its success, but reporters



are impressed no one at the top works for personal profit. Business people and bankers see the government-run Panama Railroad as a "model of efficiency and economy," better equipped with safety devices than any in the U.S. Employer-employee relations are more liberal than anywhere, and the hotel and steamship lines both earn a profit for the government. Some warn workers will return to America as powerful additions to the Socialist party and lobby for the kinds of benefits they have enjoyed. Others are amazed technical men, so disinterested in political philosophy, can live this life.

Harry Franck in his *Zone Policeman 88* claims Panama is a caste society like India. The "gold employees" are the Brahmins, subdivided into numerous, clearly defined grades. Below the lowest run of "roughnecks" are 800 Army and Marine enlisted men who lack entry to the clubhouses, mess halls, and amusements and earn \$18 a month - less than the lowest-paid unskilled civilian laborers. Required to wear their uniforms, they are frequent targets for the anti-American Panamanian police. They perform map duty in the jungle and chores in camp, and have no contact with or interest in the excavations.

Some see Goethals as the "innate force" behind the order and he is widely praised at home in print and before congressional committees. Yale, Columbia, and Harvard give him honorary degrees. Newspapers speculate he could be a dark-horse candidate for President. Franck calls him "Omnipotent, Omniscient, Omnipresent." He tours the line daily in a self-propelled car, the "Yellow Peril," talking ceaselessly about the job. He socializes rarely. His wife Effie lives in Panama most of his tour but is uncomfortable as first lady. Son George, after finishing West Point, is assigned to the canal and brings his bride. The Brahmins are divided between pro- and anti-Goethals people, Sibert, Gaillard, and Gorgas key among the latter. Washington knows about the bad blood, which apparently stems from Goethals' fear of being frozen out and having to share the glory. Marie Gorgas claims Goethals cares about nothing but power. The Goethals-Gorgas rift grows out of a dispute over cut the grass. Unwilling to allow anything that might jeopardize his success in reducing malaria, Gorgas objects to Goethals giving the task to the quartermaster who covers a larger area at a lower cost, with no ill effect on health. It becomes a test of wills. Goethals also thinks seriously about firing Sibert. On the other hand, Goethals tells a reporter he intends to step aside before the opening of the canal to stay out of the limelight. He publicly complements his subordinates, but privately maintains none of them bears his level of responsibility. In the summer of 1913, Gaillard cracks mentally and physically and leaves. In Boston it is discovered he is suffering a brain tumor, which kills him in 1913. Panama has nothing to do with his tragic demise, but his family and close allies blame Goethals.

In the thousands of articles that create the popular view of Canal Zone life, there is no mention of the blacks at the bottom. Government inspectors and fact-finders are thus amazed to see the entire project depends on black labor, including not only construction but also the vast service industries. The *Canal Record*, reliable in most respects, says nothing about black weddings, social affairs, births, and obituaries. America believes Panama is as successful as a social Utopia as it has been as a medical crusade. Later researchers will blame Southern military officers or upper-class Panamanians for the racism, but this overlooks the fact everyone understands the "gold" and "silver" system, which consigns silvers to separate lines for services, and second-class hospital wards



and schools. Black policemen draw half pay and cannot be promoted. The YMCA, hotels, and churches are off-limits - except as employees.

Being joined by one's wife does not bring black workers improved housing. Four out of five blacks fend for themselves, paying rent for wretched tenement rooms or building villages out of construction scrap. The rare mention of black living conditions claims they are allowed to live in the way that makes them happiest. The ICC spends \$2.5 million a year on entertainment and recreation, allocated at \$75 per married, white worker. That's 20% of the employee force. This is in contrast to an allocated \$50 per married, black worker, who contributes to the majority of the workforce. Some argue this is a matter of supply-and-demand: skilled workers, professionals, and technicians being hard to woo, while unskilled workers are abundant and better paid than at home. Without political representation in Washington, blacks are helpless. Some claim blacks in Panama are better protected and cared for than anywhere in North American industry. Finally, others, to avoid the obvious conclusion the American Canal Zone is racist, point out the *fellahin* at Suez and those who came under the French had it far worse than the ICC's blacks.

West Indian workers tend to be soft-spoken, courteous, sober, religious, and law-abiding. About 80% of them are illiterate, and many barely out of childhood. Many change jobs regularly, looking for something more attractive elsewhere on the line. Their reminiscences are filled with rain, bugs, mud, smothering heat, terrible physical exertion, and constant fear of death. Demolishing trees with dynamite is a particularly fearful memory. Malaria and pneumonia rates decline but never disappear, while typhoid and tuberculosis rise. The Canal Zone might be a health resort for whites, but not for blacks. The average death rate in the final year is 7.92 per thousand, lower than in the U.S., but nearly half the employees spend time in hospital for illness or accidents. The death rate among whites is 2.06 per thousand but 8.23 among blacks. Blacks suffer most of the railroad accidents. Few blacks have seen a medical worker before Panama and fear hospitals. James A. Williams leaves a long account of his treatment for malaria.

