

WHY AMERICA DELIBERATELY DESTROYED ITS MANUFACTURING INDUSTRY

The decisions, the names and the paper trail

JAMES METTLE

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Why America Deliberately Destroyed Its Manufacturing Industry

by James Mettle

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For the men and women who stood at the furnaces and the lines on both sides of the Atlantic, who poured and rolled and welded and assembled, who breathed the heat and the dust and the oil, and gave their working lives to industries that were decided in rooms they never entered.

And for everyone who still remembers a town that made things, and wants it known how that ended.

CONTENTS

A Note from the Channel.....6
Introduction.....8

PART ONE · THE DECISIONS **14**

1 The Doctrine.....15
2 The Buyback.....26
3 General Electric.....36

PART TWO · THE CASES **48**

4 Boeing.....49
5 The Ford Pinto.....62
6 General Motors.....73
7 NAFTA.....84
8 United States Steel.....95

PART THREE · BRITAIN DID IT FIRST **106**

9 The Gold Standard.....107
10 Managed Decline.....117
11 The Chairman.....126

PART FOUR · THE PATTERN **136**

12 The Money.....137
13 The Men.....148
14 The Map.....157

Conclusion.....169
Sources.....177

A NOTE FROM THE CHANNEL

Why this book

METTLE began as a channel of short films about British industry, told one firm and one town at a time, and the first METTLE book, How Britain Stopped Making Things, gathered those stories between two covers. Soon after it came out, a reader wrote to say how closely the detail had held their attention, and asked to hear more about the wider forces behind the stories: the currency, the treaties and the markets that had pushed industry the way it went.

This book takes up that question. It is a companion to the first book, and it follows the same story across the Atlantic, where it happened later and on a larger scale, with the wider forces set out beside the stories. One conviction carried over from the first book: an account of wide forces can grow so wide that nobody is left responsible for anything, and so almost every chapter here names a decision, the people who took it, the date they took it, and what they had been told it would cost.

That is what the title means by “deliberately”: decisions taken on purpose, whose consequences could be foreseen at the time and in most of these cases were, not a coordinated plan or a wish to empty a town. The Introduction sets out the test each chapter applies.

At the end of several chapters, under the heading From the men who were there, are the recollections of people who worked in these places and wrote to the channel about them. They are memory rather than history in the strict sense, paraphrased from what was written and printed without names, and they are set down with that understood. We are grateful to everyone who sent them.

INTRODUCTION

On Sunday 18 September 1977 the directors of the Youngstown Sheet and Tube Company met at the Pittsburgh airport. The next morning Gerald Dickey, a maintenance worker at the company's Brier Hill works in Youngstown, Ohio, and recording secretary of the steelworkers' Local 1462, was at work when someone came into the office shortly after ten o'clock with news from the radio. "They said on the radio they're closing the Campbell Works," Dickey remembered forty years later. The company told the union leaders that the closure would affect approximately 5,000 employees. At the Campbell Works men cleaned out their lockers, because they would not be coming back, and as they crossed the bridge out of the mill, Dickey recalled, a good many of them threw their bags into the river. The mayor of Youngstown, Jack Hunter, called it the worst possible news. In the Mahoning Valley the day has been called Black Monday ever since.

The mill had changed hands eight years before. In 1969 Youngstown Sheet and Tube had been bought by the Lykes Corporation, a conglomerate based in New Orleans, which paid for it by borrowing $150 million from the banks and issuing $191 million in bonds, and serviced that debt from the steel company's own cash flow. The modernisation that would have replaced the Campbell Works' older open-hearth

furnaces with the newer oxygen process went unfunded. The closure had other causes too, and they were real: the furnaces were old, the industry was losing ground to imported steel, and the dollar would later make that loss worse. The chapters that follow give each of those causes its hearing. The morning of 19 September belongs at the start of this book as an image of what came after, a works owned by people who had other uses for its money, closed before the ideas that would make such mornings routine had been put to work in the country's largest companies.

Dickey did not accept the closure. He was among the founders of the campaign, backed by the churches of the valley under the name of the Ecumenical Coalition of the Mahoning Valley, to buy the works and run it under the ownership of its workers and the community. The campaign failed for want of finance and of the federal loan guarantees it needed. Two years later, in November 1979, the board of United States Steel announced that it would close its own two works in the same valley, and the steelworkers took that company to court, which is the story of Chapter 8. Youngstown had 168,330 people at the census of 1950. At the census of 2020 it had 60,068.

What happened in the Mahoning Valley happened, over the next three decades, across much of the country. Manufacturing employment in the United States reached its peak in June 1979, at 19,553,000 jobs, when about 22 per

cent of all the jobs outside farming were in factories. By August 2026 manufacturing held about 8 per cent of them. The United States last sold more goods abroad than it bought in 1975, and it has run a deficit on its trade in goods in every year since. In 1982 two economists, Barry Bluestone and Bennett Harrison, gave the process a name in a book called The Deindustrialization of America, subtitled Plant Closings, Community Abandonment and the Dismantling of Basic Industry. The subtitle spoke of abandonment, an act with someone behind it, but the word that passed into common use was the first one.

The usual explanations treat the loss as something that happened to the country, through better rivals abroad, dearer labour at home and machines that needed fewer hands. Chapter 1 sets them out, and each of them has evidence behind it. Economists also take a longer view. In 2013 Robert Lawrence and Lawrence Edwards, writing for the Peterson Institute for International Economics in Washington, set the American figures beside those of the other rich countries and found the same long fall in manufacturing's share of employment across the rich world, which they attributed, in substance, to rapid productivity growth set against demand that responded little to rising incomes and falling prices. America would have lost share whatever its companies and its governments decided.

What the long view cannot explain is how many jobs went, how fast they went and where, and those are the questions this book follows. The answers were shaped by decisions that can be named and dated. The sharpest break in the American series came after a vote in Congress, in 2000, when the House and the Senate made China's normal trading terms with the United States permanent, the decision that closes Chapter 14. The losses that looked small in the national averages fell with great weight on particular industries and particular towns, and that was knowable before the decisions were taken. Britain had made choices of the same kind first, and their results were on the record for anyone who cared to read them.

That is what the word "deliberately" in the title means: decisions taken on purpose, by people with the standing to take them, who had been told what they would cost. No one in these pages set out to see a town die, and the book describes no conspiracy. Each chapter follows one decision back to the room where it was taken. It names the decision, the person or the board that took it, and the date, and then sets out what was known beforehand, in a warning, a test result or a published argument, or what the person responsible admitted afterwards.

The people who took these decisions belonged to both parties in both countries, and many of them belonged to none. The North American Free Trade Agreement was

negotiated by a Republican President, passed the House of Representatives with more Republican votes than Democratic ones, and was signed into law by a Democratic President over the objections of most of his own party. In Britain the decisions that mattered ran through Conservative and Labour governments alike. The figures who carry the most weight in these pages are executives, regulators, bankers and advisers, the people who applied a doctrine, and no living politician is cast as a villain.

The book is in four parts. Part One, The Decisions, follows the doctrine that a company exists for its shareholders from a Sunday magazine in 1970 to a rule at the Securities and Exchange Commission in 1982, and then to General Electric under Jack Welch, where the doctrine and the rule were put to work together. Part Two, The Cases, follows what happened when that model travelled or was reached by other roads: at Boeing, run by men trained at GE; in the Ford Pinto, built to a price and a date; at General Motors under Roger Smith; in the North American Free Trade Agreement; and at United States Steel, which spent its money on oil. Part Three, Britain Did It First, goes back across the Atlantic to the return to gold in 1925, a Chancellor's letters about managed decline in 1981, and the chairman sent from an American bank to run British Steel and then the coal industry. Part Four, The Pattern, sets out what connects the cases: the money that rewarded the decisions, the men

trained to take them, and the map of currency and trade on which both countries placed their bets.

The stories begin, as the first METTLE book's did, in real places with people on real shifts. In most of these cases someone with the standing to decide was told, in writing or in public, what the decision would cost the people who made things, and decided anyway. The decline of American manufacturing had authors, and the chapters that follow name them.

PART ONE – THE DECISIONS

The works at Youngstown closed under an owner with other uses for its money, while the heads of America's largest companies still said in public that a company answered to its workers, customers and towns as well as to its owners. These three chapters follow how that changed. In 1970 an economist gave the case for the shareholders a name and a Sunday readership, and in 1981 a President dismissed eleven thousand striking air traffic controllers and the planes kept flying. In 1982 a regulator cleared the way for companies to buy back their own shares. Then General Electric showed what the three produced together.

1. THE DOCTRINE

The balance of obligations

In 1943, a year before Johnson & Johnson sold its shares to the public, the man who ran it, Robert Wood Johnson, wrote down what he thought the company owed and to whom. He called it a credo, and he put the people who used the company's products first: the doctors, the nurses, the hospitals and the mothers. The company's employees came second and its management third, then the communities in which it worked, and the stockholders came fifth and last. "Business must make a sound profit," the credo said, and only when reserves, research and mistakes had been paid for "the stockholder should receive a fair return." Johnson was about to hand part of his company to outside owners, and the order of his list told them, before they bought, where they stood in the queue.

Ten years later the president of the largest manufacturing company in the world put the post-war view in a single sentence, though not quite the one he is remembered for. In January 1953 Charles E. Wilson of General Motors came before the Senate Armed Services Committee to be confirmed as Eisenhower's Secretary of Defense, and the senators asked whether he could ever make a decision that went against his old company's interests. He said that he could, but that he could not conceive of one, "because for

years I thought what was good for our country was good for General Motors, and vice versa." The line was soon shortened into a boast about General Motors, which is not what he said. What he had described was a company whose interests and its country's were assumed to run together, with its workers, its dealers and its towns inside the same circle as its owners.

Johnson's credo was one company's document, and unusually plain, and Wilson's answer was a remark made to senators under questioning. Both assumed something that the leaders of large companies went on saying in public for decades: that a company answered to several groups of people at once, those who worked in it, those who bought from it, the towns that housed its plants and those who owned its shares, and that its managers kept a balance between them. That view lasted longer than is often remembered. As late as October 1981 the Business Roundtable, the association of the chief executives of America's largest companies, issued a Statement on Corporate Responsibility that still named customers, employees, communities, suppliers and shareholders as the constituencies a company served. It was the view large companies still professed in 1981, whatever some of them had begun to practise.

The usual account of what happened to American factories after that is short and has three parts. The Japanese and the

Germans, their plants rebuilt after the war, learned to make cars, steel and televisions better and more cheaply. The unions pushed wages and work rules past what the firms could carry. The machines did more of the work every year and needed fewer people to do it. All three have evidence behind them, and the book returns to each. The account passes over the fact that the purpose of the American company was argued over in public, in plain words, and that one side of the argument won. The argument was held at a shareholders' meeting in Detroit and in a Sunday magazine in New York in the same year, and the side that won it is on the record.

The essay

On Friday 22 May 1970 the shareholders of General Motors met in Detroit for the longest annual meeting in the company's history. It ran for six hours and twenty-seven minutes. A group called the Project on Corporate Responsibility, with the backing of the consumer campaigner Ralph Nader, had won the right to put two resolutions on the proxy: one to add three directors who would represent the public, the other to set up a committee to examine what the company did about safety, pollution and public transport. The campaign called itself Campaign GM. It asked the owners of General Motors to vote for a wider idea of what their company was for, and they declined. The two

resolutions won less than three per cent of the 285 million shares.

Four months later the argument went into print from the other side. On Sunday 13 September 1970 the New York Times Magazine carried an essay by Milton Friedman, an economist at the University of Chicago, under a headline that gave the idea a name: “A Friedman doctrine”. Its subtitle stated it in full, “The Social Responsibility of Business Is to Increase Its Profits”. Friedman opened with a joke about a Frenchman who discovered at the age of seventy that he had been speaking prose all his life, and aimed it at businessmen who talked about their social responsibilities. They were, he wrote, “unwitting puppets of the intellectual forces that have been undermining the basis of a free society these past decades.” He had the Detroit meeting in view and named it, as “the recent G.M. crusade”.

The argument itself was short. A corporate executive was an employee of the people who owned the business. “He has direct responsibility to his employers,” Friedman wrote, and that responsibility was “to conduct the business in accordance with their desires, which generally will be to make as much money as possible while conforming to the basic rules of the society, both those embodied in law and those embodied in ethical custom.” An executive who spent the company’s money on a social goal of his own choosing was spending someone else’s money: the shareholders’ if it

cut their returns, the customers' if it raised prices, the workers' if it held down wages. That, Friedman argued, was in effect a tax, imposed and spent by a man whom nobody had elected to do either.

He closed by repeating a sentence from his book Capitalism and Freedom, published in 1962: "There is one and only one social responsibility of business – to use its resources and engage in activities designed to increase its profits so long as it stays within the rules of the game, which is to say, engages in open and free competition without deception or fraud." The limits in that sentence are real, and Friedman meant them. He was not arguing for fraud or for law-breaking. He was arguing that the duties Johnson had listed above the stockholders in 1943 were not the company's business at all, and he said so in the Sunday magazine of the country's best-known newspaper.

Brian Cheffins, a professor of corporate law at the University of Cambridge, has asked how much the essay did on its own. In a paper of 2020 called "Stop Blaming Milton Friedman!" he argued that the essay has been given too much credit. On his account the companies of the 1970s went on much as before, and what put shareholders first in practice was the wave of hostile takeovers in the mid-1980s and, in the 1990s, the move to paying executives in shares and options, which tied their own fortunes to the share price. The essay did not change a single balance sheet. It gave the executives, lawyers

and bankers who did the changing a respectable account of why they were right to do it, written by a man who would win the Nobel prize for economics six years later.

Eleven thousand controllers

At about seven on the morning of Monday 3 August 1981, nearly thirteen thousand of the seventeen and a half thousand members of the Professional Air Traffic Controllers Organization walked off the job. The union was led by Robert Poli, and it wanted a large rise in pay, a four-day week of thirty-two hours and full retirement after twenty years, for work that was skilled, tiring and hard to replace. The strike was illegal: federal employees were forbidden by law to strike, and the controllers' terms of employment said so. The union had also backed Ronald Reagan in the 1980 election, and Reagan, who had once been president of the Screen Actors Guild, had written to Poli during the campaign promising to work with the controllers.

That morning Reagan came out into the Rose Garden. He read a statement saying that the strikers were in violation of the law, "and if they do not report for work within 48 hours, they have forfeited their jobs and will be terminated." The Transportation Secretary, Drew Lewis, and the head of the Federal Aviation Administration, Lynn Helms, had a contingency plan ready. About three thousand supervisors, two thousand controllers who had not struck and nine hundred military controllers kept the system running, and

the airlines cut their peak-hour flights at the major airports by half. Most of the strikers stayed out. On Wednesday 5 August the dismissal notices began to go out, and in the end 11,345 controllers were fired and barred from federal employment. In December Reagan let them apply for other government jobs, but never again at the Federal Aviation Administration, and that bar was not lifted until August 1993, by President Clinton.

The country kept flying. That was the part the rest of the country's employers could see. A skilled workforce that ran a system nobody could do without had been dismissed almost wholesale, the planes had kept moving, and the government that did it paid no price at the polls. On Saturday 19 September 1981 the AFL-CIO brought its members to Washington for what it called Solidarity Day, and its president, Lane Kirkland, spoke to a crowd the federation put at 400,000. Nothing that followed it put the controllers back at their desks.

The country had been given a warning of a different kind a year before the strike. In the July–August 1980 issue of the Harvard Business Review, two professors at the Harvard Business School, Robert Hayes and William Abernathy, had published "Managing Our Way to Economic Decline". It began: "During the past several years American business has experienced a marked deterioration of competitive vigor and a growing unease about its overall economic well-being."

They laid much of the blame on the men at the top of American companies, who had learned to judge a business by short-term financial measures and had let its technology fall behind. Their subject was the managers, and within a year of the article those managers had been shown how freely they could treat a workforce.

Permission

What the firing meant to employers was put most plainly by a man who was in a position to know. On Wednesday 9 April 2003 Alan Greenspan, the chairman of the Federal Reserve, spoke at the Ronald Reagan Presidential Library in Simi Valley, California. Looking back on the dismissals of 1981, he said that Reagan's action "gave weight to the legal right of private employers, previously not fully exercised, to use their own discretion to both hire and discharge workers." Greenspan meant it as praise. Joseph McCartin, the Georgetown historian whose book Collision Course is the standard account of the strike, drew the same line from the other side. Writing in the New York Times on the thirtieth anniversary, he said that "Reagan's unprecedented dismissal of skilled strikers encouraged private employers to do likewise."

The law had allowed it for a long time. In 1938, in NLRB v. Mackay Radio & Telegraph Co., the Supreme Court had held that an employer could hire replacements to keep working through a strike over pay and conditions, and need not

dismiss them to make room for the strikers when the strike ended. That was, in effect, the right Greenspan described as "previously not fully exercised", and after 1981 employers exercised it. In July 1983 the copper miners at Phelps Dodge in Arizona struck, and within months the company's strikers began receiving letters telling them they were to be permanently replaced. That August the state's Democratic governor, Bruce Babbitt, sent hundreds of National Guardsmen and state police to Morenci, saying he had a duty to prevent violence when the mine reopened, and under that protection the company went back to hiring replacements.

In 1984, more than a year into the strike, the workforce then in the mines, most of it hired as replacements, voted to decertify the unions. Jonathan Rosenblum, in Copper Crucible, his history of the strike, describes it as a test case for employers who wanted to break unions by hiring replacements. At Austin, Minnesota, the meatpackers at Hormel struck in August 1985, and in January 1986, a week after the plant reopened with replacement workers, another Democratic governor, Rudy Perpich, sent in the Guard to keep order. McCartin names both companies among the employers who went on "to provoke strikes and then hire replacement workers to force unions into big concessions."

The strike figures show the change, though they cannot show how much of it PATCO caused. The Bureau of Labor Statistics counts every stoppage involving a thousand

workers or more. There were 235 in 1979 and 187 in 1980, so the number was already falling before the controllers walked out, and by 1988 it was 40. Paul Grimes, an economist at Mississippi State University, went back over the record in 1995 to separate the effect of the strike from a decline that was under way before it. The fairest reading is that PATCO was a signal and an accelerant, sent at a moment when the unions were already weaker than they had been. No document of 1981 or 1982 has been found that predicted, in so many words, what the firing would do to American industry. The clearest statements of what it meant came afterwards, from Greenspan and from McCartin.

The vocabulary moved with the practice. In 1948 the people who ran the personnel departments of American companies had founded the American Society for Personnel Administration in a hotel in Cleveland. On 1 September 1989, after a board vote of eight to one, it became the Society for Human Resource Management. The staff of a company were now one of its resources, to be managed with the others, and the society's new name described the change more exactly than any essay.

By then the man who would apply the doctrine most famously had been at work for eight years. In December 1980 General Electric had named Jack Welch, forty-five years old and a chemical engineer by training, as its next chairman, and he took office on 1 April 1981, four months

before the controllers walked out. By August 1981 an American chief executive had a published doctrine telling him what a company was for, set out by one of the best-known economists in the country, and a demonstration by the federal government that a skilled union could be dismissed wholesale without the country stopping. In November of the following year the Securities and Exchange Commission adopted Rule 10b-18, which gave a company buying back its own shares a safe harbour from charges of manipulating their price.

2. THE BUYBACK

Release 34-19244

On 6 May 1981, in a ceremony at the White House, Vice President George Bush swore in John Shad as chairman of the Securities and Exchange Commission. Shad came to the job from Wall Street. He had been vice-chairman of the E.F. Hutton Group, and the Commission's own historical society counts him as only the second chairman in its history appointed directly from the securities industry. He arrived at an agency that had spent eleven years failing to settle one question: what a company should be allowed to do when it bought its own shares on the open market.

