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Prologue

Foundations for a Business Life



The Industrial Setting

The life of Henry Clay Frick spanned an era of unprecedented national economic growth. When he was born, the wealth of the United States was much less than one-third that of the world's pioneer industrial nation, the United Kingdom; when he died, it was more than three times as large. During his lifetime the nation's wealth increased more than fortyfold, and both the structure and the geographical form of the economy were transformed almost out of recognition. Ideas and expectations were dramatically altered. Such changes were the result of great forces and movements both within and from outside the United States, the product of the abilities and ambitions of millions of people. Yet they were also greatly influenced by outstanding individuals who helped determine which businesses—and therefore which areas and places—were most affected. Henry Clay Frick was to play a prominent part in these transformations of an era of unprecedented material progress.

During his seventy-year life the population of the United States grew from 23 to 105 million. The spatial distribution of the people changed even more dramatically. The 1850 census was taken just a few months after Frick's birth, and at that time, only two million people—just over one in every twelve Americans—lived west of the Mississippi. More than half of these were in Louisiana or Missouri, and California then contained well under a hundred thousand. There were only four states and seven territories throughout the entire West. Long before the end of Frick's life, the frontier had disappeared and the United States was declared fully settled. When the 1920 census was taken, a few months after his death, twenty-two states lay

west of the Mississippi, and they contained almost 32 million people, or 30 percent of the national population. California, with 3.4 million inhabitants, was already eighth in number of the forty-eight states.

During Frick's life, American society passed from an early stage of industrialization to the beginnings of an affluent consumerism—in W. W. Rostow's terminology, from a stage shortly after "take-off" through sustained growth and the "drive to maturity," to the start of an "age of mass consumption."¹ In the process, the industrial requirements of the nation changed. At first a basic economy had to be established—lines of communication, sources of energy, farms, mines, factories, homes, and public buildings. While this was happening (although wealth increased rapidly), investment was above all in capital equipment rather than in widely diffused high levels of private consumption. Apart from essential goods such as furniture, clothing, footwear, and food, the emphasis was on heavy industry and the provision of public infrastructure.

The opening of the West dramatically altered the distribution pattern for the products of the basic industries. In the year of Frick's birth, for example, the length of the nation's railroads reached 7,365 miles. When he entered the coal and coke business in 1870, this had increased to 52,922 miles, by 1900 to 193,346 miles, and at his death nineteen years later, there were 253,152 miles of railroad in the nation. For most of Frick's life, railroads dominated long-distance passenger and freight transport, but before he died, the automobile industry was already assembling almost two million passenger and commercial vehicles a year.

Changes in the basic industries were equally if not more dramatic than those in transport. In the roughly seventy years of Frick's life, the output of bituminous coal increased from under 4 million to 516 million tons. Between 1850 and 1920, pig iron production went from under 0.6 million to over 37 million tons. By value added in manufacturing, iron and steel as a combined industry was seventh in 1860 but ranked first by World War I. Never again would there be such rates of relative overall economic growth nor would these industries be so prominent. As the demand for coal and steel grew, so the patterns of their production shifted. Whereas in the early 1870s the output of anthracite and the output of bituminous coal were at comparable levels, by 1900 the tonnage of anthracite was only a little more than one-quarter that of bituminous coal; in 1918, anthracite production reached what was to prove its highest ever figure, only a little over one-sixth that of the bituminous coal mines.

Geology as well as the distribution of demand led to a concentration of the mining of bituminous coal and the associated manufacture of coke in

the northern parts of the Appalachian plateau. In comparison, the manufacture of iron and steel was freer in terms of locational choice. The opening and large-scale development of the Lake Superior iron ranges and the use of furnace fuel from the Appalachians helped concentrate the centers of iron and steel manufacture in the broad swathe of territory between the lower end of the Great Lakes and the coal plateaus, but within this area the increasingly complex network of railroads left open a wide range of possibilities. Variations in plant efficiency decided which would be the successful operations and the greater growth points. Efficiency, in turn, was determined above all by the quality of management. Western Pennsylvania became the greatest single focus for the growth of these industries in the late nineteenth century, because of its natural advantages for coke manufacture and the acquired attractions for steelmaking, and it remained of outstanding significance in each industry far into the twentieth century.

Considerations involved in the growth of any industry are complex. Some factors are general to any activity, at any time and place; others are specific to particular trades, eras, and locations. The demand side of an industry is of primary significance. Entrepreneurial skills cannot normally create a demand, although they might foster its expansion. The market, its growth, and changes in its composition and distribution are the largely exogenous factors to which an industry must respond. National economic growth provides the overall context. Competition from other producers determines how much of the market a particular firm can control, although in order to simplify market access it may choose to collaborate with other firms, through understandings, pools, quotas, and so on. The supply side of an industry involves the availability and cost of raw materials, forms and cost of delivery, the quality and price of labor, and the availability of and charges for capital. Then there is the production process itself, its technology, its scale, the type and degree of integration with other processes. All of these aspects may be brought within the control of an individual company, but there may still be unexpected influences (notably technological change) from outside. Such changes may occur in other industries but may even so affect the pattern of demand for the activity under consideration; if technical change comes from within, it will alter inputs, scales of production, probably the association and integration of processes, and the nature of outputs.