Relations between "Gringos" and "Spigs," uneasy from the start, deteriorate markedly. Americans see the natives as "sulky," and are insulted they show no gratitude for all that is being done for them. Panamanians resent Americans' power, loudness, arrogance and drinking. Commissaries do not purchase local produce and exclude native shoppers. Americans seem determined to outrage Panamanians' pride through neglect and cruelty. One American, Rufus Lane, who tries to make a difference is quickly removed. Only the Spanish-speaking Gorgas seems to know how not to alienate the Panamanians. Amador dies in 1909 and is succeeded by Obaldna, who charges his predecessor with embezzling \$200,000-\$300,000 to pay off various Americans. Animosities grow, but most Americans in the Canal Zone see no "smoldering wrath," being too intent on the approaching end of the project.



Book 3, Chapter 21

Book 3, Chapter 21 Summary and Analysis

"Triumph" describes the magnificent and ingenious locks and electrical controls and the anticlimactic opening of the Panama Canal. The canal quickly becomes a smooth, quiet operation, free of all the hoopla and drama that characterize the early years. The diversion channel closes in 1910, and the water level begins inching up in the dam face. Popular interest also rises, fed by articles in magazines and Sunday supplements and almost a dozen books. The focus of attention in the final stage is the locks, the most spectacular structures in the world whose mechanisms function with the precision of a Swiss watch.

Building the locks takes four years. Each is a 1,000 X 81-foot concrete basin closed at both ends by steel gates. The walls, filled with tunnels, chambers, and passageways, are formed in the negative forms and filled with concrete, a mixture of sand, gravel, and Portland cement, known since Roman times but little used until reinforcing metal rods are added to increase strength. Concrete dry docks, silos, warehouses, bridges, and buildings have gone up, but nothing approaching the scale of the Panama locks will be attempted again until the 1930s. The lock chambers are built in side-by-side pairs to accommodate two lanes of traffic. The single flight at Gatun consists of three pairs. There is another at Pedro Miguel, and two at Miraflores. Each pair shares a center wall 60-feet wide. The sidewalls are 45-50 feet wide at the base and narrow to 8 feet at the top. The floors are solid concrete, 13-20 feet thick.

At Gatun, enormous steel forms are built and surmounted by towers from which are strung a conveyor line of six-ton buckets. Sand and gravel, stockpiled nearby, are fed into the plant by an automatic railroad, mixed with cement, delivered to the cableway, hoisted aloft, conveyed to the precise point needed, and deposited for men to spread by hand. At Pedro Miguel and Miraflores, the terrain dictates the use of cantilevered "chamber cranes" and "mixing cranes" rather than cableways. All 5 million sacks and barrels of cement are shipped to Panama from New York. Gravel and sand are quarried locally. While the technology is crude and the engineers are novices and the climate is infamous for breaking down everything manmade, the locks stand up for over 60 years.

The design and engineering of the locks is the work largely of three men: Lt. Col. Hodges, Edward Schildhauer, and Henry Goldmark. Goldmark designs the lock gates. The key to the enterprise is using water to make the massive gates virtually weightless, to lift and lower ships, and to generate electricity to run the motors and "mules" (towing locomotives). The locks are filled and emptied by gravity, water moving through massive tunnels running the length of the sidewalls feeding smaller channels at right-angles, and ending in valved openings in the floor. The coordinated opening and closing of valves at the two ends raise or lower the water level without turbulence in about 15 minutes.



The "miter gates" are the largest moving parts in the system. Weighing hundreds of tons, they swing like double doors and shut to form a flattened V. Construction begins at Gatun in May 1911. A skin of plate steel is riveted to a grid of steel girders, creating a watertight structure that floats, minimizing the load on the hinges. The leaves are 65 feet wide and 7 feet thick, but differ in height from 47 to 82 feet, depending on position. The heaviest weighs 745 tons. As a safety precaution against ramming damage, duplicate gates are used at both ends and, to conserve water when ships under 600 feet long - 95% of the world's fleet- are being transported, intermediate gates are provided. Lifting large ships from sea level to Gatun Lake and lowering them at the other end requires 52 million gallons. The gates open and close by a simple, powerful mechanism devised by Shildhauer, consisting of steel struts connected to horizontal "bull wheels" concealed in the lock walls and geared to electric motors.

The small Wheeling Mold and Foundry Company manufactures the hardware of exceptionally strong and corrosion-resistant alloy steels developed for naval armaments and the infant automobile industry. The locks are twice as large as Eiffel's and operate entirely differently. Pittsburgh manufactures thousands of parts, with McClintic-Marshall building the gates, themselves.

General Electric Company manufactures 1,500 electric motors to run the operation, something that would have been impossible a decade earlier. Swinging the gates requires 92 motors, plus 46 smaller ones to run the "miter forcing" mechanisms that lock them shut. More than 100 40-horsepower motors operate the stem valves in the main culverts, while larger motors control failsafe iron "fender" chains that play out slowly to bring runaway ships to a halt short of the gates. Should one get through, emergency dams can be deployed in two minutes to prevent the lake waters from escaping to the sea. The chances of disaster are remote, because ships never move under their own power in the locks, but are by locomotives capable of negotiating the 45° incline between locks. Built in Schenectady, for \$13,000 apiece, they are 30 feet long, weight 43 tons, and have duplicate controls and engines at each end, eliminating the need to turn around. They control a windlass handling 800 feet of steel cable to control the ships' movement.

