Andrew Carnegie and the Rise of Big Business Study Guide

Andrew Carnegie and the Rise of Big Business by Harold C. Livesay

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Plot Summary

This biography, published in 2007, covers the years from 1835 through August 11, 1919, when Carnegie dies peacefully in his sleep. The American Dream is a belief that people can rise above humble beginnings by hard work, honesty and thrift to become rich, powerful and influential. Tens of millions immigrate to the New World where their experience embeds the dream into American life much more than the few with unmatched success like Carnegie, Guggenheim and Vanderbilt. This is a true story of the impoverished nineteenth century Carnegie family leaving their homeland in Scotland. Within two years of arrival in America, the Carnegies regain their fortune with the help of their friends, relatives, and countrymen. They earn more income than ever paid in Scotland with young Tom in school, parents Will and Margaret weaving and shoe-binding and Andrew working as a bobbin boy in a textile mill.

Harold C. Livesay writes a biography, "Andrew Carnegie and the Rise of Big Business" after working like Andrew as a poor workman doing odd jobs, then as railroad yardmaster and truck driver delivering steel to construction sites. In early 1960s, Livesay evaluates American steel and other industries he calls "bloated, arrogant and inefficient." Livesay trades in his truck for a Johns Hopkins University doctorate and becomes a professor in 1970. He writes this biography about a man he admires and who is often mischaracterized to place him in context of the times and paradoxical views of life in which Carnegie actually lived. Livesay shares the spiritual riches of this industry giant and philanthropist whose contributions in his name continue today. Carnegie rises from poor bobbin boy at $1.20 per week in 1850 to railroad superintendent at $2,400 per year in 1865. When his first investment pays a dividend for $10, Carnegie sees a whole new world of earning income from capital. At twenty-eight he is the successful manager of a complex, multi-unit railroad business and informal investing group with Thomson and Scott. Thirty years later, J.P. Morgan buys Carnegie Company and all its holdings for $480,000,000. Morgan congratulates Mr. Carnegie on being the richest man in the world.

Carnegie gives 3,000 libraries for $60 million, 4,100 church organs, and forms Carnegie Trust and Hall in Scotland and New York, Institutes in Pittsburgh and Washington, and a School of Technology. He endows the Carnegie Foundation with $125 million and many other philanthropic works before he dies at peace in his sleep on August 11, 1919. His wife Louise dies in 1946 and his daughter Margaret has four children but none are in the steel business. The irony of his many accomplishments and the complexity of his career and business is captured in Carnegie's deceptively simple poem that summarizes the steel business as, "four and one-half pounds of material manufactured into one pound of solid steel and sold for one cent. That's all that need be said about the steel business."

Flying Scots: In Search of a Dream

Flying Scots: In Search of a Dream Summary and Analysis

This non-fiction historical biography, published in 2007, occurs from 1835 through August 11, 1919, when Carnegie dies peacefully in his sleep. The American Dream is a belief that people can rise above humble beginnings by hard work, honesty and thrift to become rich, powerful and influential.

The "American dream" characterizes America. The concept refers to the continuing belief that people can rise above humble beginnings by hard work, honesty and thrift to reach a position of power and influence in America. Independence from Britain one hundred fifty years ago transforms this idea into a workable tradition. Tens of millions immigrate from the Old to the New World to embed the dream into an image of America far stronger than the success of a few like the Guggenheims and Vanderbilts. The dream is not diminished by war, depression and industrialization experienced from the nineteenth through the twenty-first century. Contemporary examples of realizing the American dream include Cuban Roberto Goizuetta, deceased chairman of Coca-Cola, Hungarian Andy Grove, founder of Intel, and Liz Claibourne. The poor Scot Andrew Carnegie is irrefutable proof of the American dream as Carnegie became the richest man in the world.

In addition to his wealth, Carnegie's ideas about machines, individual success and the American political system contribute to the development and growth of the industrial economy. Carnegie perfects business techniques to transform an iron and steel industry comprised of many small producers into "big business" for the first time. His example encourages firms in other industries to do the same. Carnegie's career begins on July 15, 1848, when he and his family, parents Will, Margaret and his brother Tom, sail from Great Britain with fellow Scottish passengers. Previously Margaret Carnegie's sisters, Annie Aitken and Kitty Hogan immigrate in 1840, and write of good and bad times there.

The Carnegies stay in Scotland as long as they can until conditions become intolerable in Dunfermline. Their town is at one time known as the most radical in the kingdom, as a result of the influence of the Chartists who demand concessions from Parliament, primarily political equality. The town's industry in 1835 is the hand weaving craft and practiced by half its 11,000 people since medieval times. Machines begin taking over production with energy from coal-fired steam boilers independent from windmills and waterwheels. Industrialization takes over factories, cities and whole ways of life when a power loom opens in 1843 Dunfermline. A three-century old craft is destroyed in ten years, along with Will Carnegie's job and his town's main source of income. He has no trade to pass on to his sons and the old home promises nothing in 1848 when they leave for a fresh start in the New World. Thirteen year-old Andrew sees his father fail while admiring his mother's determination to rise above it. Seeds of ambivalence develop within him to appreciate Old World ideas while succeeding in the mastery of New World business techniques.

The Climb Begins

The Climb Begins Summary and Analysis

Within two years of arriving in America, the Carnegies recoup their fortune through the help of their friends, relatives, and countrymen in America and earn more income that they ever received in Scotland. A typical pattern in the nineteenth century is that a community builds up around a few pioneers who leave their homeland and then encourage friends and relatives to join them. For example, Margaret Carnegie's sister precedes her move to America and Annie Aitken provides them rent-free housing. Except for Tom, the youngest who is in school, Will and Margaret go to work by weaving and shoe-binding, and Andrew as a bobbin boy in a textile mill where he is proud to be a "breadwinner." Although he dislikes the tedium, smells and hours, he works in another textile mill until he gets an office opportunity in accounting and goes to night school in bookkeeping at fourteen. Will is unable to catch on to new opportunities and reverts back to weaving and selling his wares on the street, which destroys his self-confidence and shames his family. When his father dies in 1855, Andrew calls him a man not of the world, but lovable as he sees him fade into the past while he climbs into the future of a new industrial world.

Andrew's opportunity to escape the coal and oil of textile mills comes through his Uncle Hogan asking him to become a messenger boy with a telegraph company in Pittsburgh. In 1849 when he takes the job, Carnegie is at the beginning of a period when capital, manpower and technology in the United States transitions from an old agricultural to a new industrial world. Pittsburgh is the focal point that straddles the east-west route where the Monongahela and Allegheny rivers join at the Ohio River. Pittsburgh is the hub of waterway spokes radiating out to natural resource and commercial areas of the region. Labor supply and facilities enable recruitment to its commercial and industrial economy. Andrew's job delivering telegraph messages puts him in touch with business producers on their way to national prominence. Carnegie is aware enough of this environment to become an expert in Pittsburgh's commercial business. Business transactions at the time take place over telegraphic communication. The telegraph is the quickest way to do business.

The young Andrew Carnegie sees the importance of the telegraph and works very hard at his new job, coming early and staying late. He is promoted to full-time telegrapher and learns to hear messages by "reading" the telegraphic keystrokes and then organizes his fellow workers. He becomes known as the city's best operator and in 1852 is offered a job by Tom Scott, western division superintendent of the Pennsylvania Railroad, to be his secretary and personal telegrapher. As a telegrapher, Carnegie sees increases in railroad traffic and accurately perceives the railroad industry as the most dynamic and first "big business" in America. Railroads link Pittsburgh to the Atlantic coast and eventually to the Pacific coast, with the Pennsylvania Railroad the best of them all. Andrew's receives his basic training in the telegraph office and he begins to see the railroad industry as an opportunity to regain the pride he thinks the Carnegies lost by emigrating. The full-grown five-foot-three seventeen year-old is apparently driven by every advance and promotion he can write to his cousin and uncle about the merits of America, in order to justify leaving Scotland. Andrew defends the American system because its success justifies his own. Biographers claim Carnegie is a mix of motivations and paradox but through it all remains a mystery. As his adopted country moves towards the Civil War, Carnegie ironically is more taken by his appointment as Tom Scott's assistant than the rising slavery crisis ahead.

The Apprentice Manager

The Apprentice Manager Summary and Analysis

Carnegie works twelve years at the Pennsylvania Railroad while he develops managerial skill, economic principles and personal relationships to become a successful manager, capitalist and entrepreneur. The size and complexity of a railroad business requires creation of bureaucratic organization, structure, and policy to fit the needs. For example, a small railroad with thirty miles of rail route and support facilities takes days to tour, compared to the largest industrial unit, a textile mill, that may take an afternoon. Railroads need huge amounts of capital to construct track and more as they expand. During the nineteenth century American railroads are financed by bonds with over 20 percent of their earnings used to pay bond interest. Railroad receipts increase from $40 million in 1851 to $334 million fifteen years later in 1867. The business is "nickel and dime" with conductors and station agents collecting millions in small coin revenue. Railroad managers run the trains, maintain rolling stock and track, price and collect charges for service on passenger and freight trains running in both directions to meet demand. Managerial skill level reached over twenty-five years exceeds that of the prior five centuries. Relying on the telegraph lets dispatchers control train movement with current information and disciplined workers. Railroad equipment requires management coordinating services of skilled labor like pipe fitters, boilermakers, mechanics, track inspectors, telegraph and signal maintenance men.

Daniel McCallum's pioneering skills in management are codified in his "Book of Rules and the Employees' Timetable." He details employee responsibilities, authority and sanctions for poor performance. Erie and Pennsylvania Railroads each have four thousand employees trained into a disciplined workforce. Railroad management skills demand adequate cash flow and net income for operating expenses and a dividend sufficient to maintain and attract capital to grow. Profitable operation of a capital-intensive business relies on management ability to generate the greatest flow of traffic at the least unit cost. By 1865, the Pennsylvania Railroad runs 3,500 miles of track with 30,000 employees and $61 million invested. It is the largest private business firm in the world and is called "the standard railroad of the world." Success is due to the first president, J. Edgar Thomson, and the superintendent of the western division, Tom Scott, who brings Andrew Carnegie into the modern system of train control. Carnegie's first assignment is to put together a permanent staff of railroad telegraphers working in a joint effort with Thomson and Scott.