Management has to take initiative in response to all these aspects of business. It must meet demand efficiently and keep pace with changes. It has to balance the mix of inputs so as to secure the most cost-effective combination—replacing one material with another, changing relative proportions, substituting capital for labor within the limited bounds that this is techni-

cally possible. In addition to the vital day-to-day decisions, there are also medium-term responses involving the taking up of opportunities and the minimizing of liabilities, as well as long-term perspectives on development. Management structures and conditions provide many variations, of individual relationships, delegation of powers, incentives, and so on. Inspiring top management may motivate a whole concern, a healthy emulation among the top servants of the firm maximizing its progress. For better or worse, the leadership of the firm is the central most important factor that determines the coordination and efficiency of production, the vigor of the response to rivals, the perception of possibilities, and attitudes to workers. An excellent location, efficient plant, able and willing workers, abundance both of capital and of markets—all such assets can be vitiated by uninspiring management. Conversely, a good managerial team operating within an indifferent situation with respect to all these important factors may yet be able to produce an operation that is distinguished by its excellence and success.

COKE AND STEEL DURING FRICK'S LIFE

Such generalities must now be set within a specific context. In the coke and steel industries during the working life of Henry Clay Frick there occurred large-scale growth and technical change. A cogent case could be made for the thesis that in both industries the changes of the 1870–1920 period were more fundamental than those of any other period either before or since. At the beginning of this period, coke manufacture was highly localized and was fragmented into a large number of individual operations. The processes were conducted separately from iron manufacture and were simple and wasteful. During the last twenty years of his life, production became more scattered throughout the industrial Northeast but was grouped into fewer, larger, more complex, and more efficient plants and became intimately integrated with iron and steel manufacture.

Until roughly 1900, expansion depended on the beehive coke oven; after that the by-product oven became increasingly important. The former process involved the burning of coal with the minimum access for air in a circular, dome-shaped oven. Excellent coke was produced but all the gaseous and liquid by-products were lost. The by-product oven was more elaborate but recovered these products.

In metallurgy too there was a large-scale shift. In the first half of the 1870–1920 period, bulk steel production became firmly established in the form of the Bessemer process, which in America was associated mainly with rail manufacture. In the second half of the period, there occurred the gradual replacement of this process by open-hearth furnace manufacture of bulk

steels, which were by then being finished in a much wider variety of forms. Scale of plant grew as industrialists became aware of the economies to be derived from bigger operations with combined processes of by-product coke manufacture, iron making, steelmaking, and steel finishing.

Thus, fundamental changes took place in both the technological and the business environments. At the beginning, both in coke and in iron and steel, there were large numbers of mines, plants, and firms. Competition led to attempts to fix prices, to form pools, to allocate quotas. There followed a much more radical reorganization involving amalgamations and programs of rationalization of plant. Finally, in coke and still more in steel, came an era of concentration of economic power, but exercised in a paternalistic fashion. In both industries, this last phase was under the leadership and tutelage of the United States Steel Corporation. At this stage, outsiders might be excused for believing that change had come to a stop; but in fact, within this congenial operating environment new processes, locations, and firms were emerging and problems were being laid up for the future. Frick's working life spanned all these periods.

THE CHANGING ETHOS OF THE TIME

As well as technical and organizational changes, an important context for this case study is the business ethos of the time. For most of the period, there was optimism about the future state of the economy and a conviction (naive though it seems in retrospect) that progress could only be secured by a relentless and competitive struggle, that this would produce material well-being, which in turn would increase human happiness and indeed, if undisturbed, would lead on to the millennium. Such a belief that soon all would be well could ignore short-term struggle, hardships, and uncertainties. The age was well provided with persuasive apostles of this doctrine, and nowhere were they more confident or explicit than in America. The highly respected publicist Edwin Lawrence Godkin proclaimed that "the principle of competition . . . is the law by which Providence secures the progress of the human race." He drew logical conclusions from his statement, conclusions that were very comforting to the great captains of industry:

The great law which nature seems to have prescribed for the government of the world, and the only law of human society which we are able to extract from history, is that the more intelligent and thoughtful of the race shall inherit the earth and have the best time, and that all others shall find life on the whole dull and unprofitable.

The pioneer Yale sociologist William Graham Sumner was even more unequivocal about the universal worth of the process, whatever the surface appearance of things:

What matters it . . . that some millionaires are idle or silly or vulgar? . . . The millionaires are a product of natural selection, acting on the whole body of men to pick out those who can meet the requirement of certain work to be done. They get high wages and live in luxury, but the bargain is a good one for society.²

Questions of private gain in relation to public good lead on naturally to a fuller consideration of the role of the individual in the shaping of great industries and national economies. The heroic perspective on economic history is out of favor. We may still speak or write of business leaders or captains of industry, but are we not dealing with forces beyond the control of any individual? Developments in technology, forms of industrial organization, relations between capital and labor (in short, forms and systems of production) are not these the real points of reference? Under these circumstances individual entrepreneurs, managers, or particular firms seem little more than agents of historical necessity. True, some modern historians are still willing to allow some role to special circumstances. Writing specifically about changes in demand for steel, Peter Temin made allowance for disturbing effects:

It is apparent that most gradual trends are aided, obstructed, or at least altered by the presence of temporary developments that produce their own highly specialized effects. The differences between times and places may be the result of the extent to which these temporary influences correspond with the requirements of the general trends.³