As a young company working on the first government-industry cooperative project and under worldwide scrutiny, General Electric realizes the system must perform flawlessly. Electric power allows every machine or mechanism to have its own motor drive rather than receiving power from a central source, the standard in steam-driven factories. Electricity allows precise control at the press of a button and the execution of prescribed sequences of operations. The operation of each flight of locks is run from the second floor of a large control house built into the center wall of the uppermost lock, where the entire flight can be viewed without obstruction. The control boards depict the locks in miniature, and everything that occurs in the locks occurs at the same moment on the board. Switches are wired so they cannot be turned out of proper sequence. No non-electrical system could have achieved such centralized control, and it operates precisely as intended over half a century later.



The Commission of Fine Arts sends sculptor Daniel Chester French and landscape architect Frederick Olmsted, Jr., to suggest how to dress up the appearance of the locks, but they recommend no ornamentation, which will only take away from the grandeur.

With the completion of the locks, a year earlier than anticipated, the canal is essentially finished. It might have opened in 1913 had it not been for slides at Culebra. The last concrete is laid at Gatun on May 31, 1913. In June the upper guard gates are tested and the spillway gates on the dam are closed. Lake Gatun begins rising to full height. Goethals decides to wait for the Cut to flood to dredge the Cucaracha slide rather than continue hapless dry excavation. Photographers capture the removal of the last large rock on Sep. 10, and hundreds of railroad ties are set spectacularly ablaze. Before the lake reaches full height or the central control board is finished or the towing locomotives are in service, the Gatun lockage is tested by the seagoing tug *Gatun*, festooned with flags. The Colonel and Hodges supervise from the lock wall as the tug rises, step by step, to the lake in one hour and 51 minutes. That's almost twice as long as will be required once everything is in working order.

Four days later, a mighty earthquake rocks the Isthmus, but the locks and dam are not damaged. On Oct. 10, President Wilson pushes a button in Washington that causes the center of the Culebra dike to blow sky-high, flooding the cut. Some 20 dredges set to work from both ends, digging 40-foot channels and clearing the slides, with a fleet of barges carrying the spoil to out-of-the-way corners of the lake. The *Marmot* makes the "pioneer cut" opening the channel for free passage on Dec. 10, 1913. The first complete passage comes about as part of the workaday routine, as the crane boat *Alexandre La Valley*, which had earlier come up from the Atlantic side, passes unceremoniously down to the Pacific.

The end is approaching faster than anticipated. Men depart, buildings come down, and applications go out. Many go to the automobile factories in Detroit. Farwell parties are held almost every night. Gorgas resigns and goes to South Africa to fight pneumonia among gold miners. Later, he becomes the U.S. Surgeon General. Bishops resumes his literary career. The ICC is disbanded and Wilson names Goethals the first Governor of the Panama Canal. After a long and acrimonious debate, Congress decides American ships must pay the same tolls as others, 90¢ per ton. The Navy prepares a flotilla of 100 warships to sail from New York to San Francisco to open the Panama-Pacific International Exposition, but the outbreak of World War I causes the naval pageantry to be dropped. When the *Cristobal* (with Banau-Varilla aboard) and *Anacon* christen the waterway, editorials hail the canal builders' victory, but the public has lost interest.

Only 60 of the American employees present at the opening have been there since 1904. The number of black workers present throughout is not recorded. One French engineer, Arthur Raggi, remains. Goethals and his lieutenants have labored seven years. No project in U.S. history costs more in dollars or human lives. Including the French expenditures, the total cost is \$639 million. Hospital records show 5,609 lives lost since 1904, 4,500 of them black. Adding French-era deaths, the total cost is 25,000 lives, or 500 per mile of the canal. Incredibly, the American canal comes in \$23 million under



budget, despite slides and \$11 million for fortifications. Slides add over 25 million cubic yards of excavation to the project and \$90 million. Had this been foreseen at the outset, it is doubtful Congress would have approved. French and Americans remove 262 million cubic yards. That's four times de Lesseps' estimate for a sea level canal and three times the excavation at Suez. Credit for finishing six months ahead of schedule goes to Goethals, who sees the project through without graft, kickbacks, and other schemes common in large-scale public works. None of the thousands of firms receives excess profits, and there is no hint of scandal or corruption. The canal is a masterpiece of design and construction and the locks work perfectly.

Traffic remains light until 1918, under 2,000 ships per year. In July 1919, an American armada of warships returns to the Pacific through the canal. Within ten years, it is handling over 5,000 ships a year, approximately the same volume as Suez. This rises to over 7,000 by 1939. After World War II, it doubles. Lighting is installed in 1966 to allow nighttime transits. By the 1970s, 15,000 ships a year are passing through, with an annual tonnage of 100 million (compared with 5 million in 1915). By the 1930s, ships too large to fit the locks are launched, and talk begins of a new canal. All the old routes are surveyed again.