The question mattered because a company buying its own stock can move the price of that stock, and moving a price by trading in it is what the securities laws call manipulation. The Commission had tried to write a rule three times. It proposed one, numbered 13e-2, in July 1970, proposed it again in December 1973 and a third time in October 1980. Each version told companies how they must buy and what they must disclose when they did, and none of them was adopted. In November 1982, under Shad, the Commission took a different road. It withdrew the prescriptive rule and adopted in its place Rule 10b-18, set out in Release 34-19244, dated 17 November 1982 and published in the Federal Register nine days later.

The new rule required nothing and offered a safe harbour instead. A company that bought its own shares through one broker a day, kept away from the opening trade and the end of the trading day, paid no more than the highest independent bid, and bought no more in a day than a quarter of the stock's average daily volume would, in the Commission's words, "not incur liability under the anti-manipulative provisions". A company that stayed inside those lines could buy back as much of itself as it could pay for, year after year, without the risk of being charged with rigging its own price. No dissent or warning about what the rule might do to investment has been found in the Commission's own record of that November or in the press reports of the rule.

The furnace and the buyback

Robert Jackson was sworn in as one of the five commissioners of the Securities and Exchange Commission in January 2018, thirty-six years after the rule was written. He had come from a law professorship at New York University, and before that he had worked in the Treasury's office of the Special Master for TARP Executive Compensation, which after the crash of 2008 reviewed the pay of executives at the companies that had taken the most help from the government, so he knew how pay shaped what executives did. On Monday 11 June 2018 he gave a speech at

the Center for American Progress in Washington under the title “Stock Buybacks and Corporate Cashouts”.

Behind the speech lay the choice the rule had changed for a board with cash to spare. Money spent on a new furnace, a new line or a new product is a bet that may pay in five or ten years, and may not pay at all. Money spent buying back shares reduces the number of shares, so each remaining share carries a larger slice of the same profit, and the earnings per share rise at once. When a chief executive’s pay is tied to that measure and to the share price, and much of his wealth is held in the company’s stock, the two uses of the money reach him on very unequal terms. The return on the furnace, if it comes at all, is likely to arrive under the next management, while the return on the buyback arrives under this one.

His staff had gone through 385 buyback announcements made over fifteen months and looked at what the companies’ own executives did next. “In half of the buybacks we studied,” he said, “at least one executive sold shares in the month following the buyback announcement.” Before an announcement, the executives his staff followed sold, on average, under $100,000 of stock a day; in the eight days after it they sold more than $500,000 a day. Jackson asked for a modest change: the safe harbour, he said, should at a minimum be denied “to companies that choose to allow executives to cash out during a buyback”, and boards should

look hard at how a buyback would be used before approving one. What he described was the incentive the rule had created, working as incentives do. A board that announced a buyback sent the price up, and the people who had made the decision were, in half the cases his staff examined, among the first to sell into the rise.

Where the profits went

William Lazonick, an economist at the University of Massachusetts Lowell, had spent much of his career asking where the profits of American industry went. In the September 2014 issue of the Harvard Business Review he published the answer he had found for the country's largest companies. He took the 449 companies in the Standard & Poor's 500 index that had been publicly traded throughout the ten years from 2003 to 2012, and followed their earnings. Over the decade they spent 54 per cent of those earnings, a total of $2.4 trillion, buying back their own stock, and another 37 per cent on dividends. That left less than a tenth of their earnings for anything else, new plant and research included. He called the article "Profits Without Prosperity", and it won the Review's McKinsey Award as the best article of the year. His judgement of buybacks was blunt: "Because they extract value rather than create it, their overuse undermines the economy's health."

The answer to Lazonick came from two professors at Harvard. Jesse Fried, of the Law School, and Charles Wang,

of the Business School, pointed out that companies also raise money by issuing new shares, and that much of the cash paid out by some firms is raised again by others. Counting the shares issued as well as those bought back, they put the net amount paid to shareholders by the companies of the S&P 500 in the decade to 2016 at 41 per cent of net income, and argued in the Review of Corporate Finance Studies in 2019 that buybacks were not starving the economy of investment. The money, on their account, went back into the market and on to other firms.

That argument is about the whole economy, and it may be right about the whole economy. It is silent on where the recycled money goes. A dollar returned to shareholders by a battery company can be invested again in a software firm in California or a factory in Singapore. Two plants in small Wisconsin towns show what the return of cash looked like from the other end, at a company that was paying its owners and moving its work in the same years.

Two plants in Wisconsin

In 1906, by the company's own history, a man named Alfred Landau was making six-inch battery cells in an attic in Chicago. Later that year the business moved to Madison, Wisconsin, and was incorporated as the French Battery Company. It took the name of its best-known brand, Ray-O-Vac, in the 1930s, and it built its plants close to home. In 1963 it opened a plant in Portage, north of Madison, in what

had been a dairy, to make batteries for hearing aids, and in 1970 it opened another in Fennimore, in the south-west of the state, for alkaline batteries. By the company's own account the Fennimore plant came to turn out about a billion batteries a year and to employ nearly three hundred people, in a town that counted 2,764 residents at the census of 2020.

On Tuesday 16 January 2018 Energizer Holdings, based in St. Louis, announced that it would buy the battery and portable lighting business of Spectrum Brands, which owned Rayovac and Varta, for $2.0 billion. Its chief executive, Alan Hoskins, called the deal "a compelling strategic, operational, and financial fit for Energizer." It was completed on 2 January 2019, and the two Wisconsin plants became Energizer's. In June 2021 Energizer announced price rises across more than 85 per cent of its North American business. In August of the same year it bought back $75 million of its own shares in an accelerated repurchase arranged with JPMorgan Chase, and its new chief executive, Mark LaVigne, called the transaction "an important component of our capital allocation strategy." In its financial year 2022 the company reported gross profit of $1,119.5 million and paid its shareholders $92.9 million in dividends. It was a profitable company paying its owners, doing, as far as the reports show, what a company of its size was expected to do.

The notices

In the first months of 2023 Ron Brisbois, who ran the Grant County Economic Development Corporation, had a closure to deal with. The Telegraph Herald of Dubuque described the Fennimore plant as one of the town's largest employers, and in January Energizer had confirmed that it would close it, along with Portage. A company spokesperson told the paper that Energizer had met the Teamsters "regarding our intent to conduct a phased closing of our Portage and Fennimore facilities in Wisconsin", over the following twelve to twenty-four months. Brisbois told the paper that his first concern was "making sure that the displaced workers are aware of the opportunities that are available to them".

In March the workers were told where their work was going: to Singapore, and to a non-union plant at Asheboro, North Carolina. Their union negotiated severance of a week's pay for every year worked, with a floor of $5,000, two months of health cover and help in finding new jobs. Rocco Calo, a vice-president of the Teamsters, announced the deal on 31 March. "While I'm glad that Energizer agreed to what we were asking for," he said, "our intent is to never use this agreement." The union put the number of jobs at risk across the two plants at about 600.

Washington had by then begun to look at buybacks again, forty years after the safe harbour was built. The Inflation Reduction Act, which President Biden signed in August

2022, put an excise tax of 1 per cent on companies' repurchases of their own stock from the start of 2023. On 3 May 2023 the Commission adopted a rule requiring companies to report their repurchases day by day, once a quarter. The Chamber of Commerce challenged it, and on 19 December 2023 the Court of Appeals for the Fifth Circuit struck it down, finding that the Commission had failed to set out its costs and benefits properly. The safe harbour of 1982 was part of neither change. A company could still buy back as much of itself as it could pay for, paying a small tax on the way.

The formal notices followed. On Monday 2 October 2023 Energizer filed a notice with the state of Wisconsin under the federal WARN Act, which requires an employer to give warning of a mass layoff, stating that 172 jobs would go at Fennimore, the first from 1 December. The plant was to close entirely by September 2024. On 5 January 2024 it filed a second notice for Portage, covering 135 jobs from 5 March. Together the notices named 307 people, and the equipment went to Asheboro. On 22 May 2023 the office of North Carolina's governor had announced that Energizer would invest $43 million in its operations there and add 144 jobs. Energizer's public comment on the closures, as the trade press reported it, was brief: "As we've said from day one, we will continue to focus on our colleagues – the people closest to this issue and who matter most."

The company was investing, then, and investing in America. It was investing in North Carolina, in a plant where the workforce was not represented by a union, while closing two Wisconsin plants that had run for more than half a century, and its accounts showed a profit. In the financial year that ended in September 2023 Energizer reported net earnings of $140.5 million and paid $86.3 million in dividends. In the year to September 2024, while the Fennimore plant ran down to its closure, it earned $38.1 million and paid out $87.4 million, more than twice what it earned. Its earnings that year had been reduced by one-off charges, the largest of them an impairment of intangible assets and the costs of a company-wide restructuring. No evidence has been published on whether either plant was losing money, and the company made no such claim in public. It paid its owners in dividends, and bought back no material amount of its own stock in either year.

In November 1982 the Commission, under a chairman from Wall Street, made returning cash to shareholders the legally safest thing a company could do with a profit, and no one on the record warned what that would mean for the plants the profit came from. Thirty-six years later one of its own commissioners told the public how the rule was being used. Five years after that, a company that had bought back its shares in 2021 and paid its owners every year since closed two Wisconsin plants that had made batteries since 1963 and

1970, and paid out more in dividends in the year the second one wound down than it earned.

3. GENERAL ELECTRIC

Schenectady

On Saturday 15 December 1900 the General Electric Company opened a research laboratory in Schenectady, New York, in a carriage barn behind 233 Liberty Street. The house was the home of Charles Proteus Steinmetz, who had been using the barn as his own laboratory and had been arguing since 1897 that the company needed one of its own. Edwin W. Rice Jr., the vice-president in charge of manufacturing and engineering, backed him, and the first director was a chemist brought from the Massachusetts Institute of Technology, Willis R. Whitney. The barn burned down in February 1901 and the laboratory moved on. The idea it had housed stayed with the company: a manufacturer paying scientists to do basic research, in the expectation that it would give the works new things to make.

The company was eight years old. It had been formed on 15 April 1892, when Edison General Electric merged with its rival, the Thomson-Houston Electric Company, and the laboratory soon earned its keep. William Coolidge developed a ductile tungsten filament for the electric lamp and patented it in 1913. Irving Langmuir filled the bulb with gas so that it no longer blackened, and built a vacuum tube that took the company into radio; he later won the Nobel prize for chemistry. Over the decades that followed, the same

company built locomotives, jet engines, the turbines of power stations, lamps and the appliances in American kitchens.

The man who took charge of all this on 1 April 1981, the chemical engineer whose appointment had been announced in December 1980, had spent his whole working life inside it. Jack Welch had joined General Electric in 1960, straight from his doctorate at the University of Illinois, as an engineer in the plastics division at Pittsfield, Massachusetts. He became the eighth chairman and chief executive in the company's history. The company he inherited was worth about $14 billion on the stock market, and its share price, as GE's own account of his career puts it, had struggled.

The Pierre

Some time in 1981, a few months into the job, Welch went to the Pierre hotel in New York to speak to the analysts who followed the company's shares for Wall Street. The speech was called "Growing Fast in a Slow-Growth Economy". Welch described a company that would sell the businesses that were not performing and cut costs hard enough to deliver steady rises in profit, rises that would outrun the growth of the economy around it. General Electric, he told the analysts, according to reports of the speech, "will be the locomotive pulling the GNP, not the caboose following it."

The standard he set was easy to state. Fortune later summed it up in one sentence: “every GE business must be No. 1 or No. 2 in its industry.” The Drucker Institute traces the rule to a question Peter Drucker put to Welch when he became chief executive: “If you weren’t already in this business, would you enter it today? And if the answer is no, what are you going to do about it?” A business that could not give a good answer was to be fixed, sold or closed.

Welch’s own case for what followed rested on the speech’s title. Economic growth was stuttering in 1981, in the phrase GE itself uses for the period, and the new chairman had a share price to lift. Welch named the enemy, in words GE still quotes, as bureaucracy: “Fight the bureaucracy. Hate it. Kick it. Break it.” The returns he went on to produce were real. What the case leaves out is the question of where the growth was to come from once a slow-growth economy had been accepted as a given, and who would pay for it.

The weight put on the speech came later. By 2009 the Financial Times could write that “the birth of the shareholder value movement is commonly traced” to it, and later writers, David Gelles in The Man Who Broke Capitalism among them, have treated it the same way. Both were looking back. What can be said of 1981 itself is that the new chairman told Wall Street, in public and in its own language, that his company would be run for a rising line of profit, and

that the businesses that could not keep up with that line would be fixed, sold or closed.

Fix, sell or close

In December 1983 General Electric agreed to sell its small-appliance business to Black & Decker of Towson, Maryland, for about $300 million in cash and notes. It was the business that made GE's toasters, Toast-R-Ovens, coffeemakers, food processors, juicers, electric can openers, irons and hair dryers, and its sales that year were estimated at more than $470 million. The list reads like an inventory of an American household, and GE sold it whole. The appliances were one sale among several, and the payroll fell with each of them. Welch later gave his own figures. At the end of 1980 General Electric employed 411,000 people; at the end of 1985 it employed 299,000. Of the 112,000 who had gone, by his account, 37,000 had left with businesses the company sold, which puts roughly two-thirds of the fall in the businesses GE kept and went on running.

The press found a name for the method early. Newsweek called him Neutron Jack in 1982, after the neutron bomb, the weapon designed to kill the people in a building and leave the building standing. Welch never liked it. "Hate it," he said in 2005. GE's own obituary of him places the name's origin in the rule itself: speaking in 1986 of the choice he had to "fix, close or sell" a business, Welch said that "it began some of the genesis of 'Neutron Jack'." The rule worked in

both directions, and the largest purchase of those years shows how.

On Wednesday 11 December 1985 General Electric agreed to buy RCA for $6.28 billion, in what United Press International called the largest non-oil merger in American corporate history. RCA owned the NBC network, and it also made colour and black-and-white television sets, video recorders and cameras. In a joint statement Welch, RCA's chairman, Thornton Bradshaw, and its president, Robert Frederick, called the deal "an excellent strategic opportunity for both companies that will help America's competitiveness in world markets", and promised a company that would "compete with anyone, anywhere in every market we serve." On Thursday 23 July 1987, nineteen months later, the French state-owned electronics group Thomson announced that it was taking over GE's consumer electronics business, most of it RCA's old television and video operation, run from Indianapolis, with 10,000 of its 31,000 workers in the United States. In exchange GE took Thomson's medical-equipment business and cash. The American television factories that came with RCA now belonged to a French company, and GE kept the network.

The rule judged a business by its rank in its market and by what it could earn there, and a business in third place was on the list whether or not it was sound. The people in it had no say in where their business ranked, and a plant that made

money could still fall on the wrong side of the line. That is the sense in which the doctrine of the Pierre was a decision about people as well as about portfolios: the rule was set at the top, in advance, and the consequences for the workforce followed from it as surely as the figures Welch later published.

The bottom ten per cent

On Monday 22 November 1999 Fortune went out with Welch on its cover as the "Manager of the Century". The magazine had already named Henry Ford its businessman of the century. The article, by Geoff Colvin, was called "The Ultimate Manager", and it set out the record behind the title. Under Welch, Colvin wrote, General Electric had become the second-most-valuable company on earth, behind only Microsoft.

The part of the method that Fortune spelled out most plainly was the annual ranking of people. Every GE employee, Colvin explained, was graded each year on a five-level scale, and the company was "continually making sure the lowest level, the bottom 10%, move up or get moved out." Welch called the distribution the vitality curve. The magazine raised the obvious objection in a single word, "Cruel?", and the practice continued. The ranking had a property that ordinary reviews do not have. A department that removed its weakest tenth one year still had a bottom tenth the next, drawn from people who had been in the middle, whatever their quality,

and the curve required the manager to find them. Across a company of GE's size, the rule turned the annual review into a standing instruction to reduce.

A year before the cover, a reporter had already set down what the method cost. Thomas F. O'Boyle had spent eleven years at the Wall Street Journal and was an assistant managing editor of the Pittsburgh Post-Gazette when Alfred A. Knopf published his book At Any Cost: Jack Welch, General Electric, and the Pursuit of Profit in November 1998, while Welch was still running the company. O'Boyle described round after round of cuts, division managers pressed to meet their quarterly targets or lose their jobs, and the scandals that had surfaced along the way: a price-fixing charge over industrial diamonds, of which GE was acquitted in 1994, fraud on defence contracts, breaches of nuclear safety rules and the false profits at Kidder Peabody, together with, by his account, the treatment of the employees who had raised them. It put the costs on the record, under a major publisher's imprint, while the man it described was still in office.

Fortune's cover came out less than two years before Welch retired, and it set the image of him that lasted to the end of his tenure: a manager whose results were taken to justify his methods. When Welch handed over to Jeff Immelt on Friday 7 September 2001, four days before the attacks on New York

and Washington, he left a manufacturer that earned a large share of its profit from a business that made nothing at all.

GE Capital

On Wednesday 20 March 2002 Bill Gross, who managed the Total Return fund at Pacific Investment Management Company, the biggest bond-market investor in the world, posted a note on the firm's website criticising how General Electric financed its growth and how much it told investors about it. GE, he wrote, "grows earnings not so much by the brilliance of management or the diversity of their operations" as "through the acquisition of companies". His sharpest point was about how the growth was financed. "GE Capital has been allowed to accumulate $50 billion of unbacked" commercial paper, he wrote, meaning short-term borrowing without standing lines of credit from banks behind it, "because of the lack of market discipline." PIMCO would not buy GE's commercial paper "for the foreseeable future". GE's shares fell about 3 per cent that day and 3.5 per cent the next, and the company promised to raise its backup lines from the banks and to lean less on the short-term market.

Gross was describing what General Electric had become in the Welch years. In its annual report for 1998 the company recorded net earnings of $9,296 million, and its finance arm, GE Capital Services, contributed $3,796 million of them. About two-fifths of the profit of one of America's great

manufacturers came from lending and leasing. The rising line promised at the Pierre had been delivered, and much of it was being delivered by a finance company that funded itself in the short-term markets on the strength of its parent's name. The finance businesses had embarrassed the company before. In April 1986 GE had bought the Wall Street firm Kidder Peabody for $602 million. On Sunday 17 April 1994 GE and Kidder announced that a bond trader, Joseph Jett, had booked false profits that concealed real losses, and GE took a charge of $350 million before tax against its first-quarter earnings. Kidder was sold to PaineWebber before the year was out, and the rest of the finance arm went on growing.

Six years later that funding was the problem Gross had described. On Monday 15 September 2008, the day Lehman Brothers filed for bankruptcy, Immelt told the Treasury Secretary, Henry Paulson, that GE was "finding it very difficult to sell its commercial paper for any term longer than overnight", by Paulson's account. On Wednesday 1 October General Electric announced that Warren Buffett's Berkshire Hathaway would buy $3 billion of preferred stock paying a dividend of 10 per cent, with warrants on top, and that GE would sell at least $12 billion of new shares to the public. "GE is the symbol of American business to the world," Buffett said. On 12 November the company confirmed that it had been admitted to the Temporary Liquidity Guarantee Program of the Federal Deposit Insurance Corporation, a

scheme built for banks, and that up to $139 billion of GE Capital's debt could carry a federal guarantee. The trouble lay in the finance company's funding, and it reached a parent whose turbine and jet-engine plants were still at work.