This applies at least equally to individual economic actors. Their successes may indeed do more, speeding change or (as with the individuals considered here) holding back for decades the gradual drift of locational change in a basic industry. Frick himself deprecated the role of an individual or small group of businessmen: "The demands of modern life called for such works as ours; if we had not met the demands others would have done so. Even without us the steel industry of the country would have been just as great as it is, though men would have used other names in speaking of its leaders."⁴ However, in that case the form of the industry would have been different, and its size, efficiency, and role in national economic development probably less. The fact remains that in such a large, complex, and vibrant organization as Carnegie Steel, itself the front-runner in what was then the largest or indeed the key manufacturing activity in the nation, there was ample scope for the exercise of individual talent and initiative. All within the company's top management were straining to make it still more successful, but they contributed different qualities. Sixty years ago, Burton J. Hendrick summed this up:

[T]he Carnegie Minutes, technical as the contents are, teem everywhere with personality. The characteristics of each partner stand out clearly as in a well-written play. Here is Henry Phipps, cautious, penetrating, conservative, especially alert in matters of finance; [Henry Clay] Frick, abrupt, down-right, grim, occasionally cynical; [George "Dod"] Lauder, quiet, thoughtful, deliberate, anxious always for the views of "absent partners"; [Charles M.] Schwab, dashing, self-confident, quick to decide, vain, sensitive to criticism; [Thomas] Morrison, brief-spoken, exact; and [Alexander] Peacock, animated and optimistic, as a good salesman should be.⁵

One may not agree with all of Hendrick's characterizations, but his evocation of the expression and interplay of individuality can scarcely be bettered.

In the operational conditions of mushrooming basic industries and of an expansive national economy operated according to a heady mixture of the thinking of laissez-faire economics and social Darwinist thought, the exceptional business skills of Henry Clay Frick flourished. The interplay between favorable external circumstances and personal talents of a high order shaped the course of his career and, in the process, played a significant part in the national processes and forms of growth at this most propitious of times. Yet, as will be seen, these concerns by no means wholly excluded other, wider, gentler interests. In short, the man was to prove worthy of his times.

Family Origins

During the decades before the War of Independence, one Abraham Oberholtzer from the Palatinate emigrated to the British colonies in North America. He settled near Point Pleasant on the Delaware River, in Bucks County, Pennsylvania. In 1800 the Overholts (having simplified their family name) moved across the Appalachians to Westmoreland County in southwestern Pennsylvania. There, another Abraham took up a large tract of land some fifteen miles south of the small settlement of Greensburg, a holding that came to be known as "the Overholt place." On it was established the settlement of West Overton. By 1810 Abraham Overholt had established a distillery, which by the standards of this region eventually became a major operation. He also raised livestock, put up large flour mills, and worked some local coal. Before he died in 1870 he was the wealthiest man in the area.

Abraham's daughter Elizabeth married a man, John Frick, whose Swiss ancestors had come to America over thirty years before the Overholts. John W. Frick is said to have had ambitions to be a painter; instead he was a not very successful farmer, showing little enterprise and receiving little reward. John and Elizabeth settled in West Overton. Their second son was born in

the village on 19 December 1849 and was baptized in the names of the Great Compromiser, Henry Clay.

Some time after this, the family moved a mile or so away to a farm south of Mount Pleasant. Their son—commonly known, at this time and in his youth, by his second name—grew up as a farm boy. He was a sickly child, but already there showed through his physical weaknesses, as the biographer J. F. Wall put it, “a kind of inner strength and inflexibility of purpose.” One of the joys of his childhood was to ride in his grandfather’s fine carriage, an outward symbol contrasting with the impecunious lifestyle to which John Frick’s indifferent achievements in farming committed his wife and children. It became Clay’s boyhood dream to at least rival Abraham in wealth. Meanwhile, in the school holidays, Clay labored at chores around the farm, carrying wood and water, gathering sheaves, and so on. In this way he earned the money to buy his own clothes.⁶

He attended the district school, in which he was taught by a relative, Henry Overholt. Before he was sixteen, he had left home to live with his uncle Christian S. Overholt, one of the leading merchants in Mount Pleasant and president of the First National Bank. This move was designed to allow him to attend Westmoreland College. In 1866, he went much farther afield, for a short period attending a college organized by the United Brethren, Otterbein University in Westerville, twelve miles north of Columbus, Ohio. Here he showed evidence of some artistic and literary taste, but the only academic subject that interested him was mathematics.

After this brief period away from his home area, he returned to live in the Overholts’ brick mansion in Mount Pleasant and to work as a clerk in his uncle’s general store. In autumn 1868, he moved to Pittsburgh where he obtained a position in the important store of Macrum and Carlisle, in which his efficiency and courtesy made him a top salesman, especially popular with women customers. He lived on Anderson Street in Allegheny City, just across the Ninth Street Bridge from downtown Pittsburgh. But illness and the ambition to better himself together then brought him back to the country districts, to Broadford, where he was installed by his fond grandfather as chief bookkeeper, at a salary of a thousand dollars a year (which was high for a man not yet twenty). He was there when, in January 1870, Abraham Overholt died at the age of eighty-six.

Clay’s business career then took a new direction. His grandfather had mined some coal; his father is alleged to have sometimes exposed its infertile outcrops with his plough; now Clay was to become involved in its more profitable utilization. Others had already realized the possibilities, but it was to be Clay’s peculiar achievement to follow the logic of those possibilities

with unrivaled resolution and exceptional success. The natural resource endowment of the area he had been familiar with from birth provided him with the necessary opportunities to embark on an industrial career.