Carnegie meets railroad's customers and initiates control of division operations when needed. For example, when derailment stops all traffic before Scott arrives in the office, Carnegie sends messages to get traffic moving again using Scott's initials. Scott leaves Carnegie in charge when he takes a ten-day trip. Thomson develops accounting systems to incorporate income, expense and statistical performance data to evaluate profitable or losing operations. Pennsylvania Railroad focuses capital investments that either increase revenue or reduce unit cost to justify them. A system of evaluating staff performance put in place by Scott is credited for railroad success through the nineteenth century. The system supports Scott's promotion to vice-president in 1859 and Carnegie to western division superintendent at twenty-four. From 1859 to 1865, the road increases from 367 to 856 miles and traffic quadruples while the company stays profitable and pays dividends every year. Thomson promotes Carnegie to general superintendent, but in March 28, 1865, he declines because his apprenticeship is over and Andrew is ready to move on.

The Apprentice Financier

The Apprentice Financier Summary and Analysis

Carnegie rises from bobbin boy at $1.20 per week in 1850 to railroad superintendent at $2,400 per year in 1865. In 1856 Scott advises him to buy Adams Express Company as his first stock investment. Carnegie's first dividend check for $10 opens a whole new world of receiving cash from capital. In 1863, his investments pay $45,460 and by 1868, he receives $56,110 per year for an investment of $817 that he borrows to make. By the age of twenty-eight Carnegie manages a complex, multi-unit industrial enterprise and capitalizes on knowing the value of money based on what it can earn.

Carnegie is cautious in his investments by limiting them to firms he knows about that are related to the Pennsylvania Railroad. He forms an informal investing triumvirate with Thomson and Scott. For example, Scott and Thomson like the Woodruff Sleeping Car Company that owns patents in 1858 but lacks the courage and business sense to develop them. Scott and Thomson hold stock in Carnegie's name to avoid impropriety for Carnegie's one-eighth interest. The partners pledge an investment to be made in installments paid when due or by the company as credit for dividends payable on the whole investment. Prominent investors like Scott and Thomson direct railroad business to the company and attract investing colleagues. For example, Carnegie's first installment on his one-eighth interest in Woodruff is $217.50 borrowed from the bank. The balance is paid by dividends in the venture's first year. In following years he gets at least $5,000 for a net investment of $217.50 until 1870 when he sells out. Pennsylvania Railroad buys from the Woodruff venture and offers the credibility of a "big corporation" when borrowing. Woodruff is the cornerstone of Carnegie's fortune, followed in 1861 by Columbia Oil.

He forms Columbia Oil Company with William Coleman, a wealthy Pittsburgh investor; they acquire Storey farm, a property Coleman has optioned with oil wells being drilled on it. Carnegie uses $11,000 in Woodruff dividends to buy 1,100 shares that pay $17,800 in their first year and eventually over a million dollars. Coleman wants to raise the price of oil by hoarding supply. Carnegie is disappointed by the oil business and he instructs Tom Carnegie to sell out for cash since "Oil has seen its best days." Andrew dislikes the smell, messiness and waste of the oil business that seems beyond control of management until the 1880s and Rockefeller. Carnegie next invests in the Keystone Bridge Company.

Carnegie meets John Piper in 1856 in order to build iron bridges, instead of wooden bridges that can be set afire from locomotive sparks and are not cost-effective beyond a certain span and load factor. Pennsylvania Railroad is the standard and Keystone Bridge is organized in 1862 to assure success by its insiders. Carnegie invests $1,250 borrowed from a bank for one-fifth interest and gets $7,500 in dividends in 1863. Carnegie leaves the railroad in 1865 to develop Keystone. The Homestead Act opens western lands for bridges and railroads. Keystone builds over the Missouri, Mississippi, Ohio, New Jersey and also builds the Brooklyn Bridge structure. Keystone provides patterns of ownership and management with multiple-member partnership. Carnegie holds controlling interest with proxies; managers get a minority interest for incentive and expertise in their field to drive out competition. Keystone Bridge builds ninety percent of the 31,000 miles built from 1865 to 1872. Carnegie's investment gains three ways: from profitable construction, increase in bridge security value, and commissions by selling bridge company bonds.

The Master Moneyman: A Fortune in Paper

The Master Moneyman: A Fortune in Paper Summary and Analysis

From 1867 through 1872 Andrew Carnegie joins the expansion trend by manipulating Western Union and Union Pacific stock to promote $30 million in stocks and bonds in Europe. He leaves his Pittsburgh home and iron business to live in New York City. Carnegie acquaints himself with contemporary thinkers like Henry Ward Beecher, Herbert Spencer and others. By reassessing his position, Carnegie determines a way to profit from the boom in telegraphy through railroad franchising. Telegraph and rail lines can share the same routes in a mutually beneficial way, exchanging services with each other to maximize profit. Carnegie and his triumvirate get a franchise from Pennsylvania Railroad with the benefits of existing poles and franchising from Trenton through to the Ohio state line. James L. Shaw of the Pacific and Atlantic Telegraph Company offers to buy one thousand shares of Keystone at three times its value, or $150,000. The triumvirate agrees to sell at once since it has no dollar investment in the transaction. Carnegie, acting under Scott-Thomson proxies, now owns one third of Pacific and Atlantic for the startup Keystone Telegraph. Carnegie promotes expanding with other Pennsylvania-controlled franchises through Scott and assures construction in his contracting business by bartering Pacific stock for construction costs with 3 and 5 to one exchange rates. When dividend payments stop, Carnegie plans a two-step exit to maximize Pacific's price by speculation that lets the triumvirate cash out and leave the remaining Pacific stockholders to drown.

Carnegie uses a similar strategy to exit the Woodruff Company by reorganizing it into the Central Transportation Company with new stockholders and the triumvirate unstated. In 1867, the transcontinental Union Pacific seeks bids from sleeping car companies for its expansion. A new competitor George M. Pullman decides a lavishly decorated "rolling palace" may have an edge and by 1867 he has forty-eight in service. Carnegie proposes they cooperate rather than bid against each other and suggests "The Pullman Palace Car Company" be the joint venture. Carnegie sells Central patents for $20,000 to Pullman and they exchange shares for no money to form the new company. Carnegie buys his stock in Pullman selling shares in Central to other stockholders by manipulating, not by using any of his own money.

Scott sends Carnegie off to Europe as a bond salesman with good wishes, a bag of bonds and letters of reference for the St. Louis Bridge Company. Carnegie presents the bonds to the Morgan investment banking house in London in March, 1869, where he sells them to Morgan at 85 percent. Subsequently he sells Allegheny Valley securities to Morgan for 87 percent for commission fees. Pullman needs money and gives Carnegie enough Pennsylvania stock to collateralize a $600,000 loan that he lends to Union

Pacific for the concessions of board member and chairmanships, collateral, and a right to buy as much as they want at market rates. By this action, Carnegie and the triumvirate outmaneuvers the likes of Vanderbilt and Jay Gould for the prize. When Union Pacific stock climbs higher, the directors sell and are terminated for speculating in stock. Andrew Carnegie's last bond financing sale comes in July, 1872 when he sells $6 million in bonds to Sulzbach Brothers who buy bonds reluctantly with Carnegie's encouragement. The bonds default with no payments made to the creditor. Carnegie stops speculating and at thirty-seven returns to producing by building Carnegie Steel. He begins his new business career in 1872 Pittsburgh, devoting himself to the manufacturing of iron and steel.

The Master Builder: A Foundation of Iron

The Master Builder: A Foundation of Iron Summary and Analysis

Americans in the North have seven years of peace and prosperity as they begin to exploit American markets. Retail and mercantile firms are formed and the Gilded Age develops in New York. Corruption in construction of the Union Pacific Railroad is exposed with the Credit Mobilier scandal where congressmen get railroad stock to misuse public funds. Carnegie forms an enterprise to manufacture Bessemer steel as he changes from capitalist to entrepreneur. Tom Miller is a railroad man who forms joint ventures with Carnegie in several small investments. They form Freedom Iron Company of Lewiston Pennsylvania in 1861 that Carnegie restructures into Freedom Iron and Steel to retool for the Bessemer process in 1866. The process takes longer than expected, but by 1868 production begins, and expansion is planned in 1872.

Previously Carnegie gets majority interest in Cyclops that he merges into Union Iron to profit by an innovation in integrated manufacturing. Specifically small firms operate iron furnaces to smelt ore into pig iron. This is converted by forges and rolling mills into bars and slabs that are made into rails, plates and sheets and fabricated into tools, hardware, pots and pans or stoves by foundries. Specialized merchants control flow of product at every step, which increases costs and slows materials flow. Carnegie sees this process like a railroad man—it needs bigger trains running faster to cut unit costs and increase profits. He corrects this deficiency by integrating Keystone Bridge and Union Iron.

A second dimension necessary to effect this integration is the implementation of a system of accountability. Clerks and weighing scales are introduced in the process to determine where and by whom material is saved, wasted, or produced. With this data, Carnegie is able to apply units of labor and material per unit output to make effective management decisions. Carnegie relies on the McCallum system implemented by Thomson and Scott at the railroad to transfer and adapt it to industry. This combination of cost-based pricing along with the management applied to manufacturing marks his position as entrepreneur. The cost data accounting he is able to introduce into Keystone and Union Mills over time becomes more significant to pricing than prevailing market conditions. This approach introduces rationality into pricing and a methodology for investment planning.

Cost information enables cost-cutting per unit by increasing the speed of materials flow and decreasing labor cost at the same output level. Investment in new equipment can be analyzed to determine cost savings. The Cyclops and Union Mills merger reduces time and labor cost of moving material and eliminates middlemen by vertical integration. Other operating benefits like reduced inventory and less machine duplication create cost savings to enable reduced prices and increased profitability at a market-competitive rate. Integrating these units structures a logical arrangement of facilities controlled at each level to reduce costs. Carnegie feels confident enough in 1870 to expand the business. He installs a blast furnace called "Lucy" in 1872 to produce 13.361 tons initially and eventually over 100,000 tons annually by maximizing output. Lining replacement is done regularly to enable this production level at a cost beneficial rate. Productive staff is rewarded and non-productive staff is eliminated. His visit to Bessemer plants in England confirms that his management theories are viable and reliably profitable.