Tolls in 1915 amount to \$4 million. By 1970, they exceed \$100 million. In 1973, the Panama Canal Company records its first loss and tolls are raised 20% in 1974 to \$1.08 per ton. The Cut is widened to 500 feet, a storage dam is built above Gamboa, the original towing locomotives are retired, but externally the canal looks as it did the day it opened. Some argue separating the Pacific locks is a blunder, but Gatun is a greater bottleneck. Engineers believe the present canal can be made to handle 27,000 ships a year. Goethals' one misjudgment is to believe the slides ended.

The Panama Canal is a supreme human achievement, one of the hardest ever won by human effort and ingenuity. For millions of people, the 12-hour crossing is the experience of a lifetime. Goethals' successors have followed his aesthetic and military decision to allow the jungle to return to the shore. Travelers have the feeling of wilderness, except in the Cut, where the mountains press close. The locks and locomotives operate quietly.



Book 3, Afterword

Book 3, Afterword Summary and Analysis

Charles de Lesseps, Mahan, and Selfridge survive to read about the canal opening, all quietly retired. Banau-Varilla, who hails Goethals and the "genius of the French nation" at the opening, loses a leg in World War I, and dies in 1940, just weeks before the Nazis take Paris. Roosevelt never returns to Panama and never sees the canal. The Pacific fleet passes through months after his death. Nor does he live to see Wilson pay Columbia \$25 million in indemnities in 1921, a proposal that infuriated him. Gorgas heads the Army medical service during the war and dies in London in 1920. Goethals remains Governor of the Panama Canal until 1916, serves as quartermaster general during the war, and finishes his career on Wall Street. He dies in 1928 and is buried at West Point. Stevens lives until 1943, helping reorganize the Trans-Siberian Railway at Wilson's request, and flies over the canal. His faith in the human intellect and creative capacities remains undaunted.



Characters

Ferdinand de Lesseps

Philippe Banau-Varilla

Theodore Roosevelt

John Hay

John Stevens

George Washington Goethals

William Crawford Gorgas

Manuel Amador

Daniel Ammen

John Bigelow

Joseph Bucklin Bishop

Gaston Blanchet

Dr. Edward Cullen

William Nelson Cromwell

Jules Isidore Dingler

Ydouard Drumont

Marcus Alonzo ("Mark") Hanna



Cornelius Herz

Esteban Huertas

Cmd. Hubbard

Alexander von Humboldt

Godin de Lypinay

Charles de Lesseps

Alfred Thayer Mahan

Ancieto Garcna Menocal

John Tyler Morgan

George S. Morison

Armand Ryclus

Jacques de Reinach

Thomas Oliver Selfridge

James Shaler

Theodore Perry Shonts

Lloyd Stephens

William Howard Taft

Eliseo Torres



John Grimes Walker

John Findley Wallace

Lucien Napoleon-Bonaparte Wyse



Objects/Places

Bidlack Treaty (1846)

An agreement between U.S. charge d'affaires Benjamin Adlack Bidlack and Columbian President Tombs Cipriano de Mosquera, giving the U.S. exclusive right of transit across the Isthmus of Panama in exchange for a U.S. guarantee of "perfect neutrality" of the isthmus and New Granada's right of sovereignty there. It makes possible building the Panama Railroad. From Lincoln through McKinley the U.S. understands the Bidlack Treaty to preclude supporting civil war, but Roosevelt interprets it as requiring U.S. military intervention in 1903 when Columbia allegedly "breaks" its provisions by selling the failed French concessions to the U.S.

Compagnie Universelle du Canal de Panama

The company formed by Ferdinand de Lesseps to build a canal across the Isthmus of Panama. Undaunted by opposition from bankers and the press, he launches a bimonthly propaganda organ, *Bulletin du Canal Interocyanique*, forms a new International Technical Commission of famous engineers, and undertakes the definitive survey required by the Wyse Concession. After a personally successful but commercially failed tour of the U.S., de Lesseps incorporates the Compagnie on Mar. 3 1881, and serves as President. Son Charles is a director and assumes much of the burden of administration for his aged father. They fight valiantly but unethically through 1888 before Charles admits defeat in a last bid to raise money. The Compagnie defaults on promised reimbursements to investors, ruining thousands financially, and goes into receivership Dec. 15, 1888. Public trials reveal widespread bribery of government officials and pay-offs to the press to obscure the technical defeats being suffered in Panama. A Compagnie Nouvelle du Canal de Panama succeeds it in 1894 in a last ditch effort to realize the French dream.

Compagnie Nouvelle du Canal de Panama

The successor to the de Lesseps' failed company, the Compagnie Nouvelle du Canal de Panama is intended to prevent the French assets in Panama from deteriorating, but in late 1901, as the U.S. nears starting a new project in Nicaragua, it sends word to Washington the directors want to sell at any price. They ask \$40 million, which is precisely the amount the Walker Commission feels the excavations, documents, railroad, and other assets are worth - far less than the original \$109 million asking price. President Roosevelt changes his mind about the route and boldly advocates Panama in 1902. The U.S. is able to use much of the equipment and facilities left behind.



Congris International d'Ytudes du Canal Interocyanique

The 1879 gathering in Paris of 136 leading engineers, naval officers, economist, and explorers from 22 countries, personally selected and invited by de Lesseps, who also controls the agenda, rules, committees, and entertainment.