Off the Dow

On Thursday 12 March 2009 Standard & Poor's cut the long-term credit rating of General Electric and of General Electric Capital Corporation from AAA to AA+. Its analyst gave the reason in one sentence: the finance company was "under increasing earnings pressure, due to the recent sharp deterioration in general economic conditions around the globe." On the same day the Financial Times published an interview with Welch by Francesco Guerrera. Asked about the idea with which his name had been linked since the Pierre, Welch said: "On the face of it, shareholder value is the dumbest idea in the world." He went on: "Shareholder value is a result, not a strategy … your main constituencies are your employees, your customers and your products." The remark was an admission made after the fact. It came almost eight years after he had retired, in the week his old company lost its AAA rating, and it foresaw nothing. It also named, in Welch's own words, the constituencies that the rising line of profit had kept waiting for twenty years: the employees, the customers and the products.

The company did not recover its place. On Tuesday 19 June 2018 S&P Dow Jones Indices announced that General

Electric would leave the Dow Jones Industrial Average before the opening of trading on Tuesday 26 June, replaced by Walgreens Boots Alliance. David Blitzer, who chaired the index committee, noted that GE "was an original member of the DJIA in 1896 and a member continuously since 1907", and gave the committee's reason: "Consumer, finance, health care and technology companies are more prominent today and the relative importance of industrial companies is less." That October the board replaced its chief executive with Larry Culp, the first person from outside the company to run it. On Tuesday 9 November 2021 Culp announced that General Electric would divide itself into three. GE HealthCare was spun off on 4 January 2023 and GE Vernova, the power and energy business, on 2 April 2024, and what remained took the name GE Aerospace.

The company whose market value Welch had taken from $14 billion to more than $410 billion was removed from the index it had joined as an original member, and then split into three. GE Capital, the part that had generated the praised returns, was the part that ran into trouble first, six years after a public warning. By then the men Welch had trained were running other American manufacturers. In November 2000, when the board chose Immelt to succeed him, the two other finalists left within weeks: Robert Nardelli to run Home Depot, and James McNerney, who had run GE Aircraft Engines, to become chief executive of 3M, where he introduced GE's Six Sigma programme and its system of

grading employees. Harry Stonecipher, who had joined GE in 1960 and run its aircraft-engine business, had already left to run Sundstrand and then McDonnell Douglas. Both he and McNerney would in time run Boeing.

From the men who were there

An engineer who spent about ten years, from the late 1980s into the early 1990s, consulting for GE Plastics and GE Silicones helped both divisions plan expansions in the Netherlands and Spain, then watched in amazement as the plans were cancelled and both divisions sold. Sending production to Asia was the fashionable move, and the engineer followed the work.

A reader who spent twenty years at GE, in three spells from the early 1980s, went to Crotonville several times and remembers a hard, stressful and fiercely competitive culture that let go people it judged unproductive, and has no regrets.

PART TWO – THE CASES

By the time Jack Welch retired from General Electric in 2001, men he had trained were running other American manufacturers. The five chapters of this part follow the same logic into the works, sometimes carried there by GE's own men and sometimes reached by another road, once before Welch was chairman at all. They take in an aircraft maker run by executives from GE, a small car built to a weight, a price and a date, the other Detroit giant under a chairman from its finance staff, a trade agreement passed over a warning given on national television, and a steel company that bought an oil company.

4. BOEING

An engineers' company

In the summer of 1955 the Boeing Airplane Company gathered a party of airline representatives at Lake Washington in Seattle for the Seafair Gold Cup hydroplane races, and flew its new prototype jet transport past them. The aircraft was the 367-80, the Dash 80, and Boeing had built it with $16 million of its own capital, with no order in hand, on the gamble that the airlines and the Air Force would buy once it had flown and proved itself. Over the lake, in full view of thousands of spectators, the test pilot Alvin "Tex" Johnston rolled it through a complete barrel roll. The company's president, William Allen, was escorting the potential customers that day, and he was angry. Long afterwards he said it had taken him nearly twenty-two years to reach the point where he could discuss the event "with a modicum of humor." The aircraft became the 707, and Pan American ordered twenty.

Allen was a lawyer. He had handled Boeing's legal affairs since 1928 before he took the presidency at the end of the war, and the gamble he approved was an engineer's kind of gamble, a machine built first and sold afterwards. The journalist Jerry Useem, writing in The Atlantic in 2019, described the company for most of its first eighty years as "an association of engineers", whose executives "held

patents, designed wings, spoke the language of engineering and safety as a mother tongue." As late as the mid-1990s, he found, its chief financial officer had minimal contact with Wall Street. The man who became chief executive in April 1996 fitted the pattern. Phil Condit had joined Boeing in 1965 as an aerodynamics engineer, had worked on the high-speed configuration of the 747, and later ran the division that designed the 777.

The merger

On a Tuesday morning in December 1996 Condit sat down alone in his Seattle conference room with Harry Stonecipher, the chief executive of McDonnell Douglas of St Louis. Stonecipher's company built fighters and the DC airliners, and it had lately been left out of the Pentagon's competition for its next fighter, which put a question mark over its military future. Stonecipher himself, as the previous chapter recorded, had come up through General Electric's aircraft-engine business. When the two men stood up that morning, as Stonecipher told the Associated Press, they said: "We have the basis for a deal that we're willing to take back to our boards." The boards gave their final approval late on the Saturday, and on Sunday 15 December the two chief executives announced at a press conference in Washington that Boeing would buy McDonnell Douglas in shares worth $13.3 billion.

Condit was named chairman and chief executive of the combined company, and he had been one of the deal's lead architects. Stonecipher became its president, the second man in the company. The merger took effect on 1 August 1997. The Boeing name survived, and so, for the moment, did the head office in Seattle. What changed first was the language used about the people who worked there. In 1998, in words a Seattle Times retrospective later recorded, Stonecipher told staff that Boeing needed to quit behaving like a "family" and become more like a "team", and that anyone who did not perform would not stay on the team.

Most histories of the crashes start in 2011 and stay close to the aircraft: a flight-control program with a single point of failure, crews in Indonesia and Ethiopia who could not recover, and a regulator that had handed much of its work to the manufacturer. All three are documented, and the reports that documented them come later in this story. Those histories have less to say about the fourteen years before 2011, when the men who ran Boeing described in public the company they intended it to become. The first people to object were the engineers.

Forty days in 2000

At nine o'clock on the morning of Wednesday 9 February 2000, thousands of Boeing engineers and technicians stood up, took their jackets and walked out, in Renton, Everett, Kent, Tukwila and Auburn, all round Puget Sound. Judy

Mogan, a technician, was in a meeting with the Federal Aviation Administration when the hour came. “Right in the middle of one of the meetings with the FAA at 9:00 in the morning, we said excuse us, we have to go now,” she remembered. “We walked out through the building and then out the gates in unison.” More than 17,000 of the 22,000 people in the bargaining units of their union, the Society of Professional Engineering Employees in Aerospace, went on strike. Their rallying cry was “No Nerds, No Birds”, and the Museum of History and Industry in Seattle keeps one of the strike signs that carried it.

The dispute began with money. Boeing wanted its engineers to pay part of their health-insurance premiums, and the machinists had won a contract the autumn before that the engineers wanted to match. Underneath the money lay the merger, which, in HistoryLink’s history of the union, had worn away the engineers’ “family loyalty” to the company. A new vice-president, the public radio station KNKX later reported, told them they had to understand that they were no longer at the centre of the universe. “It sent the message – you’re just a commodity,” said Stan Sorscher, who led the union’s negotiating team. On the picket lines the strikers kept warm at burn barrels, and Tom McCarty, another of the negotiators, recalled fitting them with lids and stovepipe from a junkyard, which worked better than the open barrels.

The strike lasted forty days. After an all-night session on 17 March the company dropped its premium demand, and on Sunday 19 March the members ratified a new three-year contract. The engineers had struck over pay and premiums, and nobody on those picket lines was talking about flight-control software. What the strike did put on record, in the winter of 2000, eighteen years before the first crash, was that the people who designed Boeing's aircraft felt the company had started to treat them as a commodity. A year later the men who ran it decided to move the head office away from Seattle.

Chicago

On Wednesday 21 March 2001 Condit announced that Boeing's head office would leave Seattle, the company's home since it was founded, and that Chicago, Dallas and Denver were on the list. The choice was revealed on Thursday 10 May in a way the company had planned for effect. A Boeing 737 took off from Boeing Field in Seattle with its crew holding three flight plans, one for each city, and only once it was airborne did the company announce that it would land at Chicago's Midway airport. Condit stepped out onto the tarmac, gave a short speech, and went up in a helicopter to look at the company's new home, a tower beside the Chicago River. "We looked at three very exciting metropolitan areas in which to base our company," he said. "It was a very

difficult decision." About half the corporate staff would move, and the move was complete on 4 September.

Condit gave his reasons plainly. He wanted a location "central to our operating units, customers and the financial community – but separate from our existing operations." He also said that "when the headquarters is located in proximity to a principal business – as ours was in Seattle – the corporate center is inevitably drawn into day-to-day business operations." The commercial-airplane business, with its engineers and its factories in Renton and Everett, stayed where it was. The nearest assembly line was now about 1,700 miles from the chairman's office, and the office sat close to the financial community he had named as one of its reasons for being there.

Condit did not stay long in Chicago. On Monday 1 December 2003 he resigned, a week after Boeing had dismissed its chief financial officer, Michael Sears, for discussing a job with Darleen Druyun, an Air Force procurement official, while she was still in her government post. He said he was going in order to "put the distractions and controversies of the past year behind us." Stonecipher, who had left the company, came back as president and chief executive. Three months later the Chicago Tribune of Monday 1 March 2004 carried his own account of what he had done since the merger: "When people say I changed the culture of Boeing,

that was the intent, so that it is run like a business rather than a great engineering firm."

The sentence was a statement of purpose, made in his own words by the man then running the company, and it should be read alongside what the company achieved. In April 2004 Boeing launched the 787, and by the end of 2007 its order backlog stood at a record $327 billion. Commercially, the years after the merger were strong. Stonecipher did not see most of them from the top. On Monday 7 March 2005 the board forced him to resign after an inquiry into his relationship with a woman executive, saying that the facts "reflected poorly on Harry's judgment and would impair his ability to lead the company." His successor, James McNerney, took over as chairman, president and chief executive that July. He was one of the men passed over when GE chose Welch's successor in 2000, and he had already taken Six Sigma and GE's grading of employees to 3M. Now he ran the company that Condit and Stonecipher had moved to Chicago.

MCAS

On Wednesday 20 July 2011 American Airlines, which had placed no order with Airbus for more than two decades, announced an order for 460 narrow-bodied jets, most of them from Airbus. Of the share it gave Boeing, half were to be a re-engined version of the 737 that Boeing had not yet launched. Airbus had already launched its own re-engined

A320, the neo, and Boeing had to decide whether to answer it with a new aircraft or with new engines on the old one. Jim Albaugh, who ran Boeing's commercial-airplanes business, gave the company's reasoning that day: "The issue is how quickly you can ramp up and how efficiently you can build 40, 50, 60 aircraft a month." On Tuesday 30 August, with McNerney as chairman, the board approved the 737 MAX. The first 737 had flown in 1967.

The new engines were larger, and, as the FAA later explained, "because of their size, the engines are installed higher and farther forward than the engines on the 737 NG." In some small areas of the flight envelope, the FAA said, the new engines made the control column feel lighter than the regulations allowed. Boeing's answer was the Maneuvering Characteristics Augmentation System, MCAS, software that trimmed the nose down automatically, and it took its reading from a single angle-of-attack sensor. Partway through flight testing in 2016 Boeing's engineers extended MCAS to low speeds and raised the amount it could move the tailplane from 0.6 degrees to 2.5, and, as Dominic Gates and Mike Baker of the Seattle Times later reported, Boeing did not submit the revised safety assessment to the FAA. The House investigators found that the push to avoid simulator training for the MAX drove poor decisions, and that Boeing had agreed to pay Southwest Airlines $1 million for every aircraft if such training turned out to be required.

In November 2016 Mark Forkner, Boeing's chief technical pilot for the 737, exchanged messages with a colleague about how MCAS was behaving in the simulator. He called it "egregious" and wrote: "So I basically lied to the regulators (unknowingly)." The messages reached Congress in October 2019. Forkner was later charged with fraud, and on Wednesday 23 March 2022 a federal jury in Fort Worth acquitted him after less than two hours of deliberation. His lawyers had argued that he was a scapegoat and that the message was a complaint about the simulator. His acquittal belongs in this story as much as his words do.

On Monday 29 October 2018 Lion Air Flight 610 took off from Jakarta for Pangkal Pinang and went into the Java Sea thirteen minutes later, killing all 189 people on board. Indonesia's investigators found that Boeing's design of MCAS, the FAA's certification of it, the airline's maintenance and the pilots' actions had all contributed. On 3 December the FAA completed an internal analysis which estimated that, left unchanged, the flight-control system could cause fifteen fatal accidents over the life of the fleet. The aircraft kept flying while Boeing worked on a fix.

On the morning of Sunday 10 March 2019 Ethiopian Airlines Flight 302 took off from Addis Ababa for Nairobi, and six minutes later contact was lost near Bishoftu. All 157 on board died, and the two crashes had now killed 346 people. On Thursday 4 April Ethiopia's transport minister, Dagmawit

Moges, presented the preliminary findings: “The crew performed all the procedures repeatedly provided by the manufacturer but was not able to control the aircraft.” The FAA had grounded the MAX on 13 March, two days after China’s regulator.

The reports

Regulators from around the world gave their verdict in October 2019. The FAA asked Christopher Hart, a former chairman of the National Transportation Safety Board, to lead a Joint Authorities Technical Review with NASA and the aviation authorities of Australia, Brazil, Canada, China, Europe, Indonesia, Japan, Singapore and the United Arab Emirates, and the review reported on 11 October. It found that MCAS “was not evaluated as a complete and integrated function” in the certification documents, that the FAA had “inadequate awareness” of it and too few specialists on the job, and that Boeing staff doing certification work on the FAA’s behalf had come under “undue pressure”. On this reading much of the failure lay in the system of delegation, which let the manufacturer carry out work the regulator was meant to check. That finding qualifies any account that puts the whole failure inside Boeing’s head office.

On Tuesday 29 October 2019, a year to the day after Lion Air, Dennis Muilenburg, who had joined Boeing as an intern and succeeded McNerney as chief executive in 2015, appeared before the Senate Commerce Committee. More

than a dozen relatives of the dead were in the room, and the chairman invited them to stand and hold up the photographs they had brought. Nadia Milleron, whose daughter Samya Stumo had died on the Ethiopian flight, was among them. Muilenburg turned to look at them. “We know we made mistakes and got some things wrong,” he told the senators. “We own that, and we are fixing them.” On 23 December the board announced his resignation, saying that a change of leadership was necessary “to restore confidence in the Company”.

On Wednesday 16 September 2020 the House Committee on Transportation and Infrastructure released its Final Committee Report: The Design, Development & Certification of the Boeing 737 MAX, the work of eighteen months and some 600,000 pages of documents. The crashes, it said, were “the horrific culmination of a series of faulty technical assumptions by Boeing’s engineers, a lack of transparency on the part of Boeing’s management and grossly insufficient oversight” by the FAA. It named production pressure from the A320neo, faulty assumptions about MCAS, conflicts of interest in oversight, and what it called a “culture of concealment”, in which Boeing “withheld crucial information from the FAA, its customers, and 737 MAX pilots, including internal test data.” The report was the work of the committee’s Democratic majority, and its two senior Republicans answered that expert recommendations had “already led to changes and reforms, with more to come.”

Boeing said it had “learned many hard lessons as a company from the accidents”.

On Thursday 7 January 2021 the Justice Department announced that Boeing had entered a deferred prosecution agreement on a charge of conspiracy to defraud the United States, and would pay more than $2.5 billion, most of it compensation to airline customers, with $500 million for the families of the dead. The acting assistant attorney general, David Burns, said that Boeing’s employees had chosen “profit over candor”, deceiving the FAA with “misleading statements, half-truths, and omissions”. The agreement also recorded the department’s finding that the misconduct was “neither pervasive across the organization, nor undertaken by a large number of employees, nor facilitated by senior management.”

Set side by side, the dated record runs one way. In February 2000 Boeing’s engineers struck against a company they felt had stopped valuing them. In March 2004 the man running it said he had changed its culture so that it would be run like a business rather than a great engineering firm. In 2011, under a chairman trained at GE, the company chose new engines on a 1960s airframe over a new design, for the sake of speed and production rate. The investigators disagreed about how far the blame reached, a jury acquitted the one employee who was charged, and the Justice Department found that senior management had not facilitated the

deception. The House committee, working through Boeing's own documents, found production pressure and concealment behind an aircraft that killed 346 people. The doctrine this book follows from Friedman's essay to Welch's speech at the Pierre made the return to shareholders a company's first duty. At Boeing, one of the two men who came from GE had said in a newspaper, fourteen years before the first crash, that changing the company's culture was his intent. He had left the company in 2005, six years before the MAX was launched.

5. THE FORD PINTO

Two thousand pounds, two thousand dollars

On Friday 11 September 1970 Ford's dealers put a new small car on sale. The Pinto reached the showrooms a day after Chevrolet's Vega, and both were Detroit's answer to the small cars arriving from abroad, above all the Volkswagen Beetle, which led the imported small-car class by a distance. Two days later, on the Sunday, the New York Times Magazine carried the Friedman essay already described in this book. The dates fell together by coincidence. The car, though, had been built on the order of priorities that the essay would put into words, and the record of how it was built is unusually complete, because a court later took it apart.

The man behind it was Lee Iacocca. He had made his name with the Mustang in 1964, and inside the company, the journalist Mark Dowie later reported, the Pinto came to be called "Lee's car", as the Mustang had been, and its governing rule "the limits of 2,000". When the California Court of Appeal came to describe the project, it wrote that Iacocca, "then a Ford vice president, conceived the project and was its moving force", and it set down his objective: "a car at or below 2,000 pounds to sell for no more than $2,000". Harold MacDonald, Ford's group vice president of car engineering, approved the concept and chaired the

regular product review meetings. Iacocca became president of Ford that December, three months after the launch.

According to Dowie, the schedule was as tight as the weight: the normal time from conception to production of a new model was about 43 months, and the Pinto's was set at "just under 25". The court called it "a rush project, so that styling preceded engineering and dictated engineering design to a greater degree than usual". One of the things styling decided was where the petrol tank went. It was then the preferred practice in Europe and Japan, the court noted, to put the tank over the rear axle in small cars. The Pinto's shape put it behind the axle instead, leaving only nine or ten inches of crush space between the tank and the back of the car, which the court found was far less than in any other American car. The bumper was "little more than a chrome strip". Just ahead of the tank sat the differential housing, with an exposed flange and a line of exposed bolt heads.

The story most often told about the American small car in the years that followed is simpler than any of this: the Japanese and the Germans built better small cars, and buyers noticed. There is a good deal of truth in it, and the motoring press said as much at the time. When Road & Track tested a Pinto with the larger two-litre engine in June 1971, it concluded that the car was not as much fun to drive as most of the imports nor as luxurious as the Toyota, but that for a buyer whose motto was "Buy American" it began

"to look awfully good". What that story leaves out is what Ford knew before the first Pinto was sold.

Twenty-one miles an hour

Ford's crash testing was run by Harley Copp, an engineer and executive who led the programme, and later by a Mr Kennedy, who succeeded him as the engineer in charge. In 1969 and 1970 their engineers ran Pinto prototypes, and then cars built on the production line, into a fixed barrier backwards at about 21 miles an hour. In the prototype tests the fuel tank was driven forward and punctured. In a test of a production Pinto at the same speed the filler neck was torn out of the tank, and the tank was punctured by a bolt head on the differential housing.