The Master Builder: A Structure of Steel

The Master Builder: A Structure of Steel Summary and Analysis

Beginning in 1872, Carnegie focuses on the single project of his steel-rail rolling mill that is completed in 1873. He follows a policy of putting all his eggs in the same basket and watching it. The entrepreneurial Carnegie establishes staffs, organizes, operates and secures orders for the firm he leads into an industrial world with the tool of cost-based management. He organizes a partnership with business associates and colleagues that are confident of his success to raise capital. William Coleman also shares Carnegie's interest and enthusiasm in steel. In addition to his stalwarts, Tom Scott and J. Edgar Thomson, Carnegie's partners include wealthy executives and merchants he shares other ventures with. Carnegie contributes $250,000 of the partnership total $741,000 in original capital to the firm he names "Carnegie, McCandless and Company" and names the mill "Edgar Thomson Works" (ET) for the first president of Pennsylvania Railroad. The mill site is strategically situated at the Monongahela where the Pennsylvania, Baltimore and Ohio railroad and river transportation system is readily available, nearby the coal fields. The start of ET construction coincides with the Panic of 1873.

One of the country's largest banking houses Jay Cooke's collapses, credit structures tumble and 5,000 businesses fail in a year. Some of Carnegie's customers stop paying, his Carnegie, McCandless partners miss their capital commitments and Carnegie sells off his Western Union and Pullman stock to keep the mill project funded. The industrial economy is crippled with some 12,000 firms failing over six years. Bank failures destroy personal savings, social safety nets are nonexistent and workers retreat to the family farm or the mother country. American capitalism and democracy conflict in the fear that economic justice requires an active interventionist role for government. Rich and poor are impacted when even Tom Scott faces ruin and disgrace from Texas Pacific Railroad default unless his friend Andrew Carnegie endorses the note. Andrew will not help. A partnership formed like Carnegie, McCandless endangers all partners from the liabilities of any one, so the Carnegie endorsement of bankrupt Texas Railroad would destroy the ET project as well.

Carnegie defends his line of credit at the bank because although they fear his involvement with Texas Railroad, he assures them he is not endorsed, which strengthens his credit. He uses it to buy out Scott and Thomson, and the unscrupulous Andrew Kloman as well. Carnegie sells $400,000 bonds to Junius Morgan in London to complete construction of the Edgar Thomson Works in 1875, and saves 25 percent in costs from the depression. When the state legislature creates a limited partnership in 1874, Carnegie, McCandless immediately restructures into the Edgar Thomson Steel Company, Limited. Carnegie hires the expert Alexander Holley to put the Bessemer program in place and function as its works superintendent. With Holley, Carnegie hires Captain Bill Jones to raid Cambria mill's staff where they worked together before its strike to run ET. Along with Shinn they put together an effective team based on Carnegie's systematic analysis of personnel to provide performance incentives that raise forty men through ranks to share ownership. Carnegie's policy is simple and straightforward, "Cut prices, scoop the market, run the mills full" and "Watch costs and profits will take care of themselves." He progresses from rolling rail to rolling structural beams and angles for bridges, skyscrapers, and elevated railroads. Since he knows his costs, Carnegie can take the lowest price bid and still make a profit.

The Master Manager: Costs, Chemistry, and Coke

The Master Manager: Costs, Chemistry, and Coke Summary and Analysis

From 1872 through 1889, Carnegie builds an integrated industrial business to become the best-known manufacturer in the world, publishes three books, travels around the world, and becomes a philanthropist with the express intent to give away his fortune. At the age of fifty-four he finds a wife for his home, a business successor and considers retirement. His follows the successful path of building through a depression and lack of customers by driving costs down and increasing output. Holley's pre-production estimates and Shinn's voucher system provides Carnegie's Edgar Thomson Works with accurate profitability in its first month of operation. Carnegie's insistence on knowing the costs continues for his twenty-five years in the steel business. He requires a weekly cost sheet from managers "to know how well and how cheaply" they operate his business and how much they can save. For example, Carnegie eliminates the costly fire insurance on his wooden buildings by replacing them with iron structures. Carnegie's interest and insistence on cost-cutting leads him into more complex areas of manufacturing detail composition and chemistry.

For example, Henry Phipps reviews blast furnace operations where flue-cinders are thrown away but puddling furnace cinders are used in the blast furnace. Phipps takes Carnegie's cost-cutting seriously by having a chemist analyze flue and puddle cinders. Analysis shows the flue-cinder works better and by tradition is discarded. Phipps buys flue-cinder at fifty cents a ton and sells puddle-cinder at $1.50 per ton to improve Lucy furnace product and save money. Phipps sees possible gains in other operations and encourages Carnegie to hire a full-time chemist. Applying science to improve profitable management change is an innovative process Carnegie develops. Similarly, the 1878 Thomas process of lime-lining the heating vessel to eliminate phosphorous is acquired by Carnegie and sold to the Bessemer Association two years later. When Carnegie decides an open-hearth furnace is more effective, he orders six more to be built immediately. He ruthlessly eliminates outmoded but not outworn equipment. For example, when Schwab finds a better design, Carnegie orders him to tear out and replace a three-month-old rolling mill. Carnegie's pace of equipment replacement needs continuous reinvestment of profits to the exclusion of significant dividend payments. His ownership interest in the company is large enough that a small dividend paid per share is adequate to pay for his lifestyle.

In 1875, Carnegie has the most modern operation. However, by 1881, a competitor Homestead has the most modern equipment but is plagued by labor problems for two years. Homestead is offered for sale to Carnegie. He purchases Homestead and solves a supply problem by acquiring raw materials suppliers Larimer Coke, Scotia Ore mines, part of the Henry C. Frick Coke Company and others. Frick shares Carnegie's vision and drive but lacks a sense of humor and is self-righteous. At thirty Frick is a millionaire with one thousand coke ovens and three thousand acres of land. At dinner Carnegie toasts success of their Frick-Carnegie arrangement. Andrew needs a strong leader to manage growth after his brother Tom dies, so Andrew can retire to pursue cultural and philosophic interests. Carnegie is concerned about some of his partners and managers, which a strong executive like Frick can manage. In January 1889, Carnegie names him chairman. Frick increases profits from $2 million to $5.4 million by 1890, which makes Carnegie confident in the future with his $30 million net worth and $2 million income.

Triumph and Tragedy

Triumph and Tragedy Summary and Analysis

Frick's chairmanship of the Carnegie Company marks a difficult period in its history starting with the Homestead strike in 1892 and a four year depression from 1893. When prosperity returns, the Carnegie business thrives but the damage to his personal reputation from the strike never heals. Frick's first acquisition is Duquesne Steel, which is the most modern steel mill and keeps the Carnegie Company at the forefront. Duquesne has labor and capital problems however from its opening in 1889. Carnegie claims at the competitor's opening that it lacks "homogeneity" that is false and meaningless but gets Duquesne off to a bad start with the idea of having a defect.

Ironically, the homogeneity claim creates cost savings by moving hot ingots directly from mold to roller without reheating and is implemented at both ET and Homestead. After Duquesn'se acquisition for $1 million bonds, Frick restructures all the related companies with Carnegie Steel Company, Limited taking over assets of Carnegie Brothers and Carnegie Phipps with a $25 million capital base, distributing to Carnegie 55 percent, Frick and Phipps both 11 percent each, 1 percent each to nineteen partners and 4 percent reserve for key staff. The Company owns ET, Homestead and Duquesne steel mills, Keystone Bridge, Union Iron, Lucy Furnaces and others with value far beyond its capital base. Only two of the original nine partners remain.

Historically, management of the Carnegie companies resulted in few labor difficulties before the Homestead strike. Captain Bill Jones claims success in managing labor by keeping crews "judiciously mixed." He focuses efforts on competing for output rather than nationality and operates three eight-hour rather than two twelve-hour shifts to employ more workers. Carnegie's labor guidelines and Captain Bill's implementation works well until 1889 when Bill is killed in a blast furnace explosion. Carnegie is praised by labor leaders but Frick is considered "haughty and disdainful" as they confront inevitable clashes over the Frick Coke Company in 1887 through 1889. By 1892, Carnegie is in Scotland and leaves labor issues to Frick. The partners want Frick to exercise power without Carnegie since he is more likely to keep wage costs down. Frick builds a stockade around the plant and hires Pinkerton detectives to guard it when he reopens with nonunion help. A battle starts and lasts all day with the Pinkertons barely escaping with their lives. The governor sends eight thousand troops to the plant. Frick is wounded in a scuffle and Carnegie maintains public silence in support of Frick's actions. Privately however, Carnegie thinks Frick's stubbornness turns a crisis into a disaster because he does not follow Carnegie's policies.

In his autobiography written years later Carnegie claims his controlling ownership of the Homestead tragedy harms his name for years. He regains control in order to guide the firm through the 1890s, keeping Frick under control. The continuing struggle between management's desires to maintain profits at the expense of wage costs conflicts with labor's need for a living wage and job security. The conflict is enhanced by the replacement of labor skills, with management's ability to substitute machine tools for labor. Late-nineteenth and early-twentieth century American institutions, like the police and courts, favor property rights over workers rights. Labor is unable to compete on an even field until 1935 when passage of the Wagner Act makes unions legal.

Carnegie Challenges the World

Carnegie Challenges the World Summary and Analysis

The 1893 depression is caused by manufacturing overcapacity, particularly in the steel industry. Carnegie acquires two of the eight failing rail mills and follows an aggressive policy of price-cutting to anticipate its direction and expand sales. Carnegie pressures management and Frick resigns again, with his resignation accepted this time. Carnegie forces another fifteen partners out until only Schwab survives, while bringing in "young geniuses" who prove their merit on cost sheets. Schwab cuts $500,000 in costs at Homestead by cutting 15 percent from wages and replacing skilled labor with machines and unskilled workers. Schwab is made president in 1897 and contributes to modern facilities by quantifying the anticipated savings. As mills become more efficient, the need for raw material continues with deposits from Michigan, Wisconsin and Minnesota. John D. Rockefeller rescues Merritt's Mesabi Range from bankruptcy and Carnegie leases the iron ore properties from him to keep Rockefeller out of the steel business. He agrees to ship at least 1.2 million tons a year on Rockefeller trains and boats at specific maximum charges. They make a deal that is considered Carnegie's greatest achievement.