Couvreux, Hersent et Compagnie

The giant company that takes part in building the Suez Canal, lends its best engineer, Gaston Blanchet, to de Lesseps' project in Panama, but in 1882 withdraws quietly from the operation.

Darien Expedition of 1870

Led by Thomas Oliver Selfridge, the Darien Expedition explores the hinterlands of both Caledonia Bay and San Blas Harbor and determines the latter is more practical, but will still require a tunnel the water supply at the summit needed for a lock canal.

Hay-Banau-Varilla Treaty (1904)

Resembling in wording the Hay-Herrbn, the Hay-Banau-Varilla Treaty expands the width of the canal zone from six to ten miles, puts the U.S. in charge of all public works in the terminal cities, cedes four islands in the Bay of Panama, and authorizes additional use of eminent domain. In exchange, the U.S. guarantees Panama's independence. The French canal company may transfer its concessions and property to the U.S. and compensate Panama - not Columbia - in the previously agreed amounts. Panama relinquishes the exercise of any rights, power, or authority in the Canal Zone, where the U.S. will *act* like the sovereign. The least becomes indefinitely renewable. Hay's first draft is rewritten by Banau-Varilla to make it irresistible to the U.S. Senate, even at the risk of upsetting Panamanian patriots.

Hay- Herrbn Treaty (1903)

Signed and ratified by the Senate in 1903, the Hay- Herrbn Treaty authorizes the Compagnie Nouvelle to sell all rights, privileges, properties, and concessions to the U.S., to which Columbia grants control over a 6-mile wide zone for 100 years, renewable at the option of the U.S. The two port cities are excluded from U.S. control. The U.S. pays Columbia \$10 million in gold and annual rent of \$250,000. The U.S. may establish courts of law within the zone to enforce its regulations. Columbia provides police protection, with the U.S. as backup in the event Columbia cannot meet this obligation.



Hay-Pauncefote Treaty (1901)

U.S. Secretary of State John Hay and British ambassador Sir Julian Pauncefote negotiate in 1898 a replacement for the Clayton-Bulwer Treaty over control of an isthmian canal. The first attempt agrees the U.S. will continue the French efforts at Panama but without military fortifications and with a guarantee of free passage to all in wartime. The Senate Foreign Relations Committee refuses to ratify it without amendments about neutrality. New negotiations are well under way when McKinley is assassinated in 1901, and the new President, Theodore Roosevelt, who as governor of New York rallied opposition to the neutrality provision, encourages Hay to complete the second Hay-Pauncefote Treaty, which proves to be the most important treaty of Roosevelt's presidency. It omits the clause forbidding fortification and allows the U.S. to protect the canal "against lawlessness and disorder." Knowing this means there will be fortifications, Roosevelt is "delighted" by the signing, Nov. 18, 1901.

Isthmian Canal Commission (ICC)

The Washington-based body charged by the Spooner Act to administer U.S. efforts to build a canal at Panama. Rear Adm. Walker, Chairman, represents the Navy and Gen. George W. Davis represents the Army. Civilian members include engineers William H. Burr, Benjamin M. Harrod, Carl E. Grunsky, and William Barclay Parsons, and a businessman, Frank J. Hecker. On the surface it is a distinguished body but lacks experience in organizing gigantic projects, handling problems of supply, labor, or overall planning, and - worst of all - none has any medical training. Each member of the seven-headed commission considers himself personally responsible for every step, and is compulsive about preventing graft through insane amounts of paperwork. After a November 1904 inspection, Secretary of War Taft, under whose department the ICC functions, determines the bottleneck must be removed. On Jan. 13, 1905, Roosevelt asks Congress to reduce the ICC to three. When Congress fails to act, Roosevelt asks the members to resign and names replacements, four of whom are figureheads and three constitute an executive commission, each responsible for a particular administrative department. Theodore Perry Shonts is named Chairman and Charles E. Magoon governor.

Panama Canal Railroad

In 1850, a little railroad is begun. Expected to take two years to complete at a cost of \$1.3 million, it takes five years and \$8 million. The Compagnie du Canal de Panama purchases it from the principal shareholder, Trenor W. Park, a clever Wall Street speculator and President of the Panama Railroad Company at twice its market value as part of its incorporation efforts. The railroad company has made a substantial investment in Colun and Panama City, and de Lesseps will consider no other route across the Isthmus. During the Panamanian uprising, control of the railroad is crucial to victory. Under the French, the railroad is the backbone of operations but proves inadequate to the massive technical challenge, a role it continues under the Americans until the point



is reached where barges can function on the canal waters. A section of track has to be relocated as the interior of the Isthmus is flooded to form Lake Gatun.

Prestan Uprising

The 1885 election of the conservative Rafael N'sez as President of Columbia touches off liberal insurrections in the Isthmus, one led by former Panamanian President Rafael Aizpuru and another by Pedro Prestan. The U.S. Navy participates in putting down the revolt, setting a precedent for the future.

Spooner Act

Originally known as the Hepburn Bill after its author, Congressman William Peters Hepburn, the Spooner Act, passed 259 to 8 on June 26, 1902. It was signed into law on June 28. It took its final name from Senator John Coit Spooner, who offered the critical amendment that the President be authorized to acquire the Panama property and concessions for no more than \$40 million, provided Columbia will give up sovereignty over a six-mile zone perpetually. Failing this, the President was authorized (as per the original Hepburn Bill) to build at Nicaragua.