The same tests showed what would work. Where a rubber bladder had been fitted inside the tank, cars hit the barrier at the same speed without leaking. A Pinto with two extra reinforcing members along its rear structure passed a rear-impact test with no leak, and tanks mounted over the axle came through a test at 31 miles an hour. At the trial the jury heard a list of fixes with their costs per car. A shield between the differential and the tank would have cost $2.35. The court recorded evidence that fixes costing $15.30 a car would have made the tank safe in a rear-end collision at 34 to 38 miles an hour.

The question the case turned on was who knew. Kennedy, the court wrote, "admitted that the test results had been forwarded up the chain of command to his superiors". Copp, who by the time of the trial had left the company, testified that "the highest level of Ford's management made the decision to go forward with the production of the Pinto, knowing that the gas tank was vulnerable to puncture and rupture at low rear impact speeds", and that the decision rested on "the cost savings which would inure from omitting or delaying the 'fixes'". The court accepted that the results "were known to the Ford officials who decided to go forward with production".

That finding rests on the testimony of two engineers, one of whom had left Ford, and it should be read as such. The car also met the rules of its day. Dowie himself noted that Ford had opposed parts of Federal Motor Vehicle Safety Standard 301, the fuel-system standard, since 1968, and that the standard was not adopted until the 1977 model year. The car went on sale on its date, at its price, with the tank where the styling had placed it and the $2.35 shield left off.

The Vega

General Motors had taken the same decision by its own road. In October 1968 its chairman, James Roche, announced that GM would build a new small car, known inside the corporation as project XP-887. It was designed by the corporation's central engineering staff, and Chevrolet was

ordered to put aside a small-car project of its own. Ed Cole, GM's president, was committed to an engine with a cylinder block cast in aluminium without iron liners, and the car went into production at a newly automated plant at Lordstown, Ohio. The Vega reached Chevrolet's dealers on Thursday 10 September 1970, a day ahead of the Pinto.

Its faults showed up in the engine and the axle. The aluminium engine was prone to overheating and to burning oil, and Chevrolet recalled 526,000 Vegas of the first two model years to fix the rear axle. The sharpest criticism came later, from John DeLorean, who took over Chevrolet in 1969. In interviews with the journalist J. Patrick Wright in the mid-1970s, published by Wright in 1979 as On a Clear Day You Can See General Motors, DeLorean described the Vega as a corporate project on which his division had had almost no say in the engineering, and as flawed from its conception. It is one man's account, given years after the event and after he had left the company. What is not in dispute is that both companies set their small cars a price and a date from the top, and that both cars went to the buyer with faults that ended in recalls.

Pinto Madness

In August 1977 the magazine Mother Jones published its issue for September and October with an article by Mark Dowie called "Pinto Madness". Dowie put the charge in its hardest form: "By conservative estimates Pinto crashes have

caused 500 burn deaths to people who would not have been seriously injured if the car had not burst into flames." He and Ralph Nader took the story to a press conference in Washington, and within weeks the National Highway Traffic Safety Administration opened an investigation of the Pinto's fuel tank.

Dowie's most famous exhibit was a Ford document, and it is the part of the story most often told wrongly. It was a paper called "Fatalities Associated with Crash Induced Fuel Leakage and Fires", prepared in 1973 by Ford's environmental and safety engineering staff, under the names of Grush and Saunby, and sent to the safety administration as part of Ford's objection to a proposed rule. The rule concerned fuel leaks when a vehicle rolled over. The paper costed a fix of $11 a vehicle across all the cars and light trucks sold in America in a year, by every maker, and set that against the value of the deaths, injuries and burned-out vehicles it expected the fix to prevent. For each death it used $200,000, a round version of a figure the government's own safety agency had published, as Dowie himself said. On those numbers the costs came to almost three times the benefits.

Dowie presented the paper as an argument "that Ford should not make an $11-per-car improvement that would prevent 180 fiery deaths a year". The deaths in the paper were the whole industry's, in rollovers, and the paper was written three years after the Pinto went on sale. It was a submission

on a federal rule, and when the plaintiffs in the Grimshaw case tried to put it before their jury, the judge would not admit it, as Schwartz recorded. Gary Schwartz, a scholar of tort law at the University of California, Los Angeles, made the misreading the centre of his 1991 article "The Myth of the Ford Pinto Case", and on this point he was right. The evidence about the Pinto is the crash tests of 1969 and 1970, and it needs no help from the memo.

The safety administration built its own case. Its engineer, Lee Strickland, set aside the standard barrier test and had a car driven into the back of test Pintos at 30 to 35 miles an hour, with petrol in the tanks, to reproduce the kind of crash that happened on the road; some of the Pintos caught fire. In May 1978 the administration told Ford that it had found the fuel system defective. On Friday 9 June Ford announced a recall of 1.5 million Pintos from the first six model years, together with the Mercury Bobcat, the Pinto's sister car. The fix was a longer filler neck with a better clamp, and plastic shields between the tank and the differential.

Grimshaw

On Sunday 28 May 1972 Lilly Gray set out from Anaheim, California, for Barstow, where she was to meet her husband. She was driving the family's Pinto hatchback, bought new the previous November, and with her was a boy of thirteen, Richard Grimshaw. After filling up in San Bernardino she joined Interstate 15. Near the Route 30 off-ramp, as the

traffic thickened, the carburettor flooded, the engine stalled and the Pinto coasted to a stop in the middle lane. A ten-year-old Ford Galaxie behind it slowed but could not avoid it, and hit it at a speed the court put at 28 to 37 miles an hour. The tank was driven forward against the differential housing and burst, and the car filled with fire. Lilly Gray died of her burns a few days later. Richard Grimshaw survived with severe burns over his face and body, and by the time his case reached a verdict had undergone 52 operations.

The case came to trial in the Superior Court of Orange County and ran for six months. In February 1978 the jury awarded Grimshaw $2,516,000 in compensation and $125 million in punitive damages, and awarded Gray's family damages of its own. The foreman, Andrew Quinn, a retired policeman, told the Wall Street Journal: "We came up with this high amount so that Ford wouldn't design cars this way again." The trial judge cut the punitive award to $3.5 million. On Friday 29 May 1981 the Court of Appeal upheld the judgment, applying the test of "a conscious disregard of the probability that the actor's conduct will result in injury to others".

By then Ford had faced a criminal jury as well. On Thursday 10 August 1978 three young women, the sisters Judy Ulrich, eighteen, and Lyn Ulrich, sixteen, and their cousin Donna Ulrich, eighteen, were in a 1973 Pinto on U.S. Highway 33 in Elkhart County, Indiana, when a Chevrolet van struck it from

behind. The car burned, and all three died. The county prosecutor, Michael Cosentino, persuaded a grand jury to indict Ford for reckless homicide, and the Christian Science Monitor reported the trial as the first time an American corporation had been tried on criminal charges. It was moved to Winamac, in Pulaski County, and ran for ten weeks before Judge Harold Staffeldt, with Ford defended by James Neal, a former Watergate prosecutor. The charge concerned Ford's failure to warn of or repair the defect, and the van's speed was fought over throughout. On Thursday 13 March 1980, after some twenty-five hours of deliberation over four days, the jury acquitted. "It has just been a matter of David and Goliath when it comes to money," Cosentino said.

The acquittal is one half of the case for the defence; the other is Schwartz's. The safety administration's own investigation counted 27 deaths in rear-impact Pinto crashes that ended in fire between 1970 and mid-1977, far below Dowie's 500. Schwartz found that for rear-end fire deaths the early Pinto was "better than the Gremlin, worse than the Vega, worse than the all-subcompact average", and that on deaths from all causes it did slightly better than the average for its class. The sociologists Matthew Lee and David Ermann went further and argued that there had been no single decision to sell an unsafe car at all, only the routine working of a large organisation. The first point stands: the Pinto's fire record was close to that of its class. The second is harder to square with Kennedy's admission and Copp's testimony, which

describe crash results going up a chain of command before a car went on sale.

Ford built more than three million Pintos before production ended in 1980. The crash results were in the company's hands before the car reached the showrooms, the fixes were known and costed, and the car went out on its schedule and at its price. That was the logic of the doctrine at work before it had a name: a date and a figure set at the top, and an engineering warning treated as a cost. The consequence went beyond Ford. The recall and the two trials that followed attached a story of fire to the American small car in the decade when imported cars were winning its buyers. The Pinto had been launched to win the Beetle's buyers for Detroit; by the first half of 1980 Japanese imports alone had taken 21.7 per cent of American new-car sales.

From the men who were there

A reader who bought a first car in 1973 had wanted a Volkswagen Super Beetle but could not afford one, and chose a Pinto over a Vega, not trusting the Vega's aluminium engine. The Volkswagen came ten years later; the cars since have been a Honda and a Toyota.

Around 1974 another reader bought a used 1972 Vega hatchback, passing over the Pinto because of its rear-end problem. When the cylinders scored, a machine shop's short block with iron liners kept it going, and after the car was run

off a hillside road in Tennessee the owner moved everything into a sound body. The owner loved the way it drove.

6. GENERAL MOTORS

1981

In September 1980 General Motors announced that its next chairman, from the first day of the new year, would be Roger B. Smith, the executive vice-president in charge of finance. Smith had joined the company in 1949 and had spent his working life on its finance staff. The Washington Post, reporting the choice on 10 September, called him the front-runner and a man who came "out of the traditional General Motors executive mold". The board gave him a president with the production experience he lacked, F. James McDonald, who had been executive vice-president for the North American car and truck business. The two men took over a company that had just lost $412 million in a single quarter, its first losing quarter in ten years, and that still sold 45.9 per cent of the new cars bought in the United States.

It was the company whose president had told senators in 1953 that he could not conceive of a conflict between its interests and the country's, and whose shareholders had turned down Campaign GM in 1970. It changed chairmen in the same year that Jack Welch took charge at General Electric. Japanese carmakers were building small cars more cheaply than Detroit and with fewer faults, and the oil shocks of the 1970s had sent American buyers towards them. The familiar explanation of what followed in the American car

industry runs on from there, through dearer fuel, union wages and, in time, the machines. Smith read the threat in much the same way, and a good deal of that reading was true. His own contribution lay in the remedy he chose.

He chose capital. On Thursday 25 March 1982 General Motors announced a joint venture with the Japanese robot maker Fujitsu Fanuc, to be called GMF Robotics. Across the decade the company spent more than $60 billion redesigning its cars and modernising its plants, by the reckoning of the International Directory of Company Histories. It bought a computer-services company and an aerospace company, and it had a neighbourhood condemned so that it could build a showpiece of automation. Each of these choices had an argument behind it. Meanwhile, in a closed plant in California, General Motors ran a test on its own books of whether the gap with Japan lay in the machines or in the way the plants were run.

Poletown

On Sunday 10 May 1981 about 1,500 people came to the last Mass at Immaculate Conception, a church in Poletown, the neighbourhood where Detroit meets the small city of Hamtramck. Its priest, Father Joseph Karasiewicz, was fifty-nine, a Detroit man and the son of a janitor at Ford, and he had refused to go along with the archdiocese when it agreed to sell the building. “It’s wrong to cooperate with this type of law in any sort of way,” he said. “No one is safe except the

man who has the money, to put it bluntly." A group of parishioners occupied the church and held it for twenty-nine days. On the morning of Tuesday 14 July sixty police officers went in and carried out twenty people, elderly women among them. The church was pulled down, and five months later Karasiewicz died of a heart attack.

The law he objected to had been settled that spring. General Motors had told Detroit that it would put a new Cadillac assembly plant somewhere else unless the city found it a site, and on Friday 13 March 1981 the Michigan Supreme Court ruled, by five votes to two, that the city could take private homes and hand the land to the company. The majority recorded that losing the plant would cost Detroit "at least 6,000 jobs" and found a public purpose in "alleviating unemployment and revitalizing the economic base of the community". Justice Ryan, one of the two dissenters, set out the terms of the bargain. Acquiring and preparing the site had cost more than $200 million, the city meant to sell it to General Motors for $8 million, and "there are no guarantees from General Motors about employment levels at the new assembly plant." In 2004 the same court overruled the decision unanimously.

The Detroit Historical Society has counted what the site held: 1,500 homes, 144 businesses and 16 churches. Poletown took its name from its Polish families, and alongside them lived Black families who had been moved out

of Detroit's Black Bottom, and immigrants from a dozen other countries. The society describes the clearance as the largest number of people ever moved in the shortest time in the United States. Ralph Nader, who had backed Campaign GM eleven years earlier, sent volunteers and lawyers to help the residents in court. They lost, and the bulldozers finished the work.

The Detroit-Hamtramck plant began production in 1985, and it was built to show what automation could do. Paul Ingrassia and Joseph White, two Wall Street Journal reporters who later reconstructed General Motors' decade in their book Comeback, describe what happened as the line tried to reach speed. The computer-guided carts wandered off course, and the painting robots sprayed one another instead of the cars, so that the company had to truck cars across the city to a Cadillac plant fifty-seven years old to be repainted. When a welding machine stopped, the whole line stopped, and the workers stood and waited for the robot contractor's technicians. General Motors, they concluded, had bet the plant's entire production system on the new equipment working at once, with no older machines held in reserve. The Historical Society's summary of the outcome is that the plant provided about half the jobs promised for it, and it gives automation as the reason.

Fremont

On Thursday 17 February 1983 Roger Smith and Eiji Toyoda, the chairman of Toyota, signed an agreement to build cars together at Fremont, California, in a General Motors assembly plant that had closed in March of the year before. Smith called the ceremony "a truly historic occasion". The United Auto Workers, which represented the people laid off from Fremont, had no part in the negotiations or the signing, and Toyoda made clear that the new company owed them nothing. "An entirely new company is being formed," he said. "Naturally it has no commitments to hire anyone. We are going to start from scratch." Smith said the priority in hiring would have to go to the best workers.

Fremont's workers did not have that reputation. Bruce Lee, an official of the union, later said of the old plant: "It was considered the worst workforce in the automobile industry in the United States." Rick Madrid, who mounted tyres there, remembered bringing "a thermos of screwdrivers" to work, and Billy Haggerty remembered the supervisors, short of hands, going across the street to the bar to find people to fill the line. These are the workers' own accounts, given to the radio programme This American Life for an episode on the plant in 2010.

The new company, New United Motor Manufacturing, known as NUMMI, hired most of them back. In the spring of 1984 Toyota flew them to Japan in groups of thirty to work

beside its own people. Jeffrey Liker, who studies Toyota at the University of Michigan, described what happened on the line there. The Americans wanted to show they could do the job in the time allowed, “and they would usually get behind. And they would struggle, and they would try to catch up, and at some point, somebody would come over and say, do you want me to help?” In December 1984 the first car, a yellow Chevrolet Nova, came off the line at Fremont, and more than 85 per cent of the workforce had worked in the old GM plant.

Maryann Keller, who analysed the car industry for investors, watched the results. “After just three months,” she said, “the cars coming off the line were getting near perfect quality ratings.” On the measure the industry used, defects per hundred vehicles, Liker counted Fremont among the best plants in America, level with the Corollas coming from Japan. Madrid, who had once brought screwdrivers to work, took to leaving postcards under the windscreen wipers of Novas he saw parked. The same union and largely the same people, in a plant General Motors had closed two years before, were building to Toyota’s standard with Toyota’s methods.

General Motors sent sixteen of its rising managers to Fremont to learn the system and carry it home. One of them, Steve Bera, described going back to Detroit and waiting for someone to ask what the secret was. “No one ever asked us that question,” he said. At Van Nuys, in the San Fernando

Valley, General Motors tried the methods alone, with two weeks of training in place of the trips to Japan, and the plant closed in 1992. Fremont had shown that the gap with Toyota lay mostly in how a plant was run, and the finding stayed largely at Fremont.

Perot on the board

In June 1984 General Motors agreed to buy Electronic Data Systems, the Dallas computer-services company that Ross Perot had founded in 1962, for $2.5 billion. Part of the price was paid in a new class of General Motors stock, class E, and Perot became the company's largest shareholder and one of its directors. A year later Smith went further: on Wednesday 5 June 1985 General Motors announced that it would buy Hughes Aircraft for $5.2 billion, and the purchase was completed that December. Smith remained proud of it, and on his last day as chairman he said that with Hughes the company had gained "15,000 engineers" at a stroke of the pen.

Perot did not settle into the boardroom, and his own words when he left give his view: he hated "formal meetings where you pass resolutions", and he saw the country in a "total economic war" with Japan that it was losing, and would go on losing unless management and labour in its factories changed the way they dealt with each other. The direction of his complaint was clear, and it pointed at the way General Motors managed its people.

On Thursday 6 November 1986 General Motors announced the largest wave of permanent closures in the company's history: eleven operations in four states, employing about 29,000 people, among them the assembly plant at Norwood, Ohio. Asked whether the closures were open to negotiation, Smith said: "We're past that." Joe Wilson, who led the union's Local 15, said that the decision was "causing families to break up and communities to go to hell".

Twenty-five days later, on Monday 1 December 1986, the board of General Motors agreed to buy out Perot for about $700 million. He was to leave the board and his company, and the agreement set penalties of up to $7.5 million if either side criticised the other in public. Perot announced the sale the same day at EDS headquarters in Dallas and said what he thought of it. "Seven hundred million dollars would buy a brand spanking new car plant," he said. He put the money in escrow for two weeks so that the directors could reconsider: "I have to live with myself. Why should I take this money? It would be morally wrong." Of Smith he said, "I like Roger. I can't imagine that he wouldn't like me." The buyout stood.

A week later, on Monday 8 December, both men attended a luncheon of the Economic Club at Cobo Hall in Detroit, where a news photograph from the day shows Smith passing Perot a question card. Smith gave his reasons in January 1987, speaking to the Wisconsin Investment Board in Madison. "The actions Ross took could not be tolerated in

the independent way he wanted to run the company," he said, and Perot's criticisms had been "motivated with the best intentions" and had nothing to do with the separation. The price had been generous: General Motors paid $56.50 a share for stock that had closed at $31.375 on the last trading day before the deal. Perot took the money, and before long he was carrying his argument about American work to a far wider audience.

Saturn

On Tuesday 8 January 1985 Smith had announced Saturn, a small-car company of General Motors' own, with its own factory, its own dealers and its own agreement with the United Auto Workers. He called it a clean sheet of paper. The factory went up at Spring Hill, Tennessee, and its workers were organised in self-managed teams, each responsible for its own quality, cost and production. Of all Smith's projects it came closest to what Fremont had shown, and it took five and a half years to build its first car.

On Monday 30 July 1990 Smith and Owen Bieber, the president of the United Auto Workers, drove one of the first Saturns off the line at Spring Hill in a private ceremony. The next day, Tuesday 31 July, was Smith's last as chairman, and he spent part of it talking to United Press International. "Saturn is unbelievable," he said. "I'm having a hard time sitting here figuring out if I enjoyed the car more or the people more or the plant more." He complained of "a lot of

surface reporting" about his years, most of all about Perot, and said he wanted General Motors "to continue to raise our market penetration profitably, and I underscore the word 'profitably'". Robert Stempel took over on 1 August.

When Smith died in November 2007, David Cole, the chairman of the Center for Automotive Research in Ann Arbor, told NPR that his legacy was "far more positive" than Michael Moore's film Roger & Me would suggest. EDS and Hughes, Cole said, "financially were very successful". Saturn had led to a "dramatic increase in harmony between labor and management", and NUMMI had come "under Roger's watch". Smith had indeed read the Japanese threat correctly, and Saturn was a serious attempt to build cars in a different way. It was also the one large project of his decade that drew on the Fremont lesson, and it was built from nothing in Tennessee, away from the plants General Motors already had.

By the time Smith retired, General Motors had spent more than $60 billion redesigning its cars and modernising its plants, on top of what it paid for EDS and Hughes, and its share of the American car market, 45.9 per cent in the year before he took over, was falling. Welch had met the pressures of 1981 by cutting people; Smith met them by buying machines. His own joint venture at Fremont had shown, with largely the same workers and the same union, that the distance between General Motors and Toyota lay in how a

plant was run, and the managers who learned that were not asked what they knew.