Their deal demonstrates the power of size. Carnegie spends no money to get exclusive rights to Rockefeller's ore because he is big enough to use over a million tons each year for fifty years. Smaller firms cannot compete individually and can achieve economies of scale only by merging themselves into an oligopolistic industry. Carnegie's methods in steel concentrate the first American industry. American steel companies quadruple output with twenty-five percent fewer units from 1870 to 1900. Carnegie produces 70 pounds of steel for every dollar investment in 1880, but by 1900 he produces 153 pounds of steel per dollar. Carnegie next attacks the railroads for shipping charges of 55 cents per ton of coke and $1.15 per ton of ore. Carnegie tries to use public relations, legislative action and threatens a competitor railroad to drive shipping costs down. Pennsylvania Railroad is the target of Carnegie's vengeance that he attacks by threats of the Shenango extension running from lake port to blast furnace to cut them out. Carnegie Steel is the largest freight customer in the world and Pennsylvania's officers, Roberts and Thomson, invite him to visit them in Philadelphia. Carnegie hands J. Edgar Thomson's nephew the vice-president Frank Thomson a rate chart of their competitors. They reach agreement that saves Carnegie $1.5 million annually by cutting raw material shipping costs to 63 cents per ton of ore, 35 cents per ton of coke and 55 cents per ton of limestone.

Carnegie invests $6.5 million on ore-handling and transportation facilities that enable it to save over $2 million annually on raw material costs, which represents a thirty percent return on investment. By the 1890s, with rail becoming a declining portion of Carnegie's business, other elements of the product line, like beams, girders and pipes sell in greater proportion and require a change in approach. More complex products require that staff with a more technical background be available to consult with customers. Carnegie Steel offers partnership opportunities to commission merchants A.R. Whitney, J.O. Hoffman, and J.C. Fleming in New York, Philadelphia and Chicago by 1899, in addition to its own sales offices in main cities. Similarly, Carnegie develops sales business in Japan, China and the British market. Schwab believes in the benefit of foreign trade and comments on breaking into the Latin American and Mexican market. During a depression year 1894, Carnegie Steel makes a profit of $4 million and the next year profits $5 million.

The Climb Ends

The Climb Ends Summary and Analysis

By 1898 Carnegie succeeds in the first stage of the steel industry securing raw materials and the second stage processing raw materials into steel with transportation systems and now plans stage three manufacturing finished items, like railroad cars and boilers. The other partners prefer collecting dividends to reinvesting them in 63 year-old Carnegie's new scheme. All partners are bound by the "Iron Clad Agreement" including the right to buy at book value the interest of a deceased partner, that a two-thirds vote can force a partner to sell at book value and that retiring partners can sell at book value to be paid in installments. Carnegie protects the firm from a forced sale to pay 58 percent to his heirs at death but also disallows any outsiders to acquire an interest. The sale price is based on a book value of $50 million, not the anticipated much greater value calculated on asset value, earning potential or market value, estimated of at least $250 million.

Phipps and Frick find a buyer in April 1899, who offers to buy Carnegie Steel and Frick Coke for $250 and $70 million respectively, which would pay Carnegie an acceptable $157 million with $57 million in cash. When Carnegie asks the name of the buyer, Phipps and Frick as agents claim anonymity and a ninety-day option. Carnegie suspects an unknown buyer and the need for time so he demands $2 million cash as option payment to screen out idle speculators. The agents return with $1,170,000 cash for Carnegie's 58 percent and payment waivers for the junior partners' option. Carnegie goes to Scotland.

In Scotland at his new summer home Skibo Castle, Carnegie identifies the mystery buyer but is displeased because he does not like the Moore's business practices. The group cannot get banking support and Carnegie refuses an option extension and denies a verbal offer to pay partners' option cash. Carnegie decides to eliminate Frick after this failed offer that reveals his dishonesty. Frick charges more than the agreed price for coke and his bills due remain unpaid so he stops shipping to the steel company. Conflict continues until it reaches climax on January 9, 1900, when Carnegie threatens Frick with the Iron Clad to cost Frick at least $10 million. Frick challenges him and Carnegie calls a board meeting to invoke the Iron Clad against Frick. Conflict continues until mid-March when the representatives compromise with a holding company. The Carnegie Company takes control of Carnegie Steel and Frick Coke with capital of $320 million. Carnegie's share is $174,526,000 and Frick's is $31,284,000. Carnegie loses control of capitalization but eliminates Frick from management, rewards Schwab, and recapitalizes without paying bankers or promoters. Frick retorts, "Tell Mr. Carnegie I'll meet him in Hell."

Carnegie Steel is the largest industrial unit in the world with 20,000 people. Carnegie and Schwab compete with many new manufacturing trusts in the 1890s. They stand alone against pooled combinations to preserve the competitive edge they develop over the years. J.P. Morgan invites Schwab to discuss the business and offers to buy at Andy's price. Carnegie gives Schwab a note with the total price for Carnegie Company and all its holdings of $480,000,000. Morgan accepts and congratulates Mr. Carnegie on being "the richest man in the world!" The new company forms as United States Steel and prints $300 million in bonds for Carnegie, held in a vault. He never sees them because he gives them all away.

Characters

Andrew Carnegie

Andrew Carnegie is the principal character in this book that chronicles his journey from a poor Scotch immigrant teenager to the richest man in the world. He is born in Dunfermline, Scotland in 1835, the eldest of two sons born to Will and Margaret. Andrew Carnegie's life and achievements provide proof positive the American dream is real and viable. Carnegies leave their hometown in shame after Great Britain's Industrial Revolution devastates its local economy and a power loom puts Will Carnegie out of business as a hand weaver. Andrew sets sail on July 15, 1848, with his parents and brother Tom for the New World where Margaret's sisters immigrated in 1840.

Andrew works as a bobbin boy in textile mills, which he dislikes, until he gets an office job and studies bookkeeping in night school at fourteen. He gets a job delivering messages for a telegraph company, which is the quickest way to do business in the area and opens doors to all the leading Pittsburgh businessmen. His skill as the best local telegrapher lands him work with Tom Scott and Pennsylvania Railroad, which becomes the largest private business called "the standard railroad of the world." Twelve years of business mentoring and investing with Scott and J. Edgar Thomson, the railroad's first president, prepare Andrew at twenty-eight to be the successful manager of a complex, multi-unit industrial enterprise and a successful capitalist who values money for what it can earn not what it can buy.

The Carnegie, Scott, Thomson investing triumvirate provides Andrew with the credibility of prominent investors, like Scott, Thomson and others, who can assure a regular flow of railroad business to the companies they invest in. For example, the Woodruff Sleeping Car Company makes railroad passenger cars for sleeping that he merges with Pullman Palace Car Company and leverages into Central Transportation Company. Cars are made of iron and steel that his manufacturing firms produce and sell to railroads. When the triumvirate compromises Carnegie, McCandless steel company Andrew will not help and destroys the friendship. He maintains a powerful relationship with his mother and will not marry until after he is wealthy and proudly takes her back to their hometown and she dies.

As Andrew retires from his business career, Carnegie Steel is the largest industrial unit in the world with 20,000 people. After succeeding through years of wealth accumulation, he reclaims it as an instrument of atonement with the goal of giving it all away. J.P. Morgan offers to buy at Andy's price. Andrew values Carnegie Company and all its holdings at $480,000,000. Morgan accepts and congratulates him on being the richest man in the world.

Margaret Carnegie

Margaret Carnegie is the name of Andrew and Tom's mother and the wife of Will, her husband. Margaret is thirty-three when they leave Scotland. She is filled with shame at Will's failure to provide for his family and despair with his failed hand weaving business. She decides to leave Scotland defeated and poor after selling their goods and possessions and still having to beg and borrow to get enough money to pay for their passage. She determines to see her sons succeed and return someday in triumph. Thirteen year-old Andrew watches his father fail while admiring his mother's determination to rise above it. Margaret and her family's New World career begins in 1848, when Margaret and husband Will, and sons Andrew and Tom, sail from Great Britain with fellow Scottish passengers. Her sisters, Annie Aitken and Kitty Hogan immigrate before her in 1840 and tell Margaret of both good and bad times they have there.

Will does not take advantage of opportunities in America and reverts to weaving and selling goods on the street. Carnegie says "as usual my mother came to the rescue" by binding shoes and encouraging Will to take a job in the same factory as Andrew. Will never gets his self-confidence back and Carnegie's mother steps forward to repair the family's fortune. Her encouragement through the years and Andrew's determination to succeed and please her are demonstrated in their 1881 visit to Dunfermline. he picture on page 118 of the text illustrates Andrew and Margaret returning in triumph at the end of eight thousand marchers parading before them showing appreciation of the library Carnegie donates to Dunfermline. Shortly after his mother's death in 1886, Andrew Carnegie marries and begins to think seriously of retirement and philanthropy.

Will Carnegie

Will Carnegie is Andrew and Tom's father, and the husband of Margaret. He is a weaver in the town of Dunfermline, Scotland before Great Britain's Industrial Revolution. Will is a member of the Chartists, a political group that advocates parliamentary enactment of the People's Charter. He is successful in 1836 and expands his hand weaving business by buying new looms and hiring apprentices. Within two years of his expansion, prices decline and demand lessens until 1843 when a power loom mill opens in Dunfermline to finally put him out of business. He is devastated at this event and the elimination of his three-century old craft. Will is unable to take advantage of new opportunities in America and reverts to weaving and selling goods on the street. He never gets his self-confidence back. At his death in 1855, Andrew calls his father lovable.