T'rr Syndicate

Formally the Society Civile Internationale du Canal Interocyanique de Darien, the T'rr Syndicate reorients the project from being a non-partisan effort to a strictly French one. De Lesseps heads its Committee of Initiative. On Mar. 23, 1878, the T'rr Syndicate receives from Columbia by the terms of the Wyse Concession the exclusive privilege for 99 years to construct a canal across the Isthmus of Panama.

Wyse Concession

Proposed by French naval Lt. Lucien Napoleon-Bonaparte Wyse, and signed by Columbian President Aquileo Parra on Mar. 23, 1878, a mere week before his retirement, the Wyse Concession grants the Society Civile Internationale du Canal Interocyanique de Darien (T'rr Syndicate) exclusive 99-year privilege to build a canal at Panama. Columbia's conditions include a down payment of 750,000 francs by 1882, competent international surveys within three years, organization of a canal company within two years after that, and construction within 12 years after that. Columbia is to receive 5% of the gross revenue for 25 years, 1% increases at the 50- and 75-year anniversaries, and 8% in the final years - never to fall under \$250,000. The company receives public lands on both sides of the canal. The terminal ports and canal itself are to be neutral for all time. After 99 years, the canal reverts to Columbia. Most crucially, the concession may be transferred to other individuals or syndicates but not to any foreign government. After the failure of the French efforts to build a canal, the

Compagnie Nouvelle du Canal de Panama in 1894 gets the concession extended through 1903.



Themes

Nationalism

U.S. interest in Central America dates from the beginning of the westward movement in 1801, gains economic immediacy in the 1840s, and flourishes as the tentacles of American empire spread out around the turn of the 20th century. Impoverished Columbia owns the Isthmus of Panama and wants to maximize its profits on any passage between the seas that the great powers might carve through their territory. Nicaragua opens its arms to outsiders for the same reason, while Mexico's conflict with the northern neighbor is still too painful to overcome. The French, who have long seen themselves in the vanguard of the advance of civilization, are flush with victory backing Ferdinand de Lesseps' colossal project of linking the Mediterranean and Red seas - and smarting at the fact bitter rival Britain has bought out Egypt's interests in the Suez Canal and improved its strategic position. De Lesseps sees Panama as the second leg in a grand plan to benefit humankind worldwide - while glorifying France and redeeming its honor after the disastrous Franco-Prussian War of 1870.

Frenchmen rally to the cause as financiers and engineers, even when malaria and yellow fever dictate they ought to stay home. When money fails, the U.S. is ready to take over, tries to negotiate with Columbia a buy-out of French concessions, but nationalists in Bogotb demand better terms. Offended U.S. nationalists back Panamanian nationalists in seizing the Isthmus and negotiate a treaty decidedly biased towards U.S. interests (at the insistence of a Frenchman whom demands to represent Panamanian interests - and even design their new flag!). Relations between Yankees and Panamanians, shaky from the start, disintegrate through constant contact. As predicted, anti-Americanism spreads throughout Latin America. Americans take pride in succeeding where the French fail, but jingoistic celebration is impeded by the advent of World War I.

Racism

The vast majority of those who actually construct the Panama Canal are black-skinned natives of Caribbean islands. Under the French and Americans alike, they endure horrible living conditions, paltry wages, and second-rate medical care. As a result, they suffer four times the fatalities from accidents and disease. Anti-Asian prejudices in the U.S. and Panama preclude importing Chinese work crews - and China and Japan resist sending any more people to the intolerant West. Under the Americans, the chasm between the races becomes more dramatic because of the paternalistic socialism that turns White communities into paradise, with amenities in some cases better than what workers' families enjoy in the States.

Because skilled workers are paid in U.S. gold and non-skilled workers in silver Panamanian coins, separation can be veiled linguistically, but the reality is as absolute



and strict as in the U.S. South, apartheid South Africa, or caste-delineated India. Provisions are so bad for blacks that they abandon company housing and kitchens to live either in the filthy, teeming, over-priced port cities or in villages built of construction scraps in the jungle. Those who bother to notice this claim the company is allowing blacks the freedom to live as they wish. Some critics later claim the predominance of Southerners in the U.S. military assigned to Panama explains the prejudice, and others point out blacks are better off working in Panama than they would be at home, but both arguments overlook a fundamental racism. President Roosevelt looks into personally but does nothing to sweep away.

Progress

An explosion of technology marks the late 19th and early 20th centuries and people believe progress will only accelerate. Petroleum and electricity transform American homes and businesses, bridge building challenges the development of advanced steel products and concrete, known since Roman times, is reinforced and used in major construction projects. International expositions display innovations that suggest new applications. Wooden fleets give way to steel ships as world powers jockey to control the seas - leading up to world wars. An energetic visionary, de Lesseps, proves in the Egyptian desert that nature will yield to technology, and he turns his attention next to Panama. Railroads crossing North America and Siberia, combined with passages between the world's oceans, are shrinking the globe. De Lesseps begins work in Panama with technology significantly more advanced than he used in Egypt, and the Americans pick up the work with equipment that dwarfs the French steam shovels and railroad equipment.