THE LAND OF HIS YOUTH

Two prominent, level, and continuous ridges run from northeast to southwest across Westmoreland County. They constitute a small part of the western limbs of the Appalachians, a mountain system that wonderfully displays in its topography the fold structures of which it is built. The larger ridge is Laurel Hill; parallel to its northern side is Chestnut Ridge, which forms an attractive forested backdrop to the landscapes of the county. Here are scenes that even now, almost a century and a half after Clay's birth, are pleasing in their gentle swelling contours and occasional wooded valleys, the whole forming a context of deeply rural, traditional America. Seeing it thus (either today or reconstructed in the mind's eye in Clay's childhood), it is not easy to imagine that for well over half a century this area was a seething cauldron of development, intimately involved in the industrialization of the entire country. In the processes involved in that phase, the young Clay Frick was to find the business success that gave him wealth far beyond the dreams of even his rich grandfather.

North of Chestnut Ridge stretch the lowlands through which the main streams of the Youghiogheny and the Monongahela Rivers meander through Fayette County toward Pittsburgh. This lower ground contains no strong landscape features. It had been covered by forest, but by mid century much of this had been cleared. Farmed, the land gave a reasonable living, though it was by no means a rich agricultural area. In 1840 in Westmoreland County there were 43 people per square mile; in Fayette County there were 41; at the same time Lancaster County in southeastern Pennsylvania, much longer settled and already a byword for good farming, had a density of 91 people per square mile. In southwestern Pennsylvania, the potential wealth lay not in the surface but below it, in its mineral resources. So effectively were these developed over the next few decades that by 1910 Fayette County was equal in population to Lancaster County, and Westmoreland County was 40 percent more populous.

The headwaters region of the Ohio River system was well located to serve the needs of the huge pioneer country lying within or beyond its basin with lumber, food, and other supplies. Soon after the Revolutionary Wars, iron-works were established here to smelt local ores with charcoal made from the then abundant woodland. In November 1790, Philadelphia interests blew in the first blast furnace west of the Alleghenies. It was in Fayette County, on

Jacobs Creek, a few miles above the junction with the Youghiogheny River. This Alliance works was also equipped with a forge. Within another four months, the Union furnace was in blast on Dunbar Creek, four miles south of Connellsville. Over the next twenty years, there was a great growth of furnaces, forges, and mills in the district, so that by 1810 Fayette County contained ten furnaces, eight forges, and three mills.⁷ Within another thirty years, practically all this early iron industry had disappeared, mainly because of the reduced availability and rising cost of raw materials. Shortage of woodland that was well placed to provide charcoal seems to have been the major problem; the progress of agriculture (which involved clearing the forests) helped the industrial decline.

It had long been known that this area was richly endowed with coal. As early as autumn 1770, after visiting William Crawford's pioneer farm on the banks of the Youghiogheny, Washington recorded that local coal was burned there. Twenty years later, a new village was laid out nearby. It was named in honor of another pioneer of the area, Zachariah Connell. By the mid 1830s, Connellsville was still known above all as a center of furnaces, forges, and mills, but soon afterward the local coal was recognized not only to be easily accessible but to have physical qualities that made it a prime resource.

The finest coals lay in a shallow basin stretching along the northwestern edge of Chestnut Ridge, a strip of country only three miles wide but some fifty miles in length, extending from just south of Latrobe, southwestward through Mount Pleasant, Connellsville, and Uniontown, and on toward the Monongahela River and the West Virginia line. Within this area, the seams contained scarcely any faults and yielded from 8 to 10 feet of a coal that was of high grade, soft and easily worked. To the east, the coal beds thinned; to the west, the coal became harder. Above all, this "Connellsville" coal was remarkably free of ash and sulphur, and when coked it produced a fine, hard, dense fibrous fuel for the furnace man. Gradually, during the middle decades of the nineteenth century, it was realized that here, beneath cleared forests and farms of only middling grade, under the cold hearths of furnaces abandoned for want of charcoal, was a coal that was ideally suited to the manufacture of the finest metallurgical coke.

FUEL FOR THE IRON INDUSTRY

In Britain, coke iron manufacture had begun in the first decade of the eighteenth century and was overwhelmingly dominant by the end of the century. Under American conditions, coke made its way with much greater difficulty. It was used in the Fairchance furnace, Fayette County, in 1837, but after that this works reverted to using charcoal. By the year of Clay's birth, there was

not one coke furnace in blast in Pennsylvania. At that time, following a boom from 1846 to 1848, pig iron production was at a low ebb. Activity revived after 1852 and, within four years, national production was back to the level of ten years before. In a survey, J. P. Lesley then recorded twenty-one iron furnaces in Pennsylvania and three in Maryland.⁸

Between 1850 and 1860 the number of coke-making establishments in the nation increased from four to twenty-one. At the end of the 1860s, national output of coke iron first exceeded that of charcoal iron; six years later coke iron pushed ahead of anthracite iron. This expansion boosted the economy of the prime coking coal district. In turn this area became closely linked to the fortunes of Pittsburgh.