The director who said as much from the boardroom was paid about $700 million to leave it. General Motors filed for Chapter 11 in New York on 1 June 2009, nineteen years after Smith retired and under other men, and that failure has causes of its own. What his decade shows is narrower. At General Motors the automation defence, that the machines took the jobs, describes a choice made by a chairman and his board in the 1980s, taken while a cheaper answer was running on the company's own payroll.

From the men who were there

A reader who grew up in Saginaw, Michigan, where a parent made steering columns in the General Motors plants, was a child when the plants closed and remembers what went with them: the Kmart, whole malls boarded up, the barbershops and record stores, the roller rink and the bowling alley, all gone by 1985. The drive-in cinemas became empty lots, and the reader's grade school and junior high were bulldozed.

7. NAFTA

The candidate

On Thursday 20 February 1992 Ross Perot was a guest on Larry King Live, the CNN talk programme, and King asked him whether he would run for president. Perot was sixty-one, born in Texarkana on 27 June 1930, and he had built the computer-services company that General Motors bought from him in 1984, before paying him at the end of 1986 to leave its board. He had never stood for any office. His answer was conditional. If ordinary people wanted him badly enough to put his name on the ballot in all fifty states themselves, with no party behind them, he would run.

They did. Volunteers gathered the signatures state by state, and on 9 June the Washington Post reported a national poll that put Perot ahead of both the sitting president, George Bush, and the Democratic candidate, Bill Clinton. In the middle of July he withdrew, for reasons that have been argued over ever since. On Thursday 1 October, a month before polling day, he came back into the race.

What he had to say had not changed. He talked about the federal debt, and he talked about trade. The agreement that concerned him was being negotiated by the Bush administration with Mexico and Canada, and it would remove most of the tariffs and investment rules between the

three countries. Since his time on the board of General Motors, Perot had argued that American industry was losing its contest with foreign rivals. As he read the new agreement, it would let an American company that was losing to a lower-cost rival cut its own costs by moving its plant to Mexico. That was the argument he took to Virginia a fortnight after he re-entered the race.

Richmond, 15 October 1992

The second presidential debate was held on the evening of Thursday 15 October 1992 at the University of Richmond, and it was the first to be run as a town meeting. The moderator, Carole Simpson of ABC, explained that 209 uncommitted voters from the area had been chosen to put their own questions, on any subject they liked, to the three men on the stage. One of them asked Perot what he would do as president to open foreign markets to American business and stop unfair competition at home, "so that we can bring jobs back".

"That's right at the top of my agenda," Perot said. He began with Washington, where officials served a while, then left to become foreign lobbyists and came back to work on presidential campaigns. Then he spoke to the business people in the hall. A company paying its factory workers twelve, thirteen or fourteen dollars an hour could move south of the border, pay a dollar an hour, and leave behind the cost of health care, which he called the most expensive

single element in making a car, along with its pollution controls and its pensions. If it cared about nothing but making money, “there will be a giant sucking sound going south.” If elected, he would study the agreement, two thousand pages of it, and make sure it was a two-way street.

He added one more thing. He said he had asked the people who knew the subject best how long the disruption would last, and after some pressing they had told him twelve to fifteen years: the time it would take for Mexican wages to rise to six dollars an hour and American wages to fall to meet them. “But in the meantime,” he said, “you’ve wrecked the country with these kinds of deals.” The line about the sucking sound became the thing people remembered. The rest of the answer was the part with the mechanism in it: the wage gap, the costs a company could shed by moving, the length of the adjustment and who would pay for it.

On 3 November Perot took 18.9 per cent of the popular vote, nearly twenty million votes, and carried no state. Bush had lost to Clinton. Six weeks later, on the afternoon of Thursday 17 December, Bush signed the North American Free Trade Agreement at the headquarters of the Organization of American States in Washington; the leaders of Mexico and Canada, Carlos Salinas and Brian Mulroney, were not in the room. Bush said the agreement would remove barriers to trade and investment “across the two largest undefended borders of the globe”. It was a Republican agreement, signed

by a president who had just been voted out, and it still needed Congress to pass the law that would put it into effect. That fell to his successor.

The votes

In a speech at North Carolina State University early in October 1992, Clinton had said that he supported the agreement and that supplemental agreements on labour and the environment were needed. On the morning of Tuesday 14 September 1993 he signed them in the East Room of the White House, with three former presidents in the audience: Bush and Gerald Ford, both Republicans, and Jimmy Carter, a Democrat. "NAFTA means jobs," Clinton said, "American jobs and good-paying American jobs." The side agreements, he told the room, would make it harder than it was already "for businesses to relocate solely because of very low wages or lax environmental rules", and one of them, he said, would ensure that Mexico enforced its own laws on worker health and safety, child labour and the minimum wage.

Perot had already put his side of the case in writing. Save Your Job, Save Our Country: Why NAFTA Must Be Stopped – Now! was published by Hyperion by the end of that summer, a paperback of under two hundred pages written with Pat Choate, an economist whose earlier book, Agents of Influence, dealt with foreign lobbying in Washington. It claimed that as many as 5.9 million American jobs would be lost. The Heritage Foundation answered it with a paper on

30 September calling Perot's arguments "simplistic and flat-out incorrect". Perot's figure was far larger than the estimates economists would make afterwards, and his opponents said so at the time.

The two sides met on television on Tuesday 9 November 1993, eight days before the House was to vote. Vice President Al Gore debated Perot for ninety minutes on Larry King Live. Early on, Perot suggested a "social tariff" on imports from Mexico to make up for its lower wages, and Gore brought out a framed photograph of two men. "This is a picture of Mr. Smoot and Mr. Hawley," he said, the authors of the tariff of 1930, which he called one of the principal causes of the Great Depression. He handed it across the desk: "Now I framed this so you can put it on your wall if you want to." Perot put it face down. A Gallup poll for CNN taken straight afterwards found that 59 per cent of viewers thought Gore had won.

The House voted on Wednesday 17 November, by 234 to 200. Republicans carried the bill, by a margin of about three to one among their own members. Most Democrats voted against it, led by their majority leader, Richard Gephardt, and their whip, David Bonior, who argued that Mexican workers had no real right to organise and that American workers would be competing against that. At three minutes past eleven that night Clinton spoke in the Grand Foyer of the White House. "Tonight the leaders of both parties found common ground in supporting the common good," he said,

and he thanked “the passionate defenders of the working people who oppose NAFTA”, who had been right, in his words, to speak out against “economic conditions which have produced too few jobs and stagnant incomes”.

The Senate followed on Saturday 20 November, by 61 votes to 38, with Republicans again supplying most of the votes in favour and a narrow majority of Democrats voting against. On Wednesday 8 December, at 10.37 in the morning in the Mellon Auditorium, Clinton signed the implementing act into law and gave his reasons. The agreement would “create the world’s largest trade zone and create 200,000 jobs in this country by 1995 alone”. A wealthy nation could only grow richer by exporting, and the United States had decided, he said, that it would “compete, not retreat”. He called the opposition of the men and women who feared the agreement a wrong expression of legitimate fears, and promised them that “the gains from this agreement will be your gains, too.” The agreement had been negotiated under a Republican president, carried through Congress mostly by Republican votes, and signed by a Democratic president over the objections of most of his own party.

1 January 1994

The agreement came into force on Saturday 1 January 1994, and in Mexico the day did not go as planned. In the southern state of Chiapas, fighters of the Zapatista Army of National Liberation took San Cristóbal de las Casas and four other

towns. They had chosen the date on purpose, to protest against the agreement. Their spokesman, who called himself Subcomandante Marcos, described the agreement as “the death certificate for the indigenous people of Mexico”, because its terms for corn would take away the market of the region’s small farmers. The Mexican government called a ceasefire on 12 January. The rising belonged to Mexico’s own history, but it showed on the first morning that the agreement’s costs would fall on particular people in particular places, whatever it did for the three economies taken together.

The next shock came through the currency. On Tuesday 20 December 1994 the Mexican government widened the band in which the peso was allowed to trade, and the peso lost about 15 per cent. Two days later it was allowed to float, and it fell much further. In 1995 the United States Treasury put up $20 billion towards an international rescue for Mexico. In 1994 the United States had sold Mexico slightly more goods than it bought; in 1995, on the Census Bureau’s figures, it bought about $15.8 billion more than it sold, and the gap never closed again. A cheaper peso made Mexican labour and Mexican goods cheaper in dollars, whatever the tariff schedule said, which was the opposite of the rise in Mexican wages that Perot had been told would end the disruption. The chapter on the map of currency and trade follows the same lever, the exchange rate, over a longer span.

The accounts

The economists began to count. In 2005 Gary Hufbauer and Jeffrey Schott of the Institute for International Economics in Washington, who had argued for the agreement in 1993, published NAFTA Revisited, a review of its first decade. They found that plants which had moved to Mexico were "bad news for affected workers and their communities but represent a statistically insignificant share of US business investment", and that it was impossible to say whether those plants had moved because of the agreement or would have gone anyway. In 1993 they had put the agreement's likely gain to American employment at about 170,000 jobs over several years, a figure they themselves considered statistically insignificant, and their judgement on the candidate of 1992 was blunt: "Ross Perot's infamous 'sucking sound' claims proved totally unfounded."

Two trade economists, Lorenzo Caliendo at Yale and Fernando Parro at the Federal Reserve Board, later built a model of the three economies, sector by sector and with the trade in parts between them, to measure what the tariff cuts had done to living standards overall. Their answer, published in 2015, was that Mexico gained 1.31 per cent, Canada lost slightly, and the United States gained 0.08 per cent. On the other side, Robert E. Scott, an economist at the Economic Policy Institute in Washington, published a paper on 3 May 2011 called Heading South. Working from the growth of the

trade deficit with Mexico, he estimated that by 2010 it had displaced 682,900 American jobs. It is an estimate, and little more than a tenth of the figure in Perot's book.

The question the averages could not answer was where. John McLaren, an economist at the University of Virginia in Charlottesville, and Shushanik Hakobyan, who had studied there, took the census returns for 1990 and 2000 and asked what had happened to wages industry by industry and place by place. They measured how exposed each industry was to Mexican imports, and how much each locality depended on those industries. For the average worker, McLaren later said, there was "not much of an impact".

The effects were concentrated. High-school dropouts in the most affected industries saw their wage growth fall by as much as 17 percentage points compared with workers in industries the agreement had not touched. Those industries were apparel, textiles, footwear, and structural clay products such as brick and tile, and the largest effects were in parts of Georgia, North and South Carolina and Indiana. Workers outside those industries were affected too, if their town depended on one. The paper appeared in the Review of Economics and Statistics in 2016, under the title "Looking for Local Labor Market Effects of NAFTA".

McLaren kept his distance from Perot's numbers. Claims that millions of jobs had been destroyed by the agreement were not supported by the evidence, he said. NAFTA was also

a smaller shock than the one that followed it. The studies of Chinese import competition after 2000, which the chapter on the map takes up, found local effects that were larger and longer-lasting than anything the NAFTA studies found. Set side by side, the two literatures describe a pattern first seen on a smaller scale in the apparel mills and brickworks exposed to Mexico in the 1990s, and in its larger form after China joined the World Trade Organization.

The accounts therefore agree on more than their authors did. The aggregate gains were real, and they were small: less than a tenth of one per cent of American welfare on Caliendo and Parro's reckoning. The losses were real as well, and they were concentrated in the low-wage industries that competed most directly with Mexican plants and in the towns that depended on them, which is the pattern Perot set out in Richmond in October 1992, on a far smaller scale than his book had predicted. Congress passed the agreement in November 1993 with that warning on the public record, and with votes from both parties. For companies run for their shareholders, as the first part of this book described, it made moving production to lower wages a standing option, and the costs of that option fell on the places McLaren and Hakobyan later found in the census.

From the men who were there

An engineer who worked in Texas on networks and communications at EDS stayed out of its founder's politics,

but remembers a man who treated his people well and paid them well: highly intelligent, in this engineer's view, and the best in his own fields, though less so outside them, much as Michael Jordan was great at basketball but not at baseball.

A reader from Pittsburgh remembers the mills closing and then NAFTA. The first sign, as this reader recalls it, was a closure at a tube and steel works in 1969, and by the 1980s Pittsburgh was a depressed city. Both parties, in this reader's view, share the blame.

8. UNITED STATES STEEL

Salt Springs Road

At three o'clock on the afternoon of Thursday 1 September 1977, William Ashton, the superintendent of United States Steel's works at Youngstown, Ohio, called the grievance committees of two union locals, 1330 and 1307, into the conference room of the district headquarters on Salt Springs Road. He read them a press release about the two plants their members worked in, the Ohio Works and the McDonald Mills. The company, it said, had "no immediate plans to permanently shut down either the Ohio Works or McDonald Mills." It went on to tell the men what the plants' future depended on: "Your cooperation and assistance is absolutely necessary if our facilities are to continue to operate."

The same condition reached the men on the shop floor through messages on the works' telephone hot line, which told them that the continued operation of the plants was "absolutely dependent upon their being profit-makers." The terms were plain: if the works made money they would stay open, and it was up to the people inside them to make it. The two locals took the company at its word, and when the matter reached court their case rested on the claim that they had kept their side of the bargain.

The chairman of the company was less encouraging. On Tuesday 3 January 1978 Edgar Speer, then chairman of the board, affirmed that at some point the Ohio and McDonald works would have to be closed. Between those two statements lies the question this chapter follows through the next nine years: what United States Steel did with its own money once it had told its steelworkers that their jobs depended on earning it.

A ton of steel

On Wednesday 11 April 1962, at half past three in the afternoon, John F. Kennedy opened a press conference in the State Department Auditorium in Washington with a statement about steel. United States Steel, under its chairman Roger Blough, had just raised the price of steel by $6 a ton, and other companies had followed. Kennedy called the rise "a wholly unjustifiable and irresponsible defiance of the public interest", and said that "a tiny handful of steel executives whose pursuit of private power and profit exceeds their sense of public responsibility" had shown contempt for the interests of the country. Within two days the company backed down, after Bethlehem Steel, the second largest in the industry, had withdrawn its own increase.

That a President had to take on one company over the price of a ton of steel said something about the company's size. United States Steel had been put together by the banker J. P. Morgan and incorporated in New Jersey in early 1901,

capitalised at about $1.4 billion, the first billion-dollar corporation. At its heart was Andrew Carnegie's company, and Carnegie's price, in the account Charles Schwab later gave of a figure written on a slip of paper, was $480 million. From its first year the new corporation made roughly two-thirds of the steel produced in America.

It was slow with the new ways of making it. The basic oxygen process, which blew pure oxygen through molten iron, went into commercial use at Linz in Austria in 1952 and reached America at the end of 1954, at McLouth Steel in Trenton, Michigan. United States Steel built its first oxygen furnace in 1964. By then Kaiser Steel in California had about 43 per cent of its output in oxygen furnaces. The industry had already been through the long strike of 1959, which ran 116 days from July to November and ended with an injunction the Supreme Court upheld, and the rise of imported steel through the 1960s and 1970s is traced later in this book.

The next method was continuous casting, in which molten steel is set directly into slabs and billets instead of being poured into ingots to be reheated and rolled down. In 1979 Congress's own Office of Technology Assessment set out how far the country had fallen behind with it. Its report, Benefits of Increased Use of Continuous Casting by the U.S. Steel Industry, found that in 1978 American steelmakers had cast 14 per cent of their steel this way, the European Community 29 per cent, and Japan about half. The warning was

addressed to the lawmakers who would soon be asked to help the industry, and it was on their desks in the year the company's new chairman took office.

27 November 1979

David Roderick had grown up in Pittsburgh, the son of a postal worker, and his first job after high school was as a messenger for Gulf Oil. He served as a platoon sergeant in the Marine Corps in the Second World War, went back to Gulf, and studied accounting at the Robert Morris School of Business on the GI Bill while working nights, before taking degrees in economics and finance at the University of Pittsburgh. In 1953 he joined United States Steel as a financial analyst at its Union Railroad. He rose through the finance side, becoming chairman of the finance committee in 1973 and president in 1975, and in 1979 he succeeded Speer as chairman and chief executive. That year the company lost $293 million.

On Tuesday 27 November 1979, two years after Black Monday had closed another company's mill in the same valley, the board of United States Steel announced that it would close fifteen plants and mills in eight states, with the loss of about 13,000 of its roughly 166,000 jobs. Both Youngstown works were on the list, with the 3,500 people they employed. Roderick gave the reasons himself. The operations, he said, were "noncompetitive for a variety of

reasons, including operating costs, unfairly priced imports or excessive environmental spending."

Each of those reasons had substance, and the court record would later bear out that the Youngstown works were old and, taken as a whole, losing money. Roderick's list is the usual explanation for what happened to American steel, and it came from a man who had spent his whole career in the company's finances. It explains why a steel company would close its weakest mills. It says nothing about what the company would do with the money it no longer spent on them.

Three days later, on Friday 30 November, steelworkers from Youngstown occupied the company's headquarters in Pittsburgh for a time.

The property right

The second occupation came in January 1980, in Youngstown itself. The Local 1330 hall stood just up a hill from the company's Youngstown administration building, and at a mass meeting there that month the local politicians who spoke offered nothing, as Staughton Lynd, the steelworkers' lawyer, recalled. Then Ed Mann, a former Marine who had worked at the Brier Hill mill and served three terms as president of Local 1462, read a passage from Frederick Douglass and said: "Now, I'm going down that hill and I'm going into that building." The president of Local

1330, Bob Vasquez, put the argument in a sentence: “If U.S. Steel doesn’t want to make steel in Youngstown, the people of Youngstown will make steel in Youngstown.” Lynd remembered the crowd rising as one and streaming down the hill, and the sound of glass as the front door gave way. Hundreds of them occupied the building.

Lynd took the company to court on behalf of the locals, and the case came before Judge Thomas Lambros of the federal court for the Northern District of Ohio. At a pretrial hearing on Thursday 28 February 1980 Lambros raised a theory that neither side had put to him. “Everything that has happened in the Mahoning Valley has been happening for many years because of steel,” he said. “Schools have been built, roads have been built.” It seemed to him, he went on, that “a property right has arisen from this lengthy, long-established relationship” between United States Steel and the people of the Mahoning Valley who had given their lives to the industry.

On Monday 14 April he ruled that the law did not allow him to act on it. “This Court can determine no legal basis for the finding of a property right,” he wrote, and the mechanism to recognise one “is not now in existence in the code of laws of our nation.” He found no binding contract in the company’s statements and no reliance on them that the law would enforce. The company’s own projections, set out in court, showed the Youngstown works earning a gross profit for

1980 and still ending the year with an overall loss. Lambros nonetheless wrote, in a passage on the prospects for a settlement, that United States Steel "should not be permitted to leave the Youngstown area devastated after drawing from the lifeblood of the community for so many years."

On Friday 25 July 1980 three judges of the Sixth Circuit Court of Appeals upheld him on the property claim and sent the antitrust claim back for trial. The policy questions raised by plant closings, the court said, were "clearly the responsibility of the legislatures of the states or of the Congress of the United States." The steelworkers had lost, and the court had pointed them at Congress.

Marathon

Congress had steel on its agenda the following summer. On Friday 17 July 1981 the Steel Industry Compliance Extension Act became law. It allowed the Environmental Protection Agency to put back steelmakers' deadlines under the Clean Air Act if, among other conditions, a company spent on modernising its plants an amount equal to the pollution spending it deferred. Its terms show what Congress expected relief for steel to be spent on.