Tom Carnegie

Tom Carnegie is the name of Andrew Carnegie's brother. Tom generally lives in Andrew's shadow as an adult. Andrew makes him chairman of Carnegie Brothers Company, which includes Edgar Thomson Works, Union Iron, Keystone Bridge and other companies. While Andrew travels the world and puts empires together, Tom watches business and performs the mundane tasks required to keep his older brother happy and avoid his abuse. Others, like Captain Bill Jones, think highly of him and his responsibilities, calling him "a sagacious business man." Tom drinks a lot in the early 1880s and dies in October 1886, one month before their mother.

Thomas A. Scott

Thomas A. Scott is the name of the western division supervisor of Pennsylvania Railroad who hires Andrew Carnegie as his secretary and personal telegrapher. Scott functions as a successful father for Carnegie to pattern himself after. Scott introduces Carnegie to capitalism by encouraging him to invest in his first stock and lends him $600 to buy Adams Express. Carnegie invests cautiously in firms he knows that are related to Pennsylvania Railroad. Carnegie forms an informal investing triumvirate with Thomson and Scott. For example, Scott and Thomson are interested in the Woodruff Sleeping Car Company that has patents in 1858 but Woodruff lacks the courage and business sense to develop. Scott and Thomson hold their stock in Carnegie's name to avoid impropriety and Carnegie receives a one-eighth interest. The partners pledge a certain amount of investment to make in installments that are either paid in cash when due or by the company as credit for dividends paid on the whole investment. Scott is promoted to vice-president in 1859 and Carnegie is made western division superintendent at twenty-four.

During the Panic of 1873, both rich and poor are impacted. Tom Scott faces ruin and disgrace from the Texas Pacific Railroad default unless his friend Andrew Carnegie guarantees the debt. Andrew refuses. A partnership like Carnegie, McCandless endangers all partners from the liabilities of any one partner. The Carnegie endorsement of a bankrupt Texas Railroad would destroy the ET project also. Carnegie sells off his Western Union and Pullman stock to keep the mill project funded. The industrial economy is crippled with some 12,000 firms failing over six years. Carnegie defends his line of credit at the bank because although they fear his involvement with Texas Railroad, he assures them he is not endorsed, which strengthens his credit. He uses his line of credit to buy out his mentors and fellow triumvirate investors Thomas A. Scott and J. Edgar Thomson.

J. Edgar Thomson

J. Edgar Thomson is the first president of the Pennsylvania Railroad and is responsible for developing accounting systems that incorporate income, expense and statistical performance data. His systems allow the firm to evaluate profitable or losing operations that either increase revenue or reduce unit cost to justify their capital cost. Carnegie forms an informal investing triumvirate with Thomson and Scott. Thomson offers Carnegie a promotion to general superintendent on March 28, 1865, but Carnegie resigns since he is ready to initiate his own ventures. The triumvirate invests successfully until the Panic of 1873, when Carnegie refuses the Scott-Thomson request to endorse the Texas Railroad. He buys out his former mentors and fellow investors that become alienated when he refuses. Ironically, when the state legislature creates a limited partnership statute in 1874, Carnegie, McCandless restructures into a limited partnership form that Carnegie calls Edgar Thomson Steel Company, Limited.

William Coleman

William Coleman is the name of a wealthy Pittsburgh investor that Carnegie partners with to acquire Storey farm. Coleman acquires control of a property by option that has oil wells being drilled on it. The partnership acquires the land for $40,000. Coleman wants to raise the price of oil by hoarding supply to corner the market he sees as a "lake of oil." Carnegie learns from Coleman's example that production, not speculation, pays. Carnegie is disappointed by the oil business so he has Tom Carnegie sell his interest for cash since "Oil has seen its best days."

John Piper

John Piper is the name of the supervisor of bridge construction in the Keystone Bridge Company. Carnegie meets with Piper in 1856 to discuss the use of iron bridges to replace wooden bridges that can be set afire from locomotive sparks. Piper and his colleague, Linville, a bridge engineer, hold several patents on iron bridge design showing they are cheaper than wood beyond a certain span and load factor. Pennsylvania Railroad is the standard and Keystone Bridge is organized in 1862 by its principals to assure success by railroad insiders. Piper and Linville are the experts and Carnegie makes them operating chiefs of his company. Piper joins Carnegie and others as a partner in the Cyclops Iron Works in 1864.

James L. Shaw

James L. Shaw is the name of the president of the Pacific and Atlantic Telegraph Company. Carnegie and his associates, Scott and Thomson, the triumvirate, starts up Keystone Telegraph with a $50 par value per share to hold a franchise from Pennsylvania Railroad. Shaw's company is an operating firm with a market value when Shaw offers to buy one thousand shares of Keystone at three times its par value or $150,000. The triumvirate sells at once since it has no money invested

George M. Pullman

George M. Pullman is the name of an entrepreneur and inventor of a lavishly decorated "rolling palace" that may have an edge over Carnegie's sleeping car companies. By 1867 he has forty-eight in service. Carnegie proposes they cooperate rather than bid against each other and suggests "The Pullman Palace Car Company" be the joint venture. Pullman's company and Carnegie's Central Transportation capitalize the joint venture at $500,000, based on five thousand shares at $100 par value per share.

Carnegie identifies George Pullman as "one of the most able men of affairs I have ever known."

Tom Miller

Tom Miller is the name of a longtime friend that Carnegie encourages to take a night course in accounting with him. Carnegie and Miller are pictured on page 66 of the text. Miller starts like Carnegie in the railroad business and advances to superintendent. Miller maximizes opportunities and seeks new ones forming joint ventures with Carnegie and others in several investments. They form Freedom Iron Company of Lewiston Pennsylvania in 1861 that Carnegie restructures into Freedom Iron and Steel for the Bessemer retooling in 1866. The process takes longer than expected but by 1868 production begins, and expansion is planned in 1872. Carnegie calls Miller "the pioneer of our iron manufacturing projects."

David McCandless

David McCandless is the name of a business associate, a wealthy Pittsburgh dry goods merchant and friend of the Carnegies since their Allegheny days. He is a partner and the chairman of Carnegie's company with Tom Scott and J. Edgar Thomson. Carnegie's partners are all wealthy executives and merchants that participate in his other ventures as well. Carnegie contributes $250,000 of a total $741,000 in capital to the firm named "Carnegie, McCandless and Company."

Alexander Holley

Alexander Holley is the name of the foremost expert on Bessemer steel works that Carnegie enlists to design, supervise construction, establish production and function as the works superintendent of Edgar Thomson Works (ET). The entire American Bessemer Steel industry develops under his guidance. Holley brings his learning and experience from setting up ET competitors. Holley introduces Carnegie to the Thomas process that is more effective with open-hearth furnaces.

Captain Bill Jones

Captain Bill Jones is the name of the man known as the "greatest steelmaker in the world." Jones is hired by Holley as works superintendent from the Cambria mill where Jones is Holley's Bessemer installation assistant. When the Cambria employees strike, Jones raids the staff to work for him at ET. Carnegie praises Captain Jones for selecting skillful men and managing them so the first month operation is profitable. Carnegie offers him a partnership that he declines for "a hell of a big salary." Like Carnegie, Jones prefers design and investment in new equipment to dividends. Captain Bill Jones' famous investment is a Jones mixer that holds 250 tons of molten iron to pour directly in a converter to save hundreds of thousands of dollars worth of rehandling and reheating costs. Captain Bill's ideas work well until 1889 when Bill is killed in a blast furnace explosion.

William P. Shinn

William P. Shinn is the name of the operations chief, or general manager, of Carnegie's newly formed company Carnegie, McCandless. He is selected for his accounting knowledge and understanding of cost-based management. Shinn shows Carnegie an organization chart that splits works control into two divisions or departments. Carnegie disputes his idea because only one should be in charge and responsible for reporting to Shinn. The general manager uses a voucher system like the type used on a railroad with accounting for raw material, waste and product. Carnegie is initially pleased with Shinn's work but becomes displeased with his business judgment, speculation and dishonesty, and with his self-dealing and attempts to recruit Jones for a secret business. Carnegie buys him out for $200,000 and expels Shinn from the company after 1879.

Henry Phipps Jr.

Henry Phipps Jr. is the name of an accountant and bookkeeper to whom Miller offers and finances an interest in the Kloman firm that is subsequently merged into the Union Iron Works. Working with ET, Phipps becomes interested in the Lucy Furnace. He notices blast furnace operations discard flue-cinders but use puddling furnace cinders in the blast furnace. Phipps uses Carnegie's cost-cutting focus by having a chemist analyze flue and puddle cinders. Analysis shows flue-cinders work better but are discarded. Phipps buys flue-cinder at fifty cents a ton and sells puddle-cinder at $1.50 per ton to improve furnace product and save money. Phipps encourages Carnegie to hire a chemist who can seek other gains. Phipps' $800 loan from Miller in the Kloman firm turns into $50 million when Carnegie sells out and Phipps says "Ain't Andy Wonderful!"

Charles Schwab

Charles Schwab is the name of a protégé of Carnegie working as an operating manager at Homestead. When Schwab finds a better design, Carnegie orders him to tear out and replace a three-month-old rolling mill. Schwab cuts $500,000 in costs at Homestead by cutting 15 percent from wages and replacing skilled labor with machines and unskilled workers. Schwab is appointed president in 1897. J.P. Morgan invites Schwab home to discuss plans for the business while he acts as the go-between for Carnegie. Morgan offers to pay Andy's price so Schwab asks his wife, Mrs. Carnegie how to approach him and his likely response. She suggests "Doctor Golf" while golfing. Carnegie gives Schwab a note the next day stating a total price for Carnegie Company and all its holdings of $480,000,000.

Henry Clay Frick

Henry Clay Frick is the name of an entrepreneur who forms Henry C. Frick Coke Company in 1871. Frick is a self-righteous businessman who shares vision and drive of Carnegie but lacks his sense of humor. Frick sees the future of steel as critical to growth and its use of coke as a means to his fortune. He decides to convert coal to coke for steel. By thirty Frick is a millionaire. In 1880 he has one thousand coke ovens, three thousand acres of land and wants more. Carnegie's vertical integration plan requires the raw materials of iron ore and coke he gets with majority interest in Frick's reorganized 1881 company. By 1886 Carnegie plans retirement to pursue cultural and philosophic interests but is anxious about some partners and managers that a strong executive like Henry Frick can coordinate.