Construction of canals on the Great Lake and in Europe have proved locks can be reliably operated, and Americans are certain they can overcome every obstacle that stopped the French: tropical disease and removal of the vast amounts of dirt and rock dug out of the hillsides. Mudslides thwart American efforts to dry excavate, so they build a massive dam to flood the Isthmus, and dredge a clear passage. Memory of how Johnstown, PA, had been wiped out by the collapse of an earthen dam, but engineers are confident they can build one that will hold. Concrete containers more massive than Manhattan skyscrapers are poured and fitted with massive steel makers locks whose mechanisms function as precisely as Swiss watches, and the whole operation is controlled by a system of electric motors built and installed by an upstart company determined to show the world its moxie. Nothing halts the march of progress across the Isthmus of Panama and the canal functions precisely as designed, flawlessly, for over half a century.

Style

Perspective

David McCullough is a native of Pittsburgh, PA, educated there and at Yale, whose boyhood interest in Theodore Roosevelt leads him into exploring great figures and events of Roosevelt's era. He has examined *The Johnstown Flood* and *The Great Bridge* (the Brooklyn Bridge) by the time he takes on bringing out the sense of destiny and adventure in linking the Atlantic and Pacific oceans that fills *The Path Between the Seas*. In the preface, McCullough states the 40 year project, 1870-1914, rivets the world, affects thousands of lives, revolutionizes finance capitalism and medicine, and advances engineering, government planning, and labor relations. The U.S. emerges as a world power as the Victorian Era ends. McCullough writes for the general reader, aiming at bringing out the causes of what happens in Panama, onsite and in vital political locales abroad, at discovering the nature of the age. He does this primarily by telling the stories of individuals, great and small, working from sources newly discovered and/or heretofore ignored. Because stereotypes are challenged, McCullough stresses nothing has been invented. As always, McCullough tells a fascinating story, making a long-dead era come alive.

Tone

David McCullough tells the objective story of the building of the Panama Canal with a sense of grand adventure and sublime awe at the accomplishment. He concentrates on the period 1870-1914, but looks backward and forward for perspective. He focuses on individuals, great and small, showing how life has prepared them for their part in creating *The Path Between the Seas*, how contemporaries evaluate them - including both kudos and complaints - and how they are succeeded by others as the gigantic task grinds forward. Often the participants, even at the top, have little idea what is happening to them, and often would have given up had they realized all that would be involved before success would come. McCullough pulls the reader into the project and the spirit of late-Victorian era admirably and in rich detail.

Structure

The Path Between the Seas consists of a preface, three books, and an afterword. Book 1, "The Vision, 1870-1894," consists of 8 chapters, covering the massive work done by the French, which leads to technological defeat. Book 2, "Stars and Stripes Forever, 1890-1904," consists of 6 chapters, concentrates on how the Americans take over the project of linking the oceans, debate whether the French site is optimal, and create the Republic of Panama. Book 3, "The Builders, 1904-1914," consisting of 7 chapters, chronicles the American effort through its challenges and setbacks to ultimate success. The Afterword wraps up a few key biographical sketches. *The Path Between the Seas*



proceeds, for the most part, chronologically. It concentrates on the thoughts and activities of the primary participants. However, it constantly brings in tales from the myriad of men and women, who were performing the actual labor. There is virtually no other way the story could be told.



Quotes

"And that was the sum total of the Wyse Survey. The exploration of the Panama route that was 'not an exploration' had occupied all of two weeks, four days. Wyse had played no part in it and in fact no survey had resulted." Book 1, Chapter 2, pg. 63.

"Of the several committees, only one really mattered, the fourth, or so-called Technical Committee, which was charged with deciding where the canal should be built, what kind of canal it should be, and what it was all going to cost. It was the largest committee, the one de Lesseps himself would sit on, and of the 52 other delegates he had assigned to it, more than half were French. Indeed, of all the 136 delegates in attendance, a total of 73 - well over a majority - were French and not a quarter were engineers." Book 1, Chapter 3, pg. 72.

"And all the while, in the lovely gardens surrounding the hospital, thousands of ring-shaped pottery dishes filled with water to protect plants and flowers from ants provided perfect breeding places for mosquitoes. Even in the sick wards themselves the legs of the beds were placed in shallow basins of water, again to keep the ants away, and there were no screens in any of the windows or doors. Patients, furthermore, were placed in the wards according to nationality, rather than by disease, with the result that every ward had its malaria and yellow-fever cases. As Dr. Gorgas was to write, had the French been consciously trying to propagate malaria and yellow fever, they could not have provided conditions better suited for the purpose." Book 1, Chapter 5, pgs. 144-145.

"Visitors were told that plans for the dam were not available as of the moment. One French engineer privately declared that the whole idea was hopeless. As the work went bravely on, as the river responded to the turn of the seasons, as the elder de Lesseps kept insisting in Paris, Micawber-fashion, that something would turn up - his man of genius with the perfect answer - nobody on the Isthmus honestly knew what in the world might be done. So this most vexatious of problems was simply put aside." Book 1, Chapter 6, pg. 165.