One of the major events of the year in which Clay was five was the building, less than ten miles west of his home, of the track of the Pittsburgh and Connellsville branch of the Baltimore and Ohio Railroad, the pioneer bulk supply link between the new source of fuel and the thriving metallurgical center. At that time, however, there were no blast furnaces in Pittsburgh, so that its expanding requirements for pig iron had to be supplied from furnaces scattered throughout Western Pennsylvania and eastern Ohio. Four years after the opening of the Pittsburgh and Connellsville Railroad, Connellsville coke proved itself in the first successful ironworks built in Allegheny County. The Clinton furnace was erected by the long-established rolling mill firm of Graff, Bennett, and Company at their works in the Birmingham district, just opposite the Point. Succeeding with the new fuel, they then tried to substitute coal from nearer at hand, but the results were unsatisfactory and they went back to the use of Connellsville coke. Their example inspired others to build coke furnaces, and by 1870 there were already seven in Pittsburgh. This in turn spurred further expansion of coke-making capacity. In 1841 there were two ovens in the Connellsville district, in 1850 four, but ten years later there were seventy. By the mid 1870s the number was 550, which by 1879 had increased to 4,200. It was in this decade of feverish growth that Henry Clay Frick's working life and fortunes became inextricably linked with coke.

Beginnings in Coke

In 1859 Clay's cousin Abraham Tinstman, in partnership with Joseph Rist, bought six hundred acres of coal lands. Nine years later, along with Colonel A. S. Morgan, Tinstman began to manufacture coke at the Morgan mine. Morgan soon left the partnership. There is evidence (although it is slight) that, shortly after his grandfather's death, Clay worked for a time for Mor-

gan and Company, coke dealers. It appears that, possibly in the first months of 1871, he may have acted as their agent in Poughkeepsie, New York, which then had iron furnaces.⁹

Facing difficulties in maintaining his footing in the business, Tinstman looked for new partners. Still only twenty years old, Clay came forward, borrowing money for the purpose from various members of his family, including his father who, despite his relative lack of wealth, proved willing to back the greater enterprise of his son. The reconstructed concern began trading on 10 March 1871. The first entry in its Day Book, made that day, is in Clay's hand. It reads:

Jos. Rist, A. O. Tinstman, J. S. R. Overholt, and H. Clay Frick have this day commenced business as partners under name and style of Overholt, Frick, and Co., the gains and losses to be shared in the following proportions, viz—Jos. Rist the two fifths, A. O. Tinstman the one fifth, J. S. R. Overholt the one fifth, H. Clay Frick the one fifth.¹⁰

Frick soon proved to be the most go-ahead member of the partnership. They bought 123 acres of coal land near Broadford for over \$50,000, and later that year he arranged for them to borrow \$10,000 to finance a new plant. His loan came from the recently opened Pittsburgh banking house of T. Mellon and Sons.

It is interesting to speculate why a city banker, enjoying ample opportunities to make loans to local iron and special steel firms in a period of expansion, should have responded to a request from a very young man from the country districts who had little experience in the trade for which he wanted the money. Several reasons may be suggested. Mellon's father, Andrew, had come from Ireland in 1818 and had settled in Westmoreland County, where he became friendly with Abraham Overholt. Thomas had known Clay's mother, Elizabeth, when she was a girl. Family background may explain how Clay gained his appointment with Thomas Mellon, but his own qualities account for his success once there. It is not clear what he could offer as collateral, but the demand for coke was rising impressively, and the ex-judge was shrewd enough to realize that both the trade and the applicant were sound. A man who once remarked of his own courtship, "Had I been rejected, I would have felt neither sad nor depressed, nor greatly disappointed, only annoyed at the loss of time," must have warmed at once to the zeal, directness, and unremitting commitment to business that was shown by the young Clay Frick.¹¹

Even before the fifty-oven plant named the Frick works was completed, Clay had applied to Mellon for a second loan of \$10,000. This time a repre-

sentative of the bank recommended that the request be refused. As a result Mellon had a report prepared by a mining partner, which provided a reassuring and perceptive assessment of the operation and its dedicated leading operator: "Lands good, ovens well built; manager on job all day, keeps books evenings, may be a little too enthusiastic about pictures but not enough to hurt; knows his business down to the ground; advise making the loan."¹² The endorsement "knows his business down to the ground" was high praise from an experienced engineer for a twenty-one-year-old who had been in mining and coking for little more than a year.

During 1872, trade continued to boom, fifty more ovens were completed, and a new hundred-oven plant was built and named Henry Clay. By 1873, the firm had been renamed Frick and Company. It now owned four hundred acres of coal lands and two hundred ovens. For a time the firm was able to sell all the coke it could make, being fortunate to be supplying the most rapidly expanding sector of the metallurgical industry, the sector supporting Bessemer steelmaking.

As late as 1867 (the year the Pennsylvania Steel Company made its first steel), there had only been three Bessemer works in the United States, compared with fifty-nine in Europe. Between 1871 and 1873, five more major steel mills came into production: the Cambria, Union, North Chicago, Bethlehem, and Joliet works. All of them concentrated on rails. Whereas in 1872 production of wrought iron rails reached a maximum of 808,000 tons, Bessemer rail output was rising rapidly. For peaking iron rail and expanding steel rail production alike, blast furnace capacity was being extended. In 1867 pig iron production was 1.3 million tons, but by 1873 it was 1.26 million tons more. Over the same period output of iron made using bituminous coal and coke went up by 588,000 tons (or 206 percent). Coal mine and oven capacity had to be extended to keep pace. Yet continued growth could not be relied upon.