In January 1889, Carnegie names Frick chairman and increases profits from $2 million to $5.4 million by 1890. Frick is considered "haughty and disdainful" as they confront labor issues in 1892, when Carnegie is in Scotland. The partners want Frick to exercise power since he is more likely to keep wage costs down. Frick attempts to create a sale of the Carnegie interests that displeases Carnegie, so Carnegie threatens him with invoking the Iron Clad that would cost Frick at least $10 million. Conflict continues until representatives form the Carnegie Company to control Carnegie Steel and Frick Coke. Frick gets $31,284,000 but is removed from management. Carnegie reaches out to him in friendship but Frick replies, "Tell Mr. Carnegie I'll meet him in Hell."

John D. Rockefeller

John D. Rockefeller is the name of the wealthy investor who rescues Merritt's Mesabi Range from bankruptcy. Carnegie leases the iron ore properties from him to keep Rockefeller out of the steel business. Carnegie agrees to ship at least 1.2 million tons a year on Rockefeller trains and boats at specific maximum charges.

Moore brothers

Moore brothers are the mystery buyers that Frick and Phipps represent. The group cannot get banking support so they try a bond issue that Carnegie challenges because of its "promoters" payments, professional speculators and Wall Street turns down. Carnegie refuses an option extension and denies a verbal offer to pay partners' option cash because Frick and Phipps cut themselves in for a $5 million commission on the deal.

J.P. Morgan

J.P. Morgan is the name of the wealthy investor and banker who invites Schwab home after dinner to discuss plans for the business in detail. Morgan offers to buy Carnegie's Company at Andy's price. Carnegie asks Schwab to return the next day when he gives him a note with the total price for Carnegie Company and all its holdings of $480,000,000. He requires only that widows' shares be paid in 5 percent, first mortgage bonds. Morgan accepts the price and congratulates Mr. Carnegie on being the richest man in the world.

Objects/Places

American Dream

American Dream is the name of the characteristic American concept that states people can rise above humble beginnings by hard work, honesty and thrift to reach a position of power and influence in America. The life and example of Andrew Carnegie is irrefutable proof the American dream works by his rising from a poor Scottish lad of thirteen to the richest man in the world.

Dunfermline

Dunfermline is the name of the Carnegie family's hometown in Scotland. The town is once known as the most radical in the kingdom as a result of its Chartists. The town's industry in 1835 is hand weaving of linen, practiced by half its 11,000 residents since medieval time. Industrialization takes over their whole way of life, as the Carnegies experience when a power loom opens in 1843 Dunfermline.

Coal-fired Steam Boiler

Coal-fired steam boiler is the name of an invention that produces energy by machine that takes over factory production independent from windmills and waterwheels. A coal-fired steam boiler produces energy to run the power loom mill in Dunfermline and eliminates the hand-weaving craft.

Industrial Revolution

Industrial Revolution is the name given to the phenomenon of industrialization taking over factories, cities and whole ways of life. The term refers to the period when machines begin taking over production with energy from coal-fired steam boilers independent from windmills and waterwheels.

Machine Production

Machine production is the term that refers to machines taking over production by energy from coal-fired steam boilers independent of windmills and waterwheels.

Pittsburgh

Pittsburgh is the name of the city that straddles the east-west route, where the Monongahela and Allegheny rivers join at the Ohio River. Pittsburgh is the hub of waterway spokes radiating out to natural resource and commercial areas of the region. Labor supply and facilities enable recruitment to commercial and industrial economies that support Pittsburgh's growth and development.

Pennsylvania Railroad

Pennsylvania Railroad is the name of the Pittsburgh-based railroad business that Carnegie is employed with for twelve years. While there Carnegie develops his managerial skill, economic principles and personal relationships to become a successful manager, capitalist and entrepreneur.

Adams Express Company

Adams Express Company is the name of Andrew Carnegie's first investment in American securities. Tom Scott encourages him to make the investment and finances it for him. Carnegie receives a dividend check for $10, which opens a whole new world to him. This is the first time he gets money from investing money rather than from getting paid for his labor.

Woodruff Sleeping Car Company

Woodruff Sleeping Car Company is the name of a company that has patents in 1858, but whose owner lacks the courage and business sense to develop them. The company makes railroad passenger cars. Scott and Thomson invest in the company and hold their stock in Carnegie's name to avoid impropriety. Carnegie receives a right to buy one-eighth interest for $217.50 that he borrows from the bank with the balance due paid from his dividends in the first year of the venture. In the second and later years he gets at least $5,000 for his net investment of $217.50 until 1870. The Woodruff Company becomes the cornerstone of Carnegie's fortune.

Columbia Oil Company

Columbia Oil Company is the name of a company Carnegie forms with William Coleman, a wealthy Pittsburgh investor. Coleman acquires Storey farm that has oil wells being drilled on it. Carnegie uses $11,000 in Woodruff dividends to buy 1,100 shares that pays $17,800 its first year and eventually pays him more than a million dollars. Coleman tries to raise the oil price by hoarding supply to corner the market. The oil business is disappointing to Andrew Carnegie so he instructs Tom Carnegie to sell out for cash because he says "Oil has seen its best days."

Keystone Bridge Company

Keystone Bridge Company is the name of the company Carnegie considers the "pet and parent" of all his other work. Carnegie meets with John Piper in 1856 to discuss iron bridges to replace wooden railroad bridges. Wooden bridges catch fire from locomotive sparks and are not cost-effective beyond a certain span and load factor. Pennsylvania Railroad is the standard and Keystone Bridge Company is organized in 1862 by its principals who are railroad insiders and can assure its success. Keystone is the model of corporate organization that Carnegie uses for ownership and management. He organizes multiple-member partnerships of influential partners and experts to control his ventures and drive out competition. Carnegie invests $1,250 borrowed from a bank for one-fifth interest in Keystone for which he receives $7,500 in dividends in 1863. Carnegie's departure from the railroad in 1865 frees him to promote greater opportunities for Keystone.

The Homestead Act

The Homestead Act is the name of congressional legislation enacted in 1862 that symbolizes America's democratic heritage and destiny. The Act opens western lands to settlement and prosperity that drives the frontier westward, which thereby opens the land to building railroads and bridges to transport settlers and supplies.

Triumvirate

Triumvirate is a term that refers to the three investing partners, Andrew Carnegie, Thomas A. Scott and J. Edgar Thomson. Generally the triumvirate enlists other wealthy and well-known investors to participate in their projects. Carnegie keeps controlling interest in the ventures through stock proxies he receives from Scott and Thomson. For example, Carnegie has minority interest, for example twenty percent, in Keystone but Scott and Thomson assign their voting rights to him by proxy which gives Carnegie the controlling interest. Many of their ventures are related to the railroad business so Scott and Thomson offer assurance that the venture succeeds.

Pacific and Atlantic Telegraph Company

Pacific and Atlantic Telegraph Company is the name of an operating company that buys one thousand shares of Carnegie's start up firm Keystone Telegraph for three times its par value. James L. Shaw, president of Pacific buys one thousand shares for $150,000, when Keystone's par value for a thousand shares is $50,000.

Keystone Telegraph

Keystone Telegraph is the name of a start up company that Carnegie forms to take advantage of opportunities in telegraphy through railroad franchising. Telegraph and railroad lines can share the same routes by exchanging services to maximize profit. Carnegie's triumvirate acquires a franchise from Pennsylvania Railroad that has the benefits of existing poles and franchising from Trenton through to the Ohio state line without any cash outlay for investment. Keystone Telegraph stock is purchased by Pacific and Atlantic Telegraph Company for $150,000.

Central Transportation Company

Central Transportation Company is the name of a venture formed by Carnegie to exit the Woodruff Company through reorganization. In 1867, the transcontinental Union Pacific seeks bids from sleeping car companies for its expansion. The new competitor George M. Pullman decides a lavishly decorated "rolling palace" may have an edge and by 1867 he has forty-eight in service. Carnegie proposes they cooperate rather than bid against each other and suggests "The Pullman Palace Car Company" be the joint venture. Carnegie sells Central patents for $20,000 to Pullman and they exchange shares for no money to form the company. Carnegie buys his stock in Pullman by selling off shares in Central to other stockholders.

Carnegie, McCandless and Company

Carnegie, McCandless and Company is the name of a partnership venture formed by Carnegie to operate a mill named the "Edgar Thomson Works" (ET) for the first president of Pennsylvania Railroad. The mill site is strategically situated at the Monongahela where the Pennsylvania, Baltimore and Ohio railroad and river transportation is available and nearby the coal fields. The start of ET construction begins with the Panic of 1873. Carnegie contributes $250,000 to the partnership total of $741,000 in original capital. Some of Carnegie's customers stop paying and his Carnegie, McCandless partners miss paying their capital commitments. Carnegie sells off Western Union and Pullman stock to keep the ET mill project funded. When Scott and Thomson cannot avoid the Texas Railroad bankruptcy without Carnegie's endorsement, he refuses and buys them out of the partnership with his bank line of credit to avoid destroying the ET project as well.

Texas Pacific Railroad

Texas Pacific Railroad is the name of Scott's railroad interest that is at risk of default unless Andrew Carnegie endorses the note. Andrew wil not help because partnerships like Carnegie, McCandless can endanger all partners so a Carnegie endorsement of a bankrupt Texas Railroad would destroy the ET project too.

Homestead

Homestead is the name of a steel mill that has the most modern equipment in 1881 but is plagued by labor problems for two years. Homestead is offered for sale to Carnegie. He purchases Homestead to solve supply needs by acquiring raw materials suppliers Larimer Coke, Scotia Ore mines, part of the Henry C. Frick Coke Company and others. Carnegie companies have few labor difficulties before the Homestead strike. While Carnegie is in Scotland the partners want Frick to handle labor issues since he is more likely to keep wage costs low. Frick builds a stockade around the plant and hires Pinkerton detectives to guard it when he opens with nonunion help. Workers attack all day, with Pinkertons barely escaping with their lives and the governor sends in eight thousand troops. Carnegie thinks Frick's stubbornness turns a crisis into a disaster because he ignores Carnegie's policies. Carnegie claims ownership of Homestead harms his name for years.