"When he departed for this, his second, tour of the Isthmus - for his first actual look at the Panama canal - Ferdinand de Lesseps was eighty years old. And in the minds of his thousands of shareholders this was the critical figure in the equation, more important than any stock prices or excavation statistics. It was not a company they believed in, or even a canal through Panama, so much as one exceptional human being. For them he was *la grande entreprise*. So baldly put, the question was, How much longer could the mortal hull last and perform?" Book 1, Chapter 7, pg. 185.

"His proposal now was to carry the idea to its ultimate conclusion: Subdivide the whole line of the canal into a series of such artificial pools and unite these with locks; in other words, build a lock canal upon which to float the dredges and let the dredges eventually transform that canal into an uninterrupted passage at sea level. He would use water, rather than railroad track, to transport his excavation machinery, and to carry the spoil



away. Such a system would be little affected by rains or landslides." Book 1, Chapter 7, pg. 193.

"The obvious differences in age and nationality aside, there were striking similarities between Theodore Roosevelt and Ferdinand de Lesseps. Both were the products of cultivated, worldly families. Both were raised on the ideal of patriotic service and the heroic exploits of adventurous kinsmen. There is the common love of the out of doors, of shooting, and of horses; the common joy in children, books, theatrics, popular acclaim. In his boundless love of life, his immensely attractive animal vitality, Theodore Roosevelt might have been a direct descendant of Ferdinand de Lesseps. There is even a kind of continuity to such traits as they were sometimes despised for - craftiness, self-glorification, self-deception." Book 2, Chapter 9, pg. 249.

"Morgan moved right along, taking up the geology of the Bohio valley, the design of the controversial dam, the intended use of levees, the silting up of the old French works. It was his characteristic approach, persistent and exasperatingly patient. The impression he seemed to be striving for was this: that Walker and his commission, by recommending Panama, were asking Congress and the country to risk everything on faith, faith in old John Grimes Walker, faith in the assumptions of one particular set of civil engineers, and, at root and worst of all, faith in the French." Book 2, Chapter 11, pg. 311.

"Perhaps this had been his intention all along out of spite over some real or imagined insult on the part of the inner circle. Perhaps it was a sudden impulse resulting from something Hay had said, or the way he said it. Or possibly he thought such a warning, when relayed to Bogotb, would jolt the Columbian regime into appraising the seriousness of the situation. Whatever the explanation, Cromwell had been double-crossed." Book 2, Chapter 12, pg. 346.

"Others in the Cabinet fell into line, without apparent qualm, nor with anything approaching Roosevelt's solemn air of righteousness. Attorney General Knox, having been asked by Roosevelt to construct a defense, is said to have remarked, 'Oh, Mr. President, do not let so great an achievement suffer from any taint of legality.' At another point, during a Cabinet meeting, Roosevelt talked of the bitter denunciations in the press, then entered into a long, formal statement of his position. When he had finished, the story goes, he look about the table, finally fixing his eye on Elihu Root. 'Well,' he demanded, 'have I answered the charges? Have I defended myself?' " 'You certainly have, Mr. President,' replied Root, who was known for his wit. 'You have shown that you were accused of seduction and you have conclusively proved that you were guilty of rape.'" Book 2, Chapter 13, pg. 383.

"With the \$10,000,000 paid to Panama and the \$40,000,000 to the Compagnie Nouvelle, the United States had spent more for the rights, privileges, and properties that went with the Canal Zone - an area roughly a third the size of Long Island - than for any actual territorial acquisition in its history, more than the Louisiana Territory (\$15,000,000), Alaska (\$7,200,000), and the Philippines (\$20,000,000) combined." Book 2, Chapter 14, pg. 400.



"But Taft also returned to Washington convinced that the Isthmian Canal Commission must not continue as constituted, that virtually all the problems with the work could be traced directly to the office of Admiral Walker, that the canal was a far larger, more bewildering task than anyone at home yet grasped, and that it must be a canal at sea level." Book 3, Chapter 16, pg. 446.

"To build the Great Pyramid or the Wall of china or the cathedrals of France, blocks of stone were set one on top of the other in the age-old fashion but the walls of the Panama locks were poured from overhead, bucket by bucket, into gigantic forms. And within those forms there had to be still other forms to create the different culverts and tunnels, the special chambers and passageways, required inside the walls. Everything had to be created first in the negative, in order to achieve the positive structure wanted." Book 3, Chapter 21, pg. 591.



Topics for Discussion

Did the success of the Suez Canal affect the Panama Canal positively and negatively?

Why is the U.S Navy so intimately involved in the Panama Canal?

What could de Lesseps have done differently to succeed in Panama? Or, if nothing, why was he doomed to failure?

Why might Nicaragua have been a better choice than Panama?

How could the U.S. have avoided turning Latin America against it in Panama?

How do Banau-Varilla and Roosevelt compare as founders of Panama?

Were American machinations in Panama moral and/or legal?

Why were railroad men and army engineers both needed in Panama?

How do the Gold Rush and Spanish-American War compare as motivations for building a Canal in Central America?

Why could a Suez-like sea level canal not be dug through Panama?