Four months after the Act became law, the company agreed to buy an oil company. Marathon Oil of Findlay, Ohio, had been the target of a hostile offer from Mobil since Friday 30 October 1981, and on Wednesday 18 November United

States Steel agreed to buy it instead, paying cash for about half its shares and notes for the rest, about $6.3 billion in all. Marathon's president, Harold Hoopman, said that its employees and its town would be "safeguarded because of the commitment of U.S. Steel to maintain our operations intact." Roderick called the purchase "the major diversification that U.S. Steel has been seeking", and pledged that it would take nothing away from steel: "Our investment in those operations will continue as planned."

Not everyone in Washington took the pledge on trust. The Washington Post's report of the agreement carried the reaction of two congressmen. Tom Lantos, a Democrat from California, said: "This is one of those dramas where we have only villains", and went on, "We have U.S. Steel not modernizing but using its resources to buy up Marathon." Clarence Brown, a Republican from Ohio, said the merger "might have some merit" if United States Steel used Marathon's resources "to strengthen its steel-making capacity". Several locals of the United Steelworkers filed a friend-of-the-court brief in the lawsuits over the deal, and the union felt the money should go into steel instead. Their president, Lloyd McBride, said he had Roderick's assurance that the company would stay committed to it.

Mobil fought on in the courts until Chief Justice Warren Burger turned down its emergency request to stop the purchase. At 12.01 a.m. on Thursday 7 January 1982, as soon

as the law allowed, United States Steel bought 30 million Marathon shares through a subsidiary called USS Holdings. The Washington Post called it the second-largest merger in American history. No record has been found of Roderick saying that he was taking the company's money out of steel. The record holds his pledge that he was not, made on the day of the agreement, and the objections of a congressman and the steelworkers' locals, made in the same weeks.

USX

On Friday 25 July 1986 the Homestead Works on the Monongahela closed, "when a lonely band of two dozen men … drove out the Amity Street gate for the last time", as the Battle of Homestead Foundation records. One of them was Mike Stout, whom the foundation names as a member of its board. That same month the company took a new name, USX Corporation, five months after it had paid $3.6 billion for Texas Oil & Gas. The word Steel had gone from the name of the company that had once made two-thirds of the country's steel. A week after Homestead closed, on Friday 1 August, a stoppage began between the company and the steelworkers' union that ran for about six months into 1987. The union called it a lockout and the company called it a strike, and it was the longest in the company's history.

Others took up the methods the company had been slow to adopt. In 1989, at Crawfordsville, Indiana, Nucor opened the first thin-slab mill for flat-rolled steel, built on continuous

casting, and it now describes itself as North America's largest steel manufacturer. Roderick retired in May 1989 and was succeeded by Charles Corry. The steel business was separated from USX on the last day of 2001 and went on alone as United States Steel, while Marathon stayed with what had been USX and took the name Marathon Oil.

In December 2023 Nippon Steel announced that it would buy United States Steel for about $14.9 billion including debt. The purchase was blocked by presidential order in January 2025 and permitted that June under a national-security agreement that gave the American government a golden share, with a veto over named decisions. It closed on Wednesday 18 June 2025. The headquarters stayed in Pittsburgh.

Within two years of announcing that it would close fifteen plants and mills and cut about 13,000 jobs, and four months after Congress had tied relief for steel to spending on the works, United States Steel spent about $6.3 billion on an oil company, and in 1986 a further $3.6 billion on a gas company, before taking the word Steel off its name. When the steel business stood alone again in 2001 it did so without the oil company, and in 2025 it was sold to Nippon Steel, a steelmaker from the country that in 1978 had been casting about half its steel by the method its American rival had been slow to adopt. The decision was taken by a board led by an accountant, announced in public, and made after Congress's

technology office had set out the gap, after a federal judge had written that the company should not leave the valley devastated, and the purchase went through after a congressman had said, in the week of the agreement, where the money was going. It is the doctrine Milton Friedman set out in 1970, that an executive's duty is generally to make as much money as possible for the owners, applied to a steelworks. Britain had faced the same kind of choice two generations earlier, in March 1925, when Winston Churchill, as Chancellor of the Exchequer, decided to put sterling back on gold at its pre-war value.

From the men who were there

A reader who worked for a steel fabricator in Gary, Indiana, remembers the plant there shut down completely by 1980. The reader watched United States Steel's Gary Works lose thousands of jobs and its South Works in Chicago close altogether, along with Wisconsin Steel and dozens of smaller machine, weld and fabrication shops, until tens of thousands were out of work across northwest Indiana and South Chicago.

PART THREE – BRITAIN DID IT FIRST

United States Steel's choice had an older precedent across the Atlantic. Britain put its currency ahead of its workshops in 1925, and the decisions that followed ran through governments of both parties. Edward Heath's Conservatives took the country into the European Economic Community on 1 January 1973. On 5 June 1975, under Labour, a referendum kept it there with 67 per cent of the vote, and on 15 December 1976 a Labour Chancellor signed the Letter of Intent to the International Monetary Fund, all before May 1979. These three chapters follow the return to gold, a Chancellor's letters about managed decline, and the chairman sent to run steel and coal.

9. THE GOLD STANDARD

$4.86

In November 1924 Stanley Baldwin made Winston Churchill Chancellor of the Exchequer, and the question waiting for him at the Treasury was one the country had put off since the war. Before 1914 a pound note had been a promise to pay a fixed weight of gold, and the Bank of England had stood ready to honour it. The dollar was tied to gold in the same way, so the two currencies were tied to each other, and a pound bought $4.86. The war ended that. Gold could no longer leave the country freely, and from 1920 its export was controlled by statute under the Gold and Silver (Export Control) Act, so sterling found its own level against the dollar. Going back to gold meant choosing a rate and promising to defend it, with the Bank selling gold to anyone who brought it pounds.

For anyone who made things for sale abroad, the rate was a price. A Lancashire mill or a Durham colliery selling in dollars received fewer pounds for each sale when the pound was dear, and a firm that wanted to keep its pounds had to ask its foreign buyers for more dollars. The same arithmetic reached the newer trades. The first book followed Herbert Austin's Seven from its launch at Longbridge in 1922, at £225, to the licensed copies built abroad; a firm like Austin that hoped to sell overseas, and the collieries, yards and mills

of the older export trades, all priced their goods through the rate. By January 1925 the pound had climbed to $4.77. The argument that followed was about the last few cents between that figure and the old one, and about who would pay for closing the gap.

The men who ran the country's money had no doubt about the answer. Montagu Norman, the Governor of the Bank, presented Churchill with a plan to return, worked out with Benjamin Strong of the Federal Reserve Bank of New York so that American credit could cushion the changeover. The Treasury and the Bank regarded the return as essential. Churchill's senior official on the question was Sir Otto Niemeyer, the Treasury's Controller of Finance, and beside him stood Lord Bradbury, a former Permanent Secretary to the Treasury and a member of the committee on the currency, which was preparing a unanimous report.

Churchill's decision is often told as a story about experts. On that telling a Chancellor with no training in finance took the advice of the men whose business it was, and Keynes himself, who opposed the decision, wrote later that year that Churchill had been "gravely misled by his experts". The record is harder on that account, because the case against the old rate was put to Churchill twice, once in writing and once across a table, and the first time it was put in writing, the hand was his own.

The Exercise

The paper was dated Thursday 29 January 1925. It was headed “Mr Churchill’s Exercise”, marked “Most Secret”, and sent to four men: Norman, Niemeyer, Bradbury, and Ralph Hawtrey, the Treasury’s Director of Financial Enquiries and its own economist. It set out, as sharply as any opponent could have done, the case against going back. It warned that “the maintenance of cheap money is a matter of high consequence”, and it raised the prospect that the Government would one day be accused of having “favoured the special interests of finance at the expense of the special interests of production”. A Chancellor wrote those words seven weeks before he decided.

The paper has to be read for what it was. Churchill closed it by saying that he had not “arrived at any conclusions adverse” to the return, and he had set the case out largely as an exercise: a test of his advisers, to see whether their answers would stand up. They answered. Bradbury replied that the writer’s “spiritual home” appeared to be “the Keynes-McKenna sanctuary”, naming two critics of the plan: John Maynard Keynes, the Cambridge economist who in 1923 had called the gold standard “a barbarous relic”, and Reginald McKenna, a former Chancellor who now chaired the Midland Bank.

Churchill kept pressing. On Sunday 22 February he wrote to Niemeyer about what he called “the paradox of

unemployment amidst dearth", and put his unease into a single sentence: "I would rather see Finance less proud and Industry more content." Niemeyer's case was that British and American prices were "within 4½ per cent of each other, if not nearer", so that the old rate would ask little of industry. The Treasury answered doubts of this kind by insisting that the return was itself an employment policy, because stable exchanges would revive the world's trade and Britain's with it.

A Treasury memorandum of that year, now in the National Archives, recorded that British and American price levels had been closer together in December than for many months and closer still in February, so that the return needed "only a small adjustment of price levels". Norman's way of settling the figure was to add together the estimates of, say, six authorities, divide by six, and take the average "as the best working assumption". Churchill had now put the question in writing twice. The next time he put it across a dinner table, to both sides at once.

Dinner on 17 March

On Tuesday 17 March 1925 Churchill sat down to dinner with Keynes, McKenna, Niemeyer and Bradbury. His principal private secretary, P. J. Grigg, was the sixth man at the table, and Grigg's memoir of 1948, Prejudice and Judgment, is where the evening is recorded, and the date comes from the appointments diary that Keynes kept. Grigg called it "a sort

of Brains Trust". Niemeyer and Bradbury were there to argue for gold, Keynes and McKenna against, and they went on, in Grigg's words, "till midnight or after".

Keynes's case was about the size of the gap. The difference between British and American prices, he argued, was "not 2½ per cent … but 10 per cent". To close it the country would have to push its prices and wages down by that much, and that meant deflation, unemployment and wage cuts, with "prolonged strikes in some of the heavy industries" before the adjustment was made, and a permanent contraction at the end of it. The trades he had in view were the ones that lived by selling abroad: coal, iron, textiles and shipping.

Bradbury argued on principle: the great merit of the gold standard, he said, was that it was "knave-proof". Niemeyer stood on the Treasury's figures. McKenna, who had come as a critic, told Churchill that there was no escape: he would have to go back, "but it will be hell". Grigg, writing more than twenty years later, gave his own verdict on the evening: "I thought at the time that the ayes had it." Three days later, on Friday 20 March, the decision to return was taken. The warning had been given in full, in Churchill's presence, by the plan's critics, and it had been weighed against the near-unanimous advice of his own officials and the Bank, which Churchill followed. The warning was a minority view in 1925, and it would be wrong to present it as anything more.

On the size of the gap, the later judgement has mostly gone Keynes's way. Most observers since have accepted an overvaluation of at least 10 per cent. There were dissenters: Youngson, Morgan and Gregory disputed Keynes's figure, and on the wholesale-price indices there was no overvaluation to speak of. Donald Moggridge, who went through the Treasury papers on the decision for his book of 1972, weighed the indices against one another and concluded that a rate "at least 10 per cent lower than $4.86" would have been more appropriate.

The bill

On Tuesday 28 April 1925 Churchill rose in the Commons to open his first Budget, and at about half past four in the afternoon he reached the currency. The prohibition on exporting gold would stay on the statute book in form until the end of the year, he told the House, but "a general licence will be given to the Bank of England for the export of gold bullion from to-day". The Bank would sell gold in bars of not less than 400 fine ounces at a fixed price in pounds, which put sterling back at its pre-war value against the dollar. The exchange with the United States, he added, "has for some time been stable, and is at the moment buoyant". The currency committee, he said, had presented "a unanimous Report in which it expresses a decided opinion upon the question of the gold standard", and credits of not less than $300 million had been arranged in the United States. The

countries on gold, in Churchill's phrase, would move together "like ships in a harbour whose gangways are joined and who rise and fall together with the tide".

Keynes answered in the newspapers. His articles ran in the Evening Standard from 22 to 24 July under the heading "Unemployment and Monetary Policy", and the Hogarth Press published an expanded version that year as The Economic Consequences of Mr. Churchill. The policy, he wrote, had raised sterling "to its pre-war value in gold from being about 10 per cent below it", so that on every sale abroad either the foreign buyer paid a tenth more in his own money or the British seller took a tenth less in his. Sooner or later it was a policy of reducing everyone's wages by two shillings in the pound. He picked out coal as "above all others a victim of our monetary policy".

The pamphlet returned to the miners. "They represent in the flesh the 'fundamental adjustments' engineered by the Treasury and the Bank of England," Keynes wrote, "to satisfy the impatience of the City fathers to bridge the 'moderate gap' between $4.40 and $4.86." He called them "the victims of the economic Juggernaut", and he warned that their plight was the first of the economic consequences of Mr Churchill and, unless the country was very lucky, not the last.

The coal owners had already moved. On Tuesday 30 June 1925 they gave notice ending the national agreement with the miners, proposing lower wages and an end to the

guaranteed minimum. On Wednesday 29 July Baldwin announced that the government would not subsidise miners' wages. Two days later, on Friday 31 July, the day that became known as Red Friday, his government reversed itself and bought time with a subsidy for nine months, on condition that the owners withdrew their notices, and a Royal Commission under Sir Herbert Samuel to look into the industry. The Commission was set up by Royal Warrant on 5 September. Its report, published on 11 March 1926, recommended reorganising the pits, ending the subsidy and cutting wages. The Commission's first remedy was reorganisation, a sign that coal had troubles of its own beyond the exchange rate. Its remedy still ran through the miners' pay, which was the route Keynes had described across Churchill's table a year before.

The owners then asked for district agreements in place of the national one, cuts in pay and an eight-hour day from 1 May, and they posted lockout notices to expire on 30 April. The subsidy ran out that day, and at midnight more than a million miners were locked out. Their answer was not a penny off the pay and not a minute on the day. On Saturday 1 May the executives of the trade unions voted overwhelmingly for a general strike and handed the conduct of it to the Trades Union Congress. At five past one on the morning of Monday 3 May the government announced that negotiations had broken down, and at one minute to midnight that day the General Strike began. More than 1.5 million workers

stopped in support of the miners, while Churchill edited the government's paper, the British Gazette.

The strike ended on Wednesday 12 May. The miners stayed out alone through the summer and autumn, and in November 1926 they went back to work for lower wages and longer hours. The next year Parliament passed the Trade Disputes and Trade Unions Act, which outlawed sympathetic strikes. Churchill stayed at the Treasury until the Conservatives lost the election of 1929. The rate itself lasted until 1931. In the middle of September 1931 sailors of the Atlantic Fleet at Invergordon refused duty over cuts in their pay, and within the week the defence of the pound was given up. On Monday 21 September the Commons passed, in a single day, a bill suspending the Bank's duty to sell gold, with Philip Snowden, Chancellor in the new National Government, speaking for it. Britain was off the gold standard, and the pound was left to find its own level, as it had been before 1925.

Churchill had set out the argument against the return in his own memorandum on 29 January, seven weeks before he decided, and he had heard it made at his own dinner table on 17 March, three days before. His advisers were near-unanimous and the warning was a minority view, and he decided knowing both. Keynes put the cost at about a tenth, and the export trades paid it in the form he had named: wage cuts in the pits, a lockout, and a General Strike in May 1926.

Britain left gold in September 1931, six years later, with the cost already carried by the miners and the export towns. It is the earliest decision in this book in which a government chose the standing of its currency in the world over the works that earned the country's living, with the cost set out in writing beforehand, and the rest of Part Three follows the same choice as Britain made it again.

10. MANAGED DECLINE

Blackpool

On Tuesday 28 September 1976 the Chancellor of the Exchequer, Denis Healey, arrived at Heathrow on his way to the annual meetings of the International Monetary Fund in Manila, and did not get on the plane. Sterling was falling, and he turned back to the Treasury. That same day, at the Labour Party conference in Blackpool, the Prime Minister, James Callaghan, told his own party that the remedy it had relied on since the war was finished. "We used to think that you could spend your way out of a recession, and increase employment by cutting taxes and boosting Government spending," he said. "I tell you in all candour that that option no longer exists, and that in so far as it ever did exist, it only worked on each occasion since the war by injecting a bigger dose of inflation into the economy, followed by a higher level of unemployment as the next step."

The next day Healey announced that Britain would apply to the Fund for a loan of $3.9 billion. He signed the Letter of Intent that December, committing the government to significant cuts in public spending in return for the money, and the IMF approved the stand-by on 3 January 1977. Britain had defended sterling at the export trades' expense before, at Churchill's return to gold in 1925 and in the long defence of the rate that ended with the devaluation of 1967.

In 1976 the defence came with a lender's conditions attached. What Callaghan said about industry in Blackpool is less often quoted. "The only long-term cure for unemployment," he told the hall, "is to create a healthy manufacturing industry that will hold its own overseas." A Labour government had given up spending as the way to full employment, and it still named the factories as the cure. The question for the next government was whether it would say the same.

Exchange controls

Margaret Thatcher won the general election of 3 May 1979 and made Geoffrey Howe her Chancellor, a post he held until 1983. Most histories of what followed begin with the unions and with inflation, and both were real. The strikes of the winter of 1978–79 had come in the last months of Callaghan's government, and over the year to May 1980 retail prices rose by nearly 22 per cent. A government elected to deal with those two things had a mandate for hard measures, and the first of them was about money.

On the afternoon of Tuesday 23 October 1979 Howe rose in the Commons to make a statement. "Exchange controls have been with us in one form or another for just over 40 years," he told the House, and he had "now decided to remove all the remaining exchange control restrictions from midnight tonight". His case was about confidence in the pound: "The essential condition for maintaining confidence in our

currency is a Government determined to maintain the right monetary and fiscal policies." From the next morning a pension fund, an insurer or a private investor could send money out of Britain to buy shares, property or factories anywhere in the world, without asking the Bank of England.

Healey answered for the Opposition, and he did not dispute that some relaxation was due. "In the light of our improved performance since 1976," he said, "there has been a case for some time for a relaxation in exchange control." What he objected to was the completeness of it. Howe had come to the House, Healey said, "to announce a reckless and doctrinaire decision", and he was "abolishing at a stroke the whole apparatus of control", so that if the pound or the reserves moved the wrong way it would be impossible to bring the controls back. Earlier in the same answer he had told the Chancellor that "the whole of British business now faces a severe cash crisis." Healey had given his warning before midnight.

Seventeen per cent

On Thursday 15 November 1979 Howe was back at the dispatch box, and told the House that "the Bank of England accordingly announced this morning, with my approval, that minimum lending rate would be increased to 17 per cent." His reason was the money supply, which had grown faster than the government's target, and it was, he said, "necessary to take action now" to bring it back within range. Healey

called the result “the highest interest rates and mortgage rates in our history”.

For a manufacturer the rate was a cost like any other. A firm that borrowed to carry its stocks of steel and castings through the months between order and payment paid more for every week of it, and a firm that had planned to borrow for a new machine found the sum no longer worked. The government accepted that cost as part of the fight against inflation. Rising prices were the enemy the government had named; the survival of particular industries was left to the market to decide.

By the spring of 1981 the price was on the government’s own books, and Howe read it out. Presenting his Budget on Tuesday 10 March, he told the Commons that total output in the United Kingdom had fallen by about 2½ per cent in 1980, “and that of manufacturing industry by no less than 9 per cent”, and that there were “almost 1 million more people out of work than there were a year ago.” He then raised taxes by about £4 billion, roughly 2 per cent of national income, with the aim of cutting government borrowing in the year ahead. A Chancellor had described a recession in industry from the dispatch box and tightened policy before he sat down.