In September 1873, the leading U.S. financial house of Jay Cooke collapsed, bringing on a period of retrenchment and depression throughout most of the nation's industries. The manufacturing trades producing capital goods were particularly hard hit. Between 1870 and 1873, the average annual increase in the mileage of U.S. railroads had been 6,243 miles; over the next two years it averaged less than one-third that level. Naturally the effects on the iron trade were severe. Hendrick has painted a dismal picture of Western Pennsylvania at this time.¹³ A spectacular example occurred in the center of the coke region. The Connellsville Locomotive works failed and the sheriff had to sell the plant, its materials, and work on hand and on order. Good judges reckoned it was worth between \$35,000 and \$40,000, but E. K. Hynd-

man, superintendent of the Connellsville Railroad, was able to buy it for \$2,500.¹⁴

In fact, Western Pennsylvania suffered less than the nation as a whole. Although demand for coke fell sharply, because coke iron was still making headway at the expense of charcoal and anthracite iron, the decrease was smaller. (National pig production fell from 2.6 million tons in 1873, to an average of only 2.1 million tons over the next four years. In 1873, iron made with coke and coal totalled 873,000 tons; over the next two years, it averaged 830,000 tons. By 1876, the level of 1873 production had been surpassed. Anthracite iron production was not back to the 1873 level until 1880; and charcoal iron not until 1881.) Even so, coke makers suffered severely, and the sellers' market now became an arena where buyers could pick and choose their suppliers. The price of coke per ton fell to as little as 90 cents. In these difficult circumstances, Frick had to add to his early managerial achievements the functions of an indefatigable salesman, determined not to lose heart. At the end of his life he still recalled this period as "an awful time."¹⁵

He retained an apparent unremitting commitment to expansion when opportunity offered, buying coal lands and increasing the number of ovens his company controlled. To this end, he carefully accumulated capital. In 1874 he borrowed more from the Mellons and returned to them again in 1876—in the two years securing, in loans and credits, over \$100,000. One coup concerned the ten-mile-long community-built Broadford to Mount Pleasant Railway. He gathered together the options on this and then offered it at a competitive price and with eloquent promotion of its development possibilities to the Baltimore and Ohio Railroad. They bought it and paid him a commission of \$50,000. Profits from company stores also provided funds for development.

During the summer of 1875, Franklin Platt examined the coke region on behalf of the Second Geological Survey of Pennsylvania. His report showed that Frick and Company controlled only 2 of the 45 coke works, and 201 of the 3,578 ovens. Frick's works were somewhat bigger than average (by 26 percent), but there were nine bigger ones. After this, the carefully garnered capital resources of Frick and Company were judiciously invested to extend its influence in the region whenever opportunity permitted.

In spring 1875, Frick and Tinstman had negotiated for the purchase of the properties of one of their chief rivals, Morgan and Company. The deal fell through when it was found how weak Morgan's financial situation really was. Shortly after this, Frick bought out his partners, who needed cash to pay debts of their own. In 1877, he loaned money to Daniel Davidson and Alfred Patterson, who were trying to reestablish Morgan and Company.

Over a year later, he refused to extend them any further credit and, having sold an interest in his business to Edmund Morewood Ferguson, used this increase in capital to complete the purchase of the Morgan interests. In 1877 he leased the 102 ovens of the Valley Coke works south of Scottdale. On 9 March 1878, his business was again reconstructed, this time as H. C. Frick and Company, and leased the idle Anchor works west of Dunbar and the Mullen works near Mount Pleasant. Over the next four years, the partnership extended its control of lands and works and, as a result, by 1882 H. C. Frick and Company owned 3,000 acres of coal and 1,026 coke ovens. Meanwhile, on his own account, Frick had organized the Morewood Coke Company and built the 470-oven Morewood works, then the largest in the coke region.¹⁶ When the 1870s began there had been about 300 ovens in the Connellsville district; by 1876 there were 3,500; and in 1879 in excess of 4,000. In addition to making him a dominant force in coal and coke, Frick's experiences in the difficult and uncertain conditions of the 1870s helped shape his attitudes to raising capital, to business methods generally, and above all to labor.

He had proved a shrewd operator, but as demand for coking coal was likely to increase, he usually had to pay a high price for what he bought. In the early 1870s, Wilson, Ewing, Boyle of Uniontown had purchased a 440-acre coal tract, for most of which they paid \$2.50 an acre. It was underlain to the extent of three-quarters of the whole area by the Connellsville seam. In 1882 Frick bought it from them for \$180,000 (or \$409.09 an acre).¹⁷ At about the same time he was hoping to buy flat bottomland near the Valley works from the Sherrick interests. He gave Thomas Lynch, his manager, careful guidelines for the negotiations:

[You are] to call upon Mr. Sherrick on Monday and get the option on that land near Valley on the best terms you can. He may want to include his entire farm and if he does and insists upon it, and you cannot get the option on the other without that, take the option on the whole thing. His price heretofore has been \$300.00 per acre for the flat land. You can probably do better with him.¹⁸