Duquesne Steel

Duquesne Steel is the name of the most modern steel mill in 1889, acquired while Frick is in charge and keeps the Carnegie Company at the forefront. Duquesne has labor and capital problems from its opening. Carnegie claims at the competitor's opening that it lacks "homogeneity"—a false and meaningless charge that gets Duquesne off to a bad start with the idea it is defective.

Wagner Act

Wagner Act is the name of congressional legislation enacted in 1935 that makes unions legal. Considered labor's "Magna Carta," the Act legitimized industrial unions like the United Steel Workers.

Iron Clad Agreement

"Iron Clad Agreement" is the name of the partnership contract required by Carnegie to assure control of his company. The agreement includes provisions of a right to buy out at book value the interest of a deceased partner, that a two-thirds vote can force a partner to sell at book value and that retiring partners can sell at book value that is paid in installments. Carnegie protects the firm from a forced sale to pay 58 percent to his heirs at death and disallows any outsiders to buy an interest.

Skibo Castle

Skibo Castle is the name of Andrew Carnegie's summer retreat in Scotland. There, Carnegie identifies the Moore brothers as mystery buyers after they agree to pay him his proportionate interest in a two million dollar option purchase.

Carnegie Company

Carnegie Company is the name of the recapitalized company that takes control of Carnegie Steel and Frick Coke with capital of $320 million. Carnegie's share is $174,526,000 and Frick's is $31,284,000. Carnegie loses control of capitalization levels but eliminates Frick from management, rewards Schwab, and recapitalizes without paying bankers or promoters. The Iron Clad Agreement is eliminated.

United States Steel

United States Steel is the name of the successor company Morgan uses to purchase Carnegie's business interests for $480 million.

Themes

Characteristics of Carnegie's American Dream

The concept of the American Dream refers to the continuing belief that people can rise above humble beginnings by hard work, honesty and thrift to reach a position of power and influence in America. Popularity of the American Dream in early days is evidenced by the tens of millions of people that immigrate from the Old to the New World. Their experience embeds the dream into America much stronger than the few that stand out in unparalleled success, like Carnegie, Guggenheim and Vanderbilt. Typically the nineteenth century pattern begins with pioneers who leave the homeland and urge friends and relatives still there to join. For example, Margaret Carnegie's sister, Annie Aitken precedes her to America and offers rent-free housing. Within two years of arriving in America, the Carnegies regain their fortune; with the help of friends, relatives, and countrymen they earn more income than ever paid in Scotland. Except for young Tom in school, Will and Margaret work weaving and shoe-binding. Andrew works as bobbin boy in a textile mill and is proud to be a "breadwinner."

They come from a town in Scotland whose industry is hand weaving practiced by half its 11,000 people since medieval times and begin work in the New World weaving as well, since they know how. Even Andrew works in a related mill business of textiles. Will has no trade to pass on to his sons and Dunfermline promises nothing in 1848 when they leave for a fresh start in the New World. Ironically, they do on arrival the same craft that causes them to leave. Industrialization takes over factories, cities and whole ways of life when a power loom opens in Dunfermline. In America, Andrew works a mill job he hates and Will Carnegie fails at hand-weaving because that is all he knows to do. All this works on thirteen year-old Andrew as he sees his father fail in America too but admires his mother's determination to rise above it. Industrialization is rampant in Pittsburgh as the hub of waterway spokes radiating out to natural resource and commercial areas. Andrew's Uncle Hogan gets him a job delivering telegrams to local businesses and Andrew becomes an expert telegrapher in commercial business.

Carnegie sees railroad traffic increase and that industry as most dynamic and his first "big business" opportunity. Carnegie works twelve years at Pennsylvania Railroad to become a successful manager, capitalist and entrepreneur. He rises from poor bobbin boy at $1.20 per week in 1850 to railroad superintendent at $2,400 per year in 1865. Scott urges him to buy stock in Adams Express Company. When his first investment pays a dividend check for $10, Carnegie sees a whole new world of earning income from capital. By 1863 his investments pay him $45,460 and by 1868, $56,110 per year for an investment of $817 that he borrows to make. At twenty-eight he is the successful manager of a complex, multi-unit railroad business and informal investing triumvirate with Thomson and Scott. Thirty years later J.P. Morgan buys Carnegie Company and all its holdings for $480,000,000. When the transaction closes, Morgan congratulates Mr. Carnegie on being the richest man in the world.

Features of Industrial Innovation

Underlying transformations occur deep in Carnegie's personality as the thirteen year-old Andrew sees his father fail and watches his mother's determination to rise above it. Will seems victimized by machines that take his hand weaving jobs with endless energy from coal-fired steam boilers. Andrew is conflicted as a child watching industrialization take their life as the Dunfermline power loom that leaves his father in fear. His mother's belief her sons can do better drive him as an adult to use machines that destroy Will.

Andrew's job in a textile mill as bobbin boy confirms his hatred of machines when he is not in control. However, delivering telegraph messages lets him meet business producers on their way to national prominence and make him an expert in Pittsburgh's commercial world. Business grows on the telegraph because it is the quickest way to do business. Carnegie masters the telegraph machine by "reading" the keystrokes. He sees increases in railroad traffic as a dynamic first "big business" in America. When he becomes Pittsburgh's best telegraph operator Tom Scott of the Pennsylvania Railroad, hires him. Carnegie works the railroad twelve years while developing managerial skill, economic principles and relationships to become a successful manager, capitalist and entrepreneur.

Carnegie perfects business techniques to transform an iron and steel industry comprised of many small producers into "big business" for the first time. His example encourages firms in other industries to do the same. For example, small individual firms operate iron furnaces that smelt ore into pig iron. Forges and rolling mills convert pig iron into bars and slabs. Foundries and fabricators make the bars and slabs into rails, plates and sheets and other firms make tools, hardware, pots and pans or stoves. Merchants control the flow of raw material and processing product, which increases costs and slows materials flow. Carnegie evaluates the process like a railroad man who determines bigger trains running faster can cut unit costs and increase profits. His innovation transforms the industry by acquisition and integration of small firms into one big business he controls.

Profitable implementation of this innovation requires accountability to monitor and evaluate costs of product flows. Clerks and weighing scales along the way determine where and by whom material is saved, wasted, or produced. Carnegie uses this data to apply units of labor and material cost per unit output to make effective management decisions. Carnegie uses the railroad system developed by Thomson and Scott as a basis that he adapts to the iron and steel industry. Carnegie's innovative cost-based pricing and manufacturing management marks him as an entrepreneur. With his cost data accounting Carnegie can more accurately price product for sale than prevailing market conditions provide. His method makes product pricing and investment planning rational. Carnegie is able to maintain profitability by generating the greatest flow of product at the least unit cost and thereby control the industrial machinery he creates.

Money-making Investing Schemes in Mid-nineteenth Century

Carnegie rises from poor bobbin boy at $1.20 per week in 1850 to railroad superintendent at $2,400 per year in 1865, when he is offered a promotion but quits for ventures to make him money. Scott urges him in 1856 to buy stock in Adams Express Company, which he does and a new world opens to him when he receives a dividend check for $10. Six years earlier $10 would take months to earn and a dividend check for no work seems magical. Seven years later in 1863, the magic continues with investments that pay him $45,460 and in 1868, $56,110 each year for an investment of $817 that he borrows to make.

The Carnegie money-making investment model generally has specific characteristics and principles that work at the time but may be subject to a given financial time and environment. The first step determines a target company, amount of investment, and reason for making the investment. Target companies are selected for similarity to firms he knows about and related to the Pennsylvania Railroad where he has an informal investing triumvirate with Thomson and Scott. Secondly, the partners pledge their investment by installments paid when due or by the company as credit for dividends payable on the whole investment to pay the installment. Prominent investors like Scott and Thomson, can direct a regular flow of railroad business to the company and attract investment from colleagues.

For example, Scott and Thomson are interested in the Woodruff Sleeping Car Company that owns patents in 1858, but whose owner Woodruff lacks the courage and business sense to develop. Scott and Thomson are "insiders" that can direct Pennsylvania Railroad's purchase orders to the Woodruff Company so they hold their stock in Carnegie's name to avoid impropriety and Carnegie buys a one-eighth interest. Pennsylvania Railroad buys from Woodruff which gives Carnegie credibility of a "big corporation" when he borrows the first payment of $217.50 from the bank on his one-eighth interest. The balance is paid by his dividends from the first year of the venture. In second and following years he receives at least $5,000 for his net investment of $217.50 till 1870 when he sells out.

Subsequently, Carnegie uses $11,000 in Woodruff dividends to buy 1,100 shares of the Columbia Oil Company in 1861. His partner Coleman wants to raise the price of oil by hoarding supply. Carnegie learns from Columbia that production, not speculation, pays —despite Columbia paying $17,800 its first year and eventually earning over a million dollars. In an unusual touch of investment naiveté, Andrew Carnegie tells his brother Tom to sell out for cash since "Oil has seen its best days" and is beyond the control of management.

Pennsylvania Railroad is the standard and Keystone Bridge is organized in 1862 to assure success by insiders. Carnegie invests $1,250 borrowed from a bank for one-fifth interest that he receives $7,500 in dividends in 1863. Keystone provides Carnegie with patterns of ownership and management using the multiple-member partnership.

Specifically he holds controlling interest by proxy and managers get an interest for incentive. Key men are experts in their field to drive out the competition. Keystone builds ninety percent of the 31,000 miles from 1865 to 1872. Carnegie gains three ways from this venture that includes profits from construction, an increase in bridge security value, and commissions by selling bridge company bonds.

Style

Perspective

Harold C. Livesay is the author of this biography, "Andrew Carnegie and the Rise of Big Business." Like Carnegie, Livesay starts as a poor workman picking tomatoes, working on a ferry boat, repairing telephones, working as a railroad yardmaster and as truck driver delivering steel to construction sites. Driving trucks in the early 1960s, Livesay takes the opportunity to evaluate American steel and other industries he characterizes as "bloated, arrogant and inefficient." Committed like Carnegie to improve his life, Livesay trades in his truck cab for a Johns Hopkins University Ph.D. degree and a professorship in 1970.