The 364

In the economics faculty at Cambridge two professors, Frank Hahn and Robert Neild, decided that the Budget should be answered. According to the British Academy's memoir of Hahn, the two of them sat down in the faculty coffee room, drew up a response and circulated it among academic economists for signature. By the time the statement was published, on Monday 30 March 1981, 364 of them had signed, including Hahn and Neild themselves. It is usually called a letter to The Times; other accounts say it was sent to ministers and to the press. Either way, it was public within three weeks of the Budget.

Its first claim was that there was "no basis in economic theory or supporting evidence" for the government's belief that deflating demand would bring inflation permanently under control. It went on to warn that the policies would deepen the depression, erode the industrial base of the economy, and "threaten its social and political stability". The Budget stood, and the argument over who had been right has never closed. In 2006 the Institute of Economic Affairs published a volume, edited by Philip Booth, under the title Were 364 Economists All Wrong?, and its case was that "from 1981 there was continual growth, falling inflation and eventually, employment growth." The figures for the factories themselves are less in dispute. Britain had 6,704,000 manufacturing jobs in 1979, on the Office for

National Statistics series, and 5,789,000 in 1981: close to a million gone in two years, with the fall under way before the statement was written and going on after it.

Toxteth

On Friday 3 July 1981 police arrested a young Black man, Leroy Cooper, near Granby Street in Toxteth, in the south of Liverpool. The arrest, watched by an angry crowd, led to a disturbance, and the disturbance to nine days of rioting. In the early hours of Monday 6 July the Merseyside police fired CS gas at the rioters, the first time it had been used on the British mainland. In October the Home Secretary, William Whitelaw, told the Commons in a written answer that the chief constable had used it "as a last resort", and that the type of cartridge fired should not be used again against public disorder.

The government sent Michael Heseltine, the Environment Secretary, to Liverpool as its minister for Merseyside. He spent three weeks in the city, by his own later account "walking the streets, talking and listening", and on Thursday 13 August 1981 he sent the Prime Minister a minute of twenty-one pages on what he had found. He called it "It Took a Riot", and it argued that the government should put its own effort and money into Merseyside. He was careful to say what had not moved him. "I cannot stress too strongly that my conclusions and proposals are not based on my fear of further riots," he wrote. He also named the alternative, if

only to set it aside: “I have not expanded on the concept of a tactical retreat, a combination of economic erosion and encouraged evacuation.” The idea of letting the city run down was already being discussed in government, and Heseltine had written it down only to refuse it.

The question Heseltine put to Downing Street was whether a government that had left industry to the market would now spend public money to keep a city going. At the Treasury the Chancellor had already written his own answer.

The letter

Two days before Heseltine’s minute, on Tuesday 11 August 1981, Howe wrote to Thatcher about Merseyside. He had talked to Heseltine about the report that was coming, and he called Liverpool “much the hardest nut to crack”. Then he raised an idea that the government’s own think tank, the Central Policy Review Staff, had considered in its study of Merseyside and rejected. The option of managed decline, Howe wrote, was “one which we should not forget altogether”, and the government must not spend everything it had “trying to make water flow uphill”. On Friday 4 September he wrote again, and this time he asked the question outright. “Should we rather go for ‘managed decline’?” Then, in the next line: “This is not a term for use, even privately.” Both letters went into the Prime Minister’s papers, now held at the National Archives in PREM 19/578,

and stayed there for thirty years. They were released on Friday 30 December 2011, when the BBC reported them.

Howe, by then Lord Howe and in his eighties, answered through the BBC. “I wasn’t in any sense advocating managed decline,” he said, and he told the BBC that he did not recall how that argument had got into the discussion at all. His denial has to be read beside the letters, and so does the outcome. Heseltine won the argument. The Merseyside Task Force was set up in 1981 after his visit. On 26 and 27 November that year he was back on Merseyside meeting its members, voluntary organisations, trade union representatives and some local industrialists, and he told the Commons that the task force was pursuing the initiatives announced in August. The International Garden Festival ran in Liverpool from 2 May to 14 October 1984, and public money went into the Albert Dock. The option Howe had put on paper was not taken up.

What the letters do show is the language. A Chancellor who had tightened policy in a recession asked his Prime Minister whether to go for the managed decline of a British city, and wrote in the same letter that no one should use the phrase, even in private. Where the state itself owned the works, in steel and coal, the government had no need to wait on the market, and it had already, in 1980, put British Steel under a chairman recruited from Lazard Frères in New York.

Exchange controls went at midnight on 23 October 1979, after a former Chancellor had called the decision reckless across the floor of the House. The minimum lending rate reached 17 per cent that November. On 10 March 1981 Howe read out manufacturing's fall from his own figures and raised taxes in the same speech, and before the month was out 364 economists had warned in public that the course would erode the industrial base; the government held it. By September the same Chancellor was asking in writing whether to go for managed decline in a British city, and marking the term as one never to be spoken. Britain lost close to a million manufacturing jobs between 1979 and 1981, and the course that cost them was kept after each of those warnings had been given.

From the men who were there

A reader who left school in the early 1980s remembers finding no jobs and no apprenticeships, and going on the Youth Opportunities Programme at £25 a week, placed with a local Austin Rover dealer. The job said sales and mechanical but mostly meant cleaning cars. It became a full-time post, and the reader stayed ten years, until redundancy.

A machinist who served an apprenticeship in the Manchester area, turning and milling, remembers being ready to leave the country the moment the City and Guilds papers were in hand. The machinist arrived in Canada in the early 1980s and spent forty years in the trade at a steel mill in Ontario.

11. THE CHAIRMAN

The Ridley report

On Thursday 7 June 1984, three months into the coal strike, Stanley Orme opened a debate on the dispute in the House of Commons for the Labour opposition and read the House a list. In a report in 1978, he said, the Member for Cirencester and Tewkesbury had picked out the coal industry as the most likely battlefield for a future Conservative government. The preparations it suggested were to build up coal stocks, particularly at the power stations, and plan to import coal; to encourage hauliers to take on non-union drivers and fit the power stations to burn oil as well as coal; to cut off the money supply to strikers and make the union finance them; and to set up a large, mobile squad of police to deal with picketing. "Every one of those points has been followed by the Government," Orme said. The Energy Secretary, Peter Walker, answered him at length and did not mention the report.

The Member for Cirencester and Tewkesbury was Nicholas Ridley, and the document Orme was describing had been written seven years earlier, by Ridley and others on the Conservative Party's policy group on the nationalised industries. The group dated its report 30 June 1977. It reached the public on 27 May 1978, when The Economist printed a leaked account under the headline "Appomattox or

Civil War" and The Times ran its own story on the same day. The Times reported the report's view that if there was a confrontation between a Conservative government and the unions, "the battle should be on ground chosen by the Tories", and its proposal for "a large, mobile squad of police prepared to uphold the law against violent picketing". Shadow ministers suggested that it would never be accepted by the Shadow Cabinet, and disclaimed knowledge of the confidential annex that went with it. The historian John Saville, writing in the Socialist Register in 1985, argued that its recommendations had become the blueprint for 1984–85.

The group had good reason to think about coal. In February 1974 Edward Heath, facing a miners' strike he could not settle, had called a general election on the question of who governed Britain, and within a week of polling day Harold Wilson was back in Downing Street. Two years before that, on the Clyde, a Conservative government had learned what organised men could make it pay. When Upper Clyde Shipbuilders went into liquidation in 1971 after the government refused to keep subsidising it, the shop stewards, with Jimmy Reid among their leaders, kept the yards working instead of striking. "We are not going to strike," Reid said. "We are not even having a sit-in strike. Nobody and nothing will come in, and nothing will go out, without our permission." On Monday 28 February 1972 the government offered about £35 million to keep three of the yards going under a new company, Govan Shipbuilders.

Resistance had changed a government's mind on the Clyde in 1972 and changed the government itself in 1974, and the Ridley group wrote its report after both.

British Steel

On Thursday 1 November 1979 William Homewood, the Labour Member for Corby, rose in the Commons to ask for an emergency debate. The British Steel Corporation had announced a rapid run-down of the iron and steel works in his constituency, and 5,500 steelworks jobs, by his count, would go from a town that depended on them. He told the House that thousands of its people had marched in protest that morning. The Speaker, George Thomas, ruled that the request did not qualify. The chairman of British Steel at the time was Sir Charles Villiers, and the closure of Consett in County Durham was announced the following month, also under him. Both decisions came before the man this chapter is about had any part in the corporation. Twenty-six days after Homewood rose, the board of United States Steel announced its own closures in Pittsburgh, the American half of the same story told earlier in this book; the British corporation's owner was the state, and the state wanted its losses cut.

The losses were real. On Monday 14 January 1980, with the steelworkers out on a national strike over pay, the Industry Secretary, Sir Keith Joseph, told the Commons that British Steel's losses for 1979–80 came to "over £1,800 for each

steel worker". The strike ran from January into early April, and it was over before any new chairman arrived. Most British histories of what followed begin here, with losses of that size, unions that struck against the cure and a management that could not make steel pay, and each part of that has its evidence. They say less about the choice of the man sent to do the cutting, and the terms on which he came.

Joseph gave that answer on Thursday 1 May 1980. The next day, he told the House, Ian MacGregor would join the board as a part-time deputy chairman, and he would become chairman full-time on 1 July. His employer, the New York bank Lazard Frères, would receive up to £1,825,000 for releasing him, most of it linked to how British Steel performed. "In Mr. MacGregor I believe that we have found a man with the qualities needed to lead the BSC out of its present difficulties," Joseph said. John Silkin, for Labour, called it "a transfer fee", and Michael Foot said there were plenty of people in the industry "who could have done this job without all the farcical bribery that the right hon. Gentleman has introduced."

A fortnight later, on Thursday 15 May 1980, Silkin brought the fee back to the House on a motion for the adjournment, and the government's side of the argument was put by the Conservative Member for St Marylebone, Kenneth Baker. "The case for the Government, in a nutshell, is that if they want a person with exceptional qualities they must be

prepared to offer exceptional terms," Baker said. "The proof of the pudding is in the eating. If Mr. MacGregor succeeds in his task, the terms that the Secretary of State has agreed will be very modest." Silkin's answer was that the damage had been done: MacGregor had been appointed, but he faced "some rather critical judges in the job ahead."

The man they were arguing about was sixty-seven. He had been born in Kinlochleven in the Highlands in 1912, trained as a metallurgical engineer in Glasgow, and in the Second World War had been sent by the Ministry of Supply to North America to work on tanks. He stayed. He rose through Climax Molybdenum and the merged company, American Metal Climax, later AMAX, as chief executive from 1966 and chairman from 1969, before joining Lazard. He had come back to British industry in 1977 as a non-executive director of British Leyland, deputy to its chairman, Michael Edwardes (knighted two years later). In March 1980, three months before he took over, British Steel employed 166,400 people. By February 1983, on the figures given to Parliament that April, it employed 84,200, and roughly half the workforce had gone in under three years. How much of that fall came from decisions taken before he arrived, Corby's and Consett's among them, the figures do not separate.

The Coal Board

On Monday 28 March 1983 the Energy Secretary, Nigel Lawson, told the Commons who would succeed Norman

Siddall at the National Coal Board. “As his successor I have appointed Mr. Ian MacGregor, currently chairman of the British Steel Corporation.” Lawson gave his reasons. By the time MacGregor retired from AMAX in 1977, he said, “he had built it up into the third largest coal mining company in the United States”, and since then he had led British Steel “with vigour and determination through a period of intense difficulty”. Lazard Frères would be paid £1½ million for the loss of his services. The Labour MP John Smith asked whether Lawson was aware “that this is an extremely foolish appointment that will divide a great industry”. MacGregor took up the post for three years from Thursday 1 September 1983.

Two weeks into his term, ministers heard what he had in mind. At a meeting on Thursday 15 September 1983, Peter Walker, now at Energy, reported MacGregor’s preliminary conclusions on the pits that would close. MacGregor was not in the room, and the record notes that he wanted a little longer before he was held to any figures; ministers took no decision. When those papers were released under the thirty-year rule, the BBC reported on 3 January 2014 that they showed a plan to “shut 75 pits over three years, and cut 64,000 jobs”. The Margaret Thatcher Foundation, reading the same files, put the plan differently. At a second meeting, on 19 January 1984, Walker said that MacGregor had decided the run-down “ought to be accelerated”, which “would imply the loss of 45,000 miners over the next two

years". The Foundation's own reading is that the Coal Board and ministers "focussed talk of closures strictly on the coming year and made no disclosure of MacGregor's plans to close pits the year following." The National Union of Mineworkers had been saying in public that a secret hit list existed, and ministers avoided naming numbers for that reason.

The strike

The strike began at one pit. On Thursday 1 March 1984 the men of Cortonwood colliery in South Yorkshire were told that their pit was to close. "We had a bit of an idea it hadn't got long, but we thought we had five years," one of them, Don Keating, said long afterwards. The miners there walked out, and other Yorkshire pits followed. On Tuesday 6 March 1984 the Coal Board announced that it would cut coal output by four million tons. The union said that meant closing twenty pits and losing 20,000 jobs. The walkouts spread, and on 12 March the union's president, Arthur Scargill, called for national action. By that day, on the count of United Press International, the pits were split almost evenly between those on strike and those still working. Scargill led the strike without a national ballot, although moderates in the union had asked for one, and in area votes in the Midlands, the North East and the North West miners voted against striking. At its peak 142,000 men were on strike.

Both sides stated their case. Walker told the Commons in June that any miner then employed "will be able to continue working as a miner if he desires to do so", and that those affected would be treated "more generously and with greater understanding than in the past". Margaret Thatcher, speaking to the 1922 Committee of Conservative backbenchers on Thursday 19 July 1984, used the phrase "the enemy within"; no text was released, and a briefing note two days later said it referred to "the minority of militants", not to miners as a whole. MacGregor's own account of the strike, written with Rodney Tyler and published by Collins in 1986, was called The Enemies Within: The Story of the Miners' Strike, 1984–5. Scargill's case was that the Coal Board meant to close far more pits than it admitted. The papers released in 2014 show that its chairman had worked out a longer programme than ministers disclosed, whatever its final size was to be.

On Sunday 3 March 1985 a special delegate conference of the union voted, by 98 to 91 after three hours of debate, to return to work without a settlement. "We shall go back together," Scargill said, "but this union fights on to retain pits, jobs, and communities." The Coal Board refused a general amnesty for the miners who had been dismissed during the strike, about 700 of them, and said their cases would be considered on their merits. The strike had lasted almost a year.

One reply to the charge that the strike was planned is that pits had been closing for a generation, and that Labour had closed them too. The employment figures bear out the first half of that. The National Coal Board employed 607,000 people in 1960 and 290,000 in 1970, a fall of more than half across the Conservative governments of Macmillan and Douglas-Home and the Labour government of Harold Wilson. The comparison usually made, that more collieries shut under Wilson than under Thatcher, depends on how the pits are counted and how the years are divided between governments. The employment series is plainer about the decade after the strike.

What set the 1980s apart was a written plan that prepared the ground for the fight before the closures were announced. The confrontation of 1984–85 had been set out on paper in 1977, leaked in May 1978, and staffed in 1980 and 1983 by one chairman brought from an American bank for fees of up to £1,825,000 and then £1½ million. It defeated the one union in Britain that had shown it could make industrial closures politically costly, and between 1984, the year the strike began, and 1994 the coal industry lost nearly all of its remaining workforce, from 139,000 people to 7,000. What rewarded decisions of this kind, in both countries, is the subject of the part that follows.

From the men who were there

A reader who worked ten years for British Steel and then ten for British Coal still finds it hard to believe what happened in one working life. Governments, poor management and the unions all share the blame, in this reader's view, and the changes could have come without the hardship the men before had to bear.

In the late 1970s another reader went round the Corby steelworks with a brother-in-law starting a night shift, and was shown men bedding down, taking turns to sleep. The visitor's sympathy was and is with the workers, but so is the memory of how hard the problems were.

PART FOUR – THE PATTERN

The chairman who ran British Steel and then the coal industry came from a New York bank, and each appointment was paid for with a fee to the bank that released him. The last three chapters step back from the cases to what connects them: the money that rewarded the people who took these decisions, the men who were trained to take them, from the officers who started work at Ford in 1946 to the managers of GE's own school, and the map of currency and trade on which Britain and America placed their bets. This is the argument a reader of the first METTLE book asked for.

12. THE MONEY

The agents

In January 1976 two economists at the University of Rochester, in upstate New York, sent a long paper to the Journal of Financial Economics. Michael Jensen had taught at the university's business school since 1967. William Meckling was the school's dean. They revised the paper that July, and in October it appeared under the title "Theory of the Firm: Managerial Behavior, Agency Costs and Ownership Structure". Its question was an old one: what happens to a company when the people who run it are not the people who own it. Their answer began with a definition. The owners were principals, the managers were their agents, and "if both parties to the relationship are utility maximizers, there is good reason to believe that the agent will not always act in the best interests of the principal."

The paper turned that suspicion into a system. A manager who owned all of his firm bore the whole cost of every indulgence, every perquisite of the office included. A manager who owned a small slice bore only that slice of the cost, and the rest fell on the shareholders. The firm itself, in Jensen and Meckling's account, was a legal fiction, a bundle of contracts with workers, suppliers, lenders and customers, and the only party with a claim on whatever was left over at the end was the owner of the shares. Friedman had called the

executive the employee of the owners in 1970. Rochester gave the idea a mathematics and a remedy: tie the agent's wealth to the principal's, and the agent would behave. The University of Rochester describes the paper today as the most-cited article in business academia.

The principals themselves were changing while the theory was being written. In 1950, by the Conference Board figures that Ronald Gilson and Jeffrey Gordon cited in the Columbia Law Review in 2013, institutional investors, pension funds among them, held about 6 per cent of American shares, and households held most of the rest. By 2009 institutions held half of all American public equities and 73 per cent of the equity of the thousand largest companies. The owner at the far end of Jensen and Meckling's contract was increasingly a fund, run by professionals for pensioners and savers, and measured on the returns it produced.

Greta Krippner, a sociologist then teaching at UCLA, went looking in the national accounts for what that shift did to American business. In a paper of 2005 she defined financialisation as "a pattern of accumulation in which profits accrue primarily through financial channels rather than through trade and commodity production", and she built two measures of it. The first compared what non-financial companies earned from interest, dividends and capital gains with the cash their ordinary business produced. It was steady through the 1950s and 1960s, began to climb in

the 1970s and rose sharply through the 1980s, until by the end of that decade it stood at about five times the post-war level.

United States Steel's purchase of Marathon Oil in 1982 was one company's version of the same turn. In her book Capitalizing on Crisis, published by Harvard University Press in 2011, Krippner traced the turn to Washington: the deregulation of interest rates, the reliance on foreign capital to fund the deficits of the early 1980s, and the Federal Reserve's change of course in 1979. Her finding was that policymakers made those choices to get out of the economic troubles of the 1970s, and that the rise of finance was a consequence they did not set out to produce.

Pay for the price

In the spring of 1990 Jensen was at the Harvard Business School, and his collaborator was Kevin Murphy, then an associate professor at Rochester's business school. They had asked how closely the pay of American chief executives followed the fortunes of their shareholders. Their paper in the Journal of Political Economy that April gave the answer in a single number: a chief executive's wealth changed by $3.25 for every $1,000 change in the wealth of his shareholders. In the May–June issue of the Harvard Business Review they put the argument to the people who set the pay. "The arrival of spring means yet another round in the national debate over executive compensation," the article

began, and it went on to argue that the debate was about the wrong thing. The trouble was how chief executives were paid, and the remedy was to tie far more of their wealth to the price of the company's shares.