He sold as well as bought. Occasionally this was for general development. Always he was businesslike. To Lynch he wrote, "I gave a letter of introduction to a gentleman from Cincinnati who will call on you on Monday, and who is desirous of locating a facing mill somewhere in the Connellsville region. I would like you to show him our land near Valley . . . and also our land near Summit. . . . Let me know what he thinks."¹⁹ He also sold coal lands that, once bought, had proved unnecessary. In 1885 he wrote to John G. Leishman (with whom he was a little later to be closely connected in

business), who at this time was acting on behalf of an undisclosed party for purchase of coal lands on the John K. Ewing farm. Frick wanted to appear reasonable:

[T]o a party such as you represent we would be willing to sell an undivided one-half interest in that farm, together with an interest in as much coal adjoining it as they might want, upon as fair terms as they could purchase from anyone in that locality. . . . If your party means business, we would be very glad to meet them personally and show them over the ground. Think we could suggest an arrangement which would be mutually beneficial. In regard to the property near Mount Pleasant, we would sell it at a very much less price per acre than we would this property, for the reason that the latter is nearer a good supply of water and the vein is somewhat thicker.²⁰

Early attempts were made to interest him in coal and coke possibilities in other districts. It is difficult to know how many of these inquiries he initiated, and how many other businessmen wrote to him unasked. He resisted attempts to involve him in western coals, but once he had to write replies to two men on the same day to convey his reactions to coal, limestone, and (in one case) iron ore specimens sent to him from Colorado, which suggests that in this instance at least he may have set the matter in train. To one Colorado correspondent he wrote, "I have made up my mind not to extend my interests further at the moment." The other one had also suggested that he take a financial share in a project, to which Frick replied, "I have so many interests that need my attention that I do not believe, even if I joined you in this, I could be of the service that you expect of me."²¹

However, by as early as 1881, he was showing much more interest in prospects for coke making from the coals of the Hawks Nest area of the Great Kanawha Valley in central West Virginia. He wanted to lease two oven plants there from W. N. Page, and he was keen enough to be willing to pay the price asked and to send his own men to see Page about the deal. He indicated that this serious approach was because he was thinking of investing there: "Before buying the Loupe Creek tract we should like to make some coke and ship it to some of our trade, in order to give it a thorough test."²² It is unknown whether the tests ever took place and what the results were, but later that decade, he consistently declined to become involved in coking coal and coke developments in the various mineral districts of West Virginia and Virginia.

At this time, like other Pennsylvanians, he ventured outside his own trade to speculate in oil. On 3 October 1881, he reported that he had looked out at the club for C. C. Beggs in the hope of consulting him about the oil situation. Not finding him there, he sold twenty thousand barrels of oil, but (as

he wrote to Beggs), "It looks to us a little as if oil was going to hang around at these figures for some time and we will keep the run of the market and get it back if possible before any material advance." Less than two years later, he sold five thousand barrels at 92 cents for W. J. Hitchorn of Mount Pleasant. It was not a profitable sale: "I regret that you have made a loss in this and hope that you may have better luck next time."²³

He made investments in non-ferrous metal mining in the west but quickly drew in his horns. During 1881 he acquired a two-fifths stake in the Anna Bella Lode and a half-interest in the Baker Lode, both in Colorado. This was followed by correspondence concerning prospects in western mineral investment with George D. Nickel who, after living in Pennsylvania until the second half of the 1870s, was now based in Del Norte, Colorado. Shortly afterward, prices for lead, copper, and zinc fell sharply, and Frick became unwilling to risk further involvement. He thanked Nickel for materials sent but went on, "I do not desire to increase my interest in mining property; would much prefer to sell out."²⁴

All these activities may perhaps have increased his accumulation of capital or they could have been a drain on his resources; in any case his main source of income remained coke. In the depression of the mid 1870s, the price had been as low as 90 cents a ton, at which level operations yielded no profit. At the end of the decade demand recovered. In 1875, the region shipped 666,000 tons of coke, representing utilization of about half the capacity of the ovens. For the following two years, output was 770,000 and 869,000 tons respectively, but in the first half of 1878, it was running at an annual rate of 1,076,000 tons. Prices advanced to \$2 and then further until eventually they reached \$5 a ton. At that price, sales yielded a profit of \$3 a ton.²⁵ A few years before, Frick had been hawking his wares from one ironworks or foundry to another; now the ironmasters of Pittsburgh came to his office in the coke region to request that their orders for coke be supplied. Before the end of 1879, as he passed his thirtieth birthday, Clay Frick was a millionaire.

In the early 1880s, although coke prices were not so high, consumption was increasing rapidly, and the tonnage of iron made in 1882 was twice as great as in 1878. Levels of income remained high. Thus in the fourteen months to the end of February 1883, the H. C. Frick Coke Company mined eighty-two acres of coal, and from it made and sold 596,000 tons of coke. It also bought 350,000 tons of coke from other producers, which it sold with its own product. Sales of coke, made and bought, resulted in a profit of \$378,000 (an average per ton amounting to 27.05 percent of the selling price).²⁶

As a producer, Frick was always concerned to lower costs. To do so, he improved methods, pared away at freight rates, but above all (in what was still a labor intensive industry) struggled to maintain “competitive” wage rates. Much of the coke region workforce consisted of recent immigrants, men who were used to the deprivations of European rural areas. The district was relatively isolated from bigger centers of population, even Pittsburgh being more than forty miles away. Lack of financial means on the part of the men, and language difficulties for many of them, meant that in real terms they were even more isolated than such distances might suggest. Given these circumstances, not surprisingly, the coke operators provided their workers with low wages and minimal living conditions. Strikes were dealt with firmly. Because of the distance of some of the mines and oven plants from preexisting rural settlements, the firms opened company stores. The H. C. Frick Company even printed their own scrip to be used in stores, hotels, and saloons in place of U.S. currency.²⁷ Whether by intention or mere effect, this practice helped produce still more “surplus value” from the laboring population.