He writes this biography about a man he admires who is often mischaracterized solely as "a penny-pinching zealot who drove workers and managers alike" while conniving "to make more money" and gets caught up in the "worst labor disputes." Ironically, Andrew Carnegie, as Livesay portrays him, repudiates unending work, plans to give his wealth away even while earning it, and believes in workers' democracy. Livesay's goal in this work is to erase Carnegie's negative reputation by placing him in context of the times and paradoxical views of life that he actually lives. Livesay writes to share spiritual riches of this industry giant and philanthropist whose contributions in his name continue today.

Tone

The author of "Andrew Carnegie and the Rise of Big Business" writes objectively about the subject of this biography. Livesay's style presents complex issues of Carnegie's life and corporate history in a straightforward and understanding manner. For example, he presents the triumvirate's self-dealing as a normal way to do business with Woodruff and Pennsylvania Railroad run by the same individuals. When Frick follows Carnegie's lead, however, this time affecting Carnegie's gain, Frick's end is sealed. There is no moral outrage expressed by Livesay who allows the circumstances of their business dealings to speak for themselves. For example, Carnegie tries to rid himself of Frick by costing him $10 million in a scheme that backfires and costs Carnegie over $31 million and the loss of corporate control. Carnegie rises above his loss as if following his mother's example by offering an outstretched hand to Frick. Livesay lets Frick's words speak for himself in his reply, "Tell Mr. Carnegie I'll meet him in Hell."

Livesay's writing style flashes back and forth from venture to venture and year to year within a chapter in order to illustrate the development of Carnegie's skills, circumstances and investments, which some readers may find confusing. For example, Livesay comments on the family's trip to America in 1848, then flashes back to Dunfermline's reputation as a center of radical thought with the Chartists political movement and its three-century old hand-weaving craft. The author's writing style is full of historical and chronological points of history to give Carnegie's story texture and complexion beyond any assumption of a linear personal life history. For example, Livesay discusses the railroad business as a "nickel and dime" operation collecting millions of dollars in small coins over thousands of daily transactions. The author provides an objective view of Carnegie the successful businessman even when he is wrong, as shown in his comment "Oil has seen its best days."

Structure

This 230 page non-fictional biography of Andrew Carnegie is comprised of an Editor's Preface, eleven chapters, Epilogue, Study and Discussion Questions, Source Notes and an Index. Chapters are numerically listed and titled by time of life from family immigration in Chapter 1, "Flying Scots: In Search of a Dream" through his apprenticeships as manager and financier, then to Chapter 5, as "The Master Moneyman: A Fortune in Paper" and mastering building and management. Carnegie's story is told through Chapter 9, "Triumph and Tragedy" to "Challenging the World" until in Chapter 11, "The Climb Ends." Pictures are interspersed of Andrew and his brother Thomas, his mentor and triumvirate member, Thomas A. Scott, other partners with Carnegie and his triumphal return home to Dunfermline with his mother. Buildings are pictured as is his partner and nemesis Henry Clay Frick. In each chapter, events and incidents of Carnegie wheeling and dealing to become the richest man in the world up from poverty are described as they unfold in his life.

Each chapter highlights an aspect of his life as it flows over time with many of the same characters and events. The chapter storyline is cyclical rather than linear, which may cause the dates listed to be slightly confusing. The format of describing a time of his life via chapter name provides a readable flow of events to follow. For example, "Flying Scots: In Search of a Dream" present family history and the trends and tendencies that make Andrew Carnegie, his brother Tom and parents Will and Margaret who they are as they rise from despair and disappointment to failure or success, as they choose. Will quits, Tom succeeds with Andrew but then drinks himself to death, and Margaret dies at peace before Andrew marries. Pictures bring them to life on page 118, shown by Carnegie's pride restoring his mother's name through town celebrating the "hometown hero's" donation to Dunfermline. Back matter of Epilogue, Study and Discussion Questions, Source Notes and Index bring readers up to date as ready references to the current state of his affairs and contributions. Carnegie's poem reveals his view, "four and one-half pounds of material manufactured into one pound of solid steel and sold for one cent. That's all that need be said about the steel business."

Quotes

"Andrew Carnegie's rise from poor Scottish immigrant boy to 'the richest man in the world' seemed to his contemporaries and to succeeding generations irrefutable evidence of the dream's validity. For this reason alone his career deserves examinations, but there are even more compelling grounds for investigating his life in detail." Chapter 1, p. 3.

"Faced with such mixed reports, the Carnegies clung to Scotland as long as they could despite their dwindling fortunes. They finally left because conditions at home became intolerable, not because opportunities abroad were irresistible." Chapter 1, p. 6 .

"Because his father failed to recognize the impending revolution and could not deal with it when it came, Carnegie's mother, 'that power which never failed in any emergency.' stepped forward 'to repair the family fortunes.' Even before leaving Scotland, Margaret has replaced Will as principal wage earner and decision maker." Chapter 2, p. 17.

"His most spectacular achievement—building Carnegie Steel into the world's largest steel producer—rested primarily on his successful transfer of the railroads' managerial methods to the manufacturing sector of the economy. The first industrialist to effect this adaptation, he made his own company so efficient that his competitors had to emulate or eliminate him." Chapter 3, p. 33.

"Scott provided Carnegie with the strong father figure he had never had. They had much in common: a poverty-stricken childhood lacking in paternal leadership, a restless drive to succeed, an ability to master detail, a charismatic personality, and a determination to acquire through self-education the culture and urbanity that circumstances had denied them." Chapter 4, p. 52.

"Carnegie learned the lesson well; production, not speculation, paid off. He was to return to this theme time and again." Chapter 4, p. 59.

"He became a masterful speculator, manipulating stock in Western Union and Union Pacific, jousting with entrepreneurs Jay Gould and George Pullman. He became a promoter of stocks and bonds, selling $30 million in Europe in five years." Chapter 5, p. 67.

"Spencer thus revealed to Carnegie the fundamental life process in a form that made sense to him in the light of his own career. Reading Spencer did not make Carnegie successful; indeed he had already made himself twice over, as a manager and as a capitalist, before he encountered Spencer." Chapter 5, p. 82.

"As Carnegie well knew, Henry Bessemer had found sufficient sources of phosphorus-free ore to allow British rolling mills to contemplate mass production of steel rails." Chapter 6, p. 89.

"Clearly this would not do. Tooling up a business to compete for million-dollar contracts without incorporating the ability to make accurate cost estimates might well have ended in disaster." Chapter 6, p. 94.

"Twice he had shown what a poor boy could do in America; the best lay just ahead." Chapter 6, p. 99.

"The Panic of 1873 hit Americans hard with a deeper and longer-lasting depression than any they had experienced before. Changing conditions, moreover, intensified the impact, for the recession crippled the industrial economy." Chapter 7, p. 103.

"Carnegie made his choices carefully, analytically; he hired the best man whatever the cost in wages because he realized, 'There is no labor so cheap as the dearest in the mechanical field.'" Chapter 7, p. 109.

"Beneath the braggadocio lay a cold, hard realism. Carnegie could 'take the lowest price that is bid' sight unseen only because he knew that he had the lowest costs in the industry and could make a profit at any competitor's price." Chapter 7, p. 114.

"His wealth opened this world to him, but once inside he gave and received a genuine respect for intellectual rather than material achievements. It is hard to imagine Jay Gould or Cornelius Vanderbilt strolling comfortably in Gladstone's garden at Hawardon, discussing the merits of Irish Home Rule." Chapter 8, p. 138.

"Although the struggle for survival distracted him from other projects dear to his heart, Carnegie the businessman triumphed in the end: Carnegie Steel became a superb industrial unit, with an efficiency unmatched in the world; however, Carnegie the public figure never recovered the reputation lost in the Homestead strike." Chapter 9, p. 143.

"Quite simply they wanted Frick in charge of Carnegie Steel because he seemed likely to make a lot of money for them by holding down wages. If Carnegie returned, his occasional preference for adulation rather than money might prompt an expensive settlement." Chapter 9, p. 153.

"Never forgetting his own excitement when he himself began to climb the 'golden ladder,' Carnegie at the top of that ladder carefully left it dangling where his subordinates could see it." Chapter 10, p. 163.

"Carnegie acquired exclusive rights to the Rockefeller ore without spending a cent, simply because he could promise to use 1,200,000 tons of ore every year for fifty years. No small firm could have signed such an agreement." Chapter 10, p. 169.

"A collection of paradoxes, this man of American steel—he showed himself violent and peace loving, ruthless and loyal, greedy and generous, boastful and diffident, vain and doubting, brash and shy. Like his adopted country and so many of its citizens past and present. he exhibited a curious mixture of Jeffersonian rhetoric and Hamiltonian action." Chapter 11. p. 207.

Topics for Discussion

Identify, list and describe the elements involved in the transition from an agrarian non-industrialized society of the early 1800s to the mechanized society after the Industrial Revolution in the late 1800s.

Explain and discuss the significance of Andrew Carnegie's transition from bobbin boy at the textile plant through messenger boy and finally operator at the telegraph company.

Identify, list and describe at least five elements of the railroad business that makes that industry exceptional among all other industries of Carnegie's time.

Identify, list and describe significant characteristics of the difference between being a hard worker and an investor that Carnegie discovers with his investment in Adams Express Company.

Identify and describe the strategies that underlie Carnegie's ability to leverage and develop his reputation and apparent skills as a stock manipulator. Provide an example of how he does that with one specific company.

Describe and discuss an innovation Carnegie uses with integrated manufacturing. What image does he use to illustrate the process and what system is necessary to implement his innovation?

Describe and discuss the financial situation with Texas Pacific Railroad. Why does Carnegie refuse to help his former boss and fellow investor?

Identify, list and describe the steps Henry Phipps takes to save money and improve the Lucy furnace product. What does he introduce to the Carnegie firm?

Describe and discuss the impact of Duquesne Steel's lack of homogeneity before and after Frick acquires it. Describe how Carnegie uses this "defect."

Describe and discuss the significance of Carnegie's deal with Rockefeller that makes it unavailable to his competitors. Discuss why you agree or disagree that this transaction is Carnegie's greatest achievement?

Identify, list and describe the three stages of the steel industry that Carnegie envisions and is putting into place.