Evidence was given in 1878 and 1879 to the Pennsylvania Secretary of Internal Affairs concerning the Frick Company stores. Although Lynch was to take delight in instances when their produce was cheaper than in other groceries or general stores, at this time, Frick Company stores were said to be selling flour at \$9.60 a barrel at a time when it was available elsewhere at \$8. The company might legitimately have claimed that it had a narrower clientele over which to spread its overheads, or that it had to bear extra costs for delivery, but—the Secretary was also informed—the men were given to understand that if the scrip was not spent in the company stores, they might eventually lose their jobs. In the fourteen months in which coke made profits of \$378,000, the Frick stores added another \$33,000, a sum that (as Frick’s own figures showed) was equal to 16.86 percent of the total sales income of those stores.²⁸

During these hard formative years in the coke industry, Frick was developing a view of labor that all too often resulted in its being treated as merely another input, which the capitalist must strive to obtain at the lowest possible price. Commercially this view was a logical position to take, but it could scarcely commend the manager who practiced it to his men. Labor disputes were inevitable. Frick was to pay a price for his success in these struggles in terms of his own character. As time was to show, below the icily efficient business exterior there was passion as well as concentration and intensity. Together such qualities formed a dangerous combination.

A new, more diverse stage of Frick’s life began in his early thirties. He

had known Thomas Mellon's son Andrew since 1876. They became firm friends, a friendship that was to be lifelong, although Mellon never used a more intimate form of address than "Mr. Frick," and the latter always referred to Andrew, four years his junior, and his brother Richard Beatty as "the Mellon boys." In spring 1880 Clay suggested that Andrew go with him on a holiday visit to Europe. They were joined in this four-month trip by the journalist Frank Cowan and a coke maker, A. A. Hutchinson (some of whose coal lands Frick managed to buy during the course of their journeys). They traveled around the British Isles, to Paris, and on to Venice.

Some months after he returned, Frick moved his home from the coke region to Pittsburgh, renting rooms in March 1881 at the Monongahela House, then reckoned one of the city's best residential hotels. In the "season," Frick and Mellon—both normally taciturn men—became largely involved in the functions of Pittsburgh's social round, and in the late spring of 1881, Clay met Adelaide Howard, the daughter of Asa P. Childs, a man whose wealth had come from the import and the manufacture of footwear. The Childs home, at Halket and Forbes Streets was then regarded as one of the show pieces of the city. Clay fell in love with Adelaide, and three months later they announced their engagement. They were married on Thursday, 15 December 1881, in what was described by a local paper as "one of the most notable weddings of the season."²⁹ Frick was fortunate in the family life that he and Adelaide now embarked upon. Adelaide understood the demands of business, and he could now turn to his working routine with renewed vigor and a widening sense of purpose. In fact it was during their honeymoon visit to the East Coast that Frick first met Andrew Carnegie and their business association began.

INDUSTRIAL CONNECTIONS

A distinctive feature of the headlong American economic growth that characterized the later decades of the nineteenth century was the frequent extension of productive capacity well beyond the needs of all but exceptional years. This was undoubtedly the case in coke manufacture. Apart from restraint in expansion, which might end up giving the market to the other man, there were two important ways of tackling the problem. One was to fix prices and allocate shares of the expected demand so as to keep all producers reasonably happy. The other was to secure outlets for one's own ovens through arrangements with major consumers. From the other side, that of demand, although a free market might give them advantages of low prices in times of slack business, buyers might at times of boom be caught out by high prices or even physical shortages of fuel. In such circumstances the

result could be disastrous: highly capitalized operations in iron smelting, steelmaking, and rolling mills being disrupted or even made idle by bottlenecks in fuel supply. In short, both large coke producers and major concerns in iron and steel could see advantages in associating with each other.

By the early 1880s, in a rising market, the Frick Coke Company was already the leading single firm in its trade. Both the firm and the district were carried along still more rapidly because the growth of the Pittsburgh iron trade was even more rapid than that of the nation generally (Allegheny County made 5.3 percent of America's pig iron in 1874 and almost 7 percent six years later.) Within Pittsburgh, the pacemaking concerns were owned by the Carnegie associates. Construction of their main steel plant—the Edgar Thomson works in Braddock—had begun only in 1873, and the works came into production two years later. This was a time of generally inauspicious market conditions, but steel rail production was still rising strongly. In 1875, national output of steel rails was over three times greater than in 1872; by 1879, output was 138 percent above the 1875 figure. Edgar Thomson increased its net profits from \$18,642 in 1875, to \$512,068 in 1879, to \$1,557,771 the following year. From 1879, Edgar Thomson was equipped with blast furnaces. The Carnegies also operated the Lucy furnaces in Pittsburgh. A considerable proportion of the increasing Frick shipments of coke were delivered to these two furnace plants, and it soon became logical that there should be a coming together of the leading interests in their respective trades. Before they reached that stage, however, the Carnegie associates had spent a great deal of time, effort, and expense looking for other sources of furnace fuel. Their failure in this endeavor was to bring Henry Clay Frick and Andrew Carnegie into close association.