The problem they described was real. A board that paid its chief executive the same salary whether the company thrived or stagnated had given him little reason to put the owners first, and the conglomerates assembled in the 1960s had shown how far a management could grow a company for reasons of its own. The boards took the advice, and the instrument they reached for was the stock option. In October 1997 two Harvard economists, Brian Hall and Jeffrey Liebman, published a study under a title that answered Jensen and Murphy directly: "Are CEOs Really Paid Like Bureaucrats?" They had followed the pay of chief executives from 1980 to 1994, and found that the link between pay and the share price had grown between two and nearly seven times over those fifteen years, driven mainly by option grants and shareholdings.

Murphy lived to see what the boards had built. In April 2024, after Jensen's death at the age of eighty-four, he told the university's news office that the two of them had felt that following the stock price was the right thing to do. "What actually happened, to our chagrin," he said, "was that companies would layer stock options on top of existing

competitive pay packages." The link to the stock had been added, and the salary it was meant to replace had stayed.

1993

At 12.33 p.m. on Tuesday 10 August 1993 President Clinton spoke on the South Lawn of the White House before signing the Omnibus Budget Reconciliation Act of 1993. He talked about the deficit, about working families and small businesses, and about tax fairness. He did not mention a clause in the Act that dealt with executive pay. In his campaign he had proposed limiting the deductions companies could take for what he called excessive executive pay, and the Act did it in section 162(m) of the tax code. From 1994 a public company could no longer deduct more than $1 million a year in pay to each of its top executives, unless the pay was tied to performance. Stock options qualified as pay tied to performance.

What the clause did was measured later. Kenneth Ferris and James Wallace, two accounting scholars at Claremont Graduate University in California, went back over the pay records and published what they found in Advances in Accounting in 2009 under the title "IRC Section 162(m) and the law of unintended consequences". Executives' total pay had risen once the law took effect, they concluded, largely because of a dramatic increase in stock options. Not everyone who studied the law gave it so much weight. Steven Balsam, a compensation scholar who had examined it in

detail, told ProPublica in 2016 that at best it had had a marginal effect, and Hall and Liebman's figures show the option already rising through the 1980s, before Congress acted. What the law settled was which kind of pay the tax code would favour, and it favoured the kind that moved with the share price.

Congress repealed the performance exemption in 2017. By then the shape of a chief executive's pay had long since settled. On the measures the Economic Policy Institute used in 2019, options and stock awards made up between about half and three-fifths of a typical large-company chief executive's pay in 2006 and 2007, and about seven-tenths of it by 2018. For a man paid mostly in shares, the question of what to do with a year's profit had a personal answer, and Rule 10b-18 had made the buyback the safest use of it since 1982.

Paramount duty

On Thursday 11 September 1997 the Business Roundtable, the chief executives' own association, issued its Statement on Corporate Governance. Sixteen years earlier, in the statement of October 1981 already described in this book, the same association had listed customers, employees, communities, suppliers and shareholders as the people a company served. The new statement put them in order. "In The Business Roundtable's view, the paramount duty of management and of boards of directors is to the

corporation's stockholders," it said, and the interests of everyone else mattered "as a derivative of the duty to stockholders". The idea that a board should balance the owners against the rest, it added, "fundamentally misconstrues the role of directors".

The same day Martin Lipton, the New York corporate lawyer, wrote a memorandum on it. "The Business Roundtable Statement on Corporate Governance issued today should be the definitive statement on this subject," he began, and he welcomed it for rejecting what he called the formularistic approach of CalPERS, the pension fund of California's public employees. The chief executives had written down, in their own words and under their own association's name, what Rochester had argued twenty-one years before. The shareholders were the principals, the managers were their agents, and the workers, the towns and the suppliers counted for as much as they contributed to the owners' returns.

What that meant for a furnace or a production line was measured in late 2003, when John Graham and Campbell Harvey of Duke University's Fuqua School of Business and Shiva Rajgopal of the University of Washington surveyed 401 senior financial executives and interviewed twenty more, to find out how they managed the earnings they reported. Four in five said they would cut spending on research, advertising and maintenance to meet an earnings target. More than half said they would put off starting a new project to meet one,

even if the delay cost the company value. One chief financial officer they interviewed explained why: “I miss the target, I’m out of a job.”

Other economists tested whether the pressure showed in what companies actually built. John Asker and Alexander Ljungqvist of New York University’s Stern School of Business and Joan Farre-Mensa of the Harvard Business School used a new database of private American companies to compare them with listed companies of the same size in the same industries, over some 300,000 company-years between 2001 and 2011. The private firms invested nearly twice as much, and responded far more readily when new opportunities appeared. The gap was widest in the industries where share prices reacted most sharply to earnings news. Ljungqvist said the findings were “consistent with the view that public firms’ investment decisions are affected by managerial short-termism”.

Heitor Almeida and Mathias Kronlund at the University of Illinois and Vyacheslav Fos at Boston College asked what buybacks did when a company was about to miss its forecast. They compared companies that would have just missed the analysts’ forecast of earnings per share with companies that just met it, and found that the first group was sharply more likely to buy back shares, which lifted earnings per share over the line. In the four quarters that followed, those companies cut jobs, capital spending and research. The

reduction in capital spending came to about a tenth of the average in their sample. Their conclusion, published in the Journal of Financial Economics in 2016, was that managers were willing to trade investment and employment for repurchases that let them meet the forecast.

The totals grew with every decade. The companies of the S&P Composite 1500 bought back $1,237 billion of their own shares in the six years from 1994 to 1999, and $5,627 billion in the nine years from 2010 to 2018. Jesse Fried and Charles Wang's answer, that much of this cash flowed back into the market and on to other firms, still stands, and this book has already given it its hearing. It is an argument about the economy as a whole, and it does not bring the money back to a battery plant in Fennimore.

2019

On Monday 19 August 2019 the Business Roundtable published a new Statement on the Purpose of a Corporation, signed by 181 chief executives. The association's chairman was Jamie Dimon of JPMorgan Chase, and its governance committee was chaired by Alex Gorsky, chief executive of Johnson & Johnson, the company whose credo of 1943 had put its stockholders last. The statement made five commitments, to customers, employees, suppliers, communities and shareholders, with the shareholders fifth. The Roundtable's own announcement said that every version of its principles issued since 1997 had endorsed shareholder

primacy. Gorsky said the new statement "better reflects the way corporations can and should operate today".

The owners answered the same day. The Council of Institutional Investors, which speaks for pension funds and other institutions that own shares, issued a response containing the sentence that summed up their objection: "Accountability to everyone means accountability to no one." Two scholars at Harvard Law School, Lucian Bebchuk and Roberto Tallarita, then examined what the signatures had changed, and published their findings in the Cornell Law Review in 2021. Their survey of the companies indicated that chief executives had largely signed without seeking the approval of their boards beforehand or their ratification afterwards. Their review of the companies' corporate governance guidelines, including those revised in the year after the statement, found that the guidelines mostly continued to reflect shareholder primacy.

The pay had not been rewritten either. On the Economic Policy Institute's figures, published in September 2026, the chief executive of a large American company was paid about 21 times as much as a typical worker in 1965 and about 31 times in 1978. The ratio reached its peak of about 380 in 2000, three years after the Roundtable's paramount duty, and in 2025 it stood at about 325. In 1980 Hayes and Abernathy, in the article met in the first chapter, had laid American industry's troubles at the door of managers who

judged their businesses by short-term financial measures. In the decades that followed, a theory of 1976 told boards to tie their managers to the share price, a tax law of 1993 favoured pay that moved with it, and the statement of 1997 made the shareholder the paramount duty. The men who took decisions like those described in this book were increasingly paid in stock and options whose value rose with the share price, and the costs of those decisions fell on the plants, the towns and the people who worked in them, whom the Roundtable had counted only as a derivative of the duty to stockholders.

13. THE MEN

The finance staff

In October 1945 Henry Ford II received a telegram at his office in Dearborn, Michigan. It came from Charles Thornton, known as Tex, a colonel in the Army Air Forces, and it offered Ford the statistical control system the Air Forces had developed in the war, together with Thornton and a team of the officers who had worked it. Ford was looking for new ways to revive the company he had inherited, and he agreed to see them. Late that year two of the officers, Robert McNamara and Charles Bosworth, drove from Dayton, Ohio, to Dearborn in a Ford Model A. Ford hired all ten, and on Friday 1 February 1946 they started work in the company's former administration building on Schaefer Road. They became known as the Whiz Kids.

McNamara joined as manager of planning and financial analysis. He had taken a master's degree at the Harvard Graduate School of Business Administration and gone back to teach there in August 1940, before the war took him into the Army Air Forces as a captain. At Ford he rose through a series of senior posts to the presidency, which he took on Wednesday 9 November 1960, the day after John F. Kennedy was elected. Less than five weeks later he accepted Kennedy's invitation to join the Cabinet, and in January 1961 he became Secretary of Defense. Arjay Miller, another of the ten,

became president of Ford in the mid-1960s and then, from 1969, spent ten years as dean of Stanford's Graduate School of Business, where he argued for what he called "balanced excellence" and quadrupled the school's endowment. Ford had sought them out because it needed them.

Their careers were an early instance of something that could be measured across the whole of American industry. The sociologist Neil Fligstein set out to find who had risen to run the largest American corporations, and from which part of the company, and he followed their presidents from 1919 to 1979. He published the results in the American Sociological Review in 1987 as "The Intraorganizational Power Struggle: Rise of Finance Personnel to Top Leadership in Large Corporations, 1919–1979", and at length in The Transformation of Corporate Control in 1990. His answer came in three stages. Early in the century the large firms were run by entrepreneurs or by men who had come up through manufacturing. In the middle decades the men from sales and marketing took over. In the last twenty-five years of his period the finance men became steadily more dominant.

Bad management in American industry is most often told as a story of individual failures, a poor chief executive at one company and a timid board at another. Fligstein's evidence describes something larger: this was a pattern made of many decisions, taken one appointment at a time by hundreds of

boards, and no single meeting or document decided it. Each board chose the candidate it thought best. Taken together, those choices handed more and more of the largest manufacturing companies to men who had made their careers in finance.

The article and the hearing

On the evening of Tuesday 24 June 1980 NBC broadcast a documentary in prime time whose title put a question to American industry: "If Japan Can… Why Can't We?". Its best-remembered figure was an American statistician, W. Edwards Deming, who had lectured in Japan on statistical quality control in 1950 at the invitation of the Union of Japanese Scientists and Engineers. His appearances were brief. "I think people here expect miracles," he said. "American management thinks that they can just copy from Japan – but they don't know what to copy." Ford Motor Company called on him that same year.

The July–August issue of the Harvard Business Review was on the stands the same summer, and in it "Managing Our Way to Economic Decline", the article by Robert Hayes and William Abernathy of the Harvard Business School met earlier in this book. Its subtitle was "Modern management principles may cause rather than cure sluggish economic performance". Managers devoted to short-term returns and to what the authors called "management by the numbers" had, in their judgement, "abdicated their strategic

responsibilities". They described the large company increasingly treated as a portfolio, a cluster of businesses assembled under one corporate umbrella and judged by their returns. They also looked at who was being made president of the hundred largest American companies, and found that since the mid-1960s a substantially larger share of new presidents had made their careers in finance and law rather than in production.

They gave the last word on that point to C. Jackson Grayson, president of the American Productivity Center, who said that American management had for twenty years "constantly rewarded executives from the marketing, financial, and legal sides of the business while it ignored the production men." Grayson added that in the business schools courses in production had all but disappeared. The warning came from inside the institution it described, in its own journal, written by two of its own faculty.

It was then carried to Congress. At ten in the morning on Friday 1 May 1981, in a hearing room of the Dirksen Senate Office Building, the Joint Economic Committee opened hearings on business management and productivity under its chairman, Representative Henry Reuss of Wisconsin. Reuss began with the figures that troubled the committee: output per worker, which had grown by an average of 2.4 per cent a year in the fifteen years after 1950, had grown by only 0.4 per cent a year in the late 1970s. The witnesses that morning

were Hayes and Abernathy, an executive from TRW and one from Sony. “You had an opportunity to look over the article that Professor Abernathy and I wrote last year,” Hayes began, and the committee printed the article in its record. The diagnosis now stood in the record of Congress, set out in person by the two men who had made it.

The consultants

The business schools had a partner in this, older than the argument of 1980. In October 1935 James O. McKinsey, who had taught at the University of Chicago and written books on accounting and administration, became chairman of Marshall Field & Co., the Chicago department-store company, which had lost $12 million in five years. McKinsey already ran a firm of consultants under his own name. Time magazine said he reorganised the store “ruthlessly”, and the company reported a profit for 1935 and a larger one for the first nine months of 1937. He did not live to see that year out. McKinsey died of pneumonia in Chicago late in 1937, aged forty-eight, and the firm he had founded outlived him by the better part of a century.

Why such firms grew so fast in the 1930s is a question the business historian Christopher McKenna set out to answer, and his answer is the strongest case against reading consulting as a fashion or a conspiracy. In 1933 the Glass-Steagall Act separated investment banking from commercial banking. As McKenna put it in 1995, “Since Glass-Steagall

prohibited commercial banks from engaging in ‘non-banking activities,’ like management engineering, commercial banks could no longer act as management consultants.” From 1934, he showed, federal regulation pushed the banks to hire outside consultants instead, and at McKinsey’s firm the partners came to call such studies “banker’s surveys”. In The World’s Newest Profession, published by Cambridge University Press in 2006, McKenna follows the elite firms as they expanded after those regulatory changes and went on to reshape large corporations, charities and the federal government itself.

McKenna’s account deserves its weight. Consultants met a real demand, created by law and by the size of the organisations that hired them, and the demand kept growing. He opened his 1995 paper with a single fact: in 1993 AT&T spent more on management consulting than on corporate research and development. By 2023 McKinsey alone had revenue of about $16 billion. Critics followed the growth. In 2022 two New York Times reporters, Walt Bogdanich and Michael Forsythe, published When McKinsey Comes to Town: The Hidden Influence of the World’s Most Powerful Consulting Firm, a record of the firm’s work for tobacco companies, opioid makers and heavy polluters. Forsythe summed up one of their findings in an interview that October: “McKinsey’s working for the companies and also the regulators that regulate them.” The advice they sold and the courses the business schools taught shared the view

Hayes and Abernathy had described in 1980, of a large company as a portfolio of businesses to be judged by their returns.

Crotonville

General Electric built its own school. In 1956, under its president Ralph Cordiner, the company bought a stretch of wooded land at Crotonville, near Ossining, about an hour north of New York City, and opened a management training centre on it, because Cordiner believed that GE's managers were holding back its growth. The first seminar lasted thirteen weeks, and one of the early students was Reginald Jones, a future chief executive of the company. Under Jack Welch it became the place where GE's managers met their chairman. In an amphitheatre known as the Pit, Welch took questions and argued, once every two weeks, with the hundred or so managers in residence.

The men who came out of that system went on to run other companies. Nardelli and McNerney, the two finalists passed over for Immelt in 2000, left for Home Depot and 3M, and McNerney later ran Boeing, as Stonecipher had before him. Others left to run companies of their own: Larry Bossidy went to AlliedSignal, David Cote to Honeywell, Joseph Hogan to ABB, Omar Ishrak to Medtronic, Larry Johnston to Albertsons. On Monday 13 January 2020 David Calhoun, who had spent twenty-six years at GE and run GE Aircraft Engines among other divisions, began work as Boeing's chief

executive after the two crashes of the 737 MAX. He said he would "strengthen our safety culture, improve transparency and rebuild trust with our customers, regulators, suppliers and the flying public." He was the third chief executive of Boeing to have been trained at GE.

The universities, meanwhile, were turning out managers in far greater numbers. In the academic year 1970–71 American universities awarded 26,490 master's degrees in business. By 1999–2000 the figure was 111,532, according to the Department of Education's National Center for Education Statistics, which counts business master's degrees of every kind together. By 2024 General Electric was dividing itself into three, and on Wednesday 3 April that year the sale of the Crotonville campus was recorded in Westchester County: it had gone for $22 million, to be run by a hospitality company.

Taken in order of date, the record is this. The Whiz Kids brought the methods of statistical control to Ford in February 1946, and one of them went from teaching at the Harvard Business School to the presidency of Ford and on to the Pentagon. Fligstein traced the same movement across the largest companies: from the entrepreneurs and the production men, through sales, to finance. The most precise description of what the change was doing to American manufacturing was published in the summer of 1980 by two Harvard Business School professors in the school's own journal, the same summer NBC showed American managers

what Deming had taught Japan, and it was printed in the record of Congress after its authors testified on 1 May 1981. In the two decades that followed, the number of business master's degrees awarded each year more than quadrupled. GE-trained men went on to run Home Depot, 3M, Honeywell and Boeing. The warning was read by the people it described, and the practice it warned against became the qualification for the job. Boeing's board turned to a third GE-trained chief executive in 2020, forty years after the article appeared.

From the men who were there

A reader who was in a graduate programme in New York in the mid-1990s remembers Welch being treated as the hero who had transformed GE, his methods copied by MBAs and senior managers. In this reader's experience, MBAs were the biggest single cause of corporate failure: they brought in cost-saving programmes that produced short-term profit at the expense of product quality and the brand, and moved on to the next company before the damage showed.

A reader who studied for an MBA remembers the professors holding up Welch's methods as the model to follow, and now judges the degree's value by that.

14. THE MAP

Bretton Woods

In the spring of 1944 the government gave the Mount Washington Hotel, a resort in the mountains of New Hampshire, two months to be made ready. A hundred and fifty workers were sent up to open it, Army crews painted everything in sight white, and the kitchens were staffed by local people hired in a hurry and by cooks lent by the Army. From 1 to 22 July about 730 delegates from forty-four nations filled it, and for three weeks the hotel at Bretton Woods was where the money of the post-war world was decided.

Two men carried the argument. John Maynard Keynes led for the British Treasury with a plan for an international clearing union and a new reserve unit of its own, which he called bancor. Harry Dexter White, the United States Treasury's chief international economist, brought a smaller plan for a stabilisation fund, and his plan was the one that won, with some concessions to Keynes. Every other currency would be pegged to the dollar, fixed but adjustable, and the dollar would be fixed to gold at $35 an ounce. When the articles setting up the International Monetary Fund and the World Bank were signed in the hotel's Gold Room, sterling had become a currency measured in dollars. For the next quarter of a century every sale between a factory in Coventry

and a buyer in Chicago passed through a rate that two governments had promised to defend.

The man who saw the weakness in the arrangement was a Belgian, born in Flobecq in 1911, who had taught at Yale since 1951. On 28 October 1959 Robert Triffin set out his case before the Joint Economic Committee of Congress, at its hearings on employment, growth and price levels, and Business Week gave the testimony a prominent write-up. The argument, published the following year as Gold and the Dollar Crisis, ran like this. World trade was growing, and the countries doing the trading needed reserves. Under the rules agreed in New Hampshire the only way to supply them was for the United States to run deficits and send dollars abroad. Yet every dollar that piled up overseas, set against the gold in American vaults, made it a little harder to believe that each one would still buy a thirty-fifth of an ounce. The system needed the deficits to work, and the deficits would in time wear away the confidence it ran on.

Triffin was not ignored. An IMF review in 1961 called his diagnosis “highly controversial” and overstated, but Robert Roosa, who went on to serve in Kennedy’s Treasury, later recalled that in his first conversation with the President-elect in December 1960 Kennedy had pointed to the relevance of “Bob Triffin’s thinking”. The market had already made the point in its own way: on 20 October 1960 a run in London sent the price of gold to $40 an ounce. A currency held high

for the sake of the world's confidence makes a country's exports dearer and its imports cheaper, and a government that puts the rate first is choosing against the people who make things for sale, whether or not it describes the choice that way. Britain made that choice first, and in 1956 it found out who else had a say in it.

Suez

On Tuesday 6 November 1956 the Cabinet met in London with British paratroops already on the ground in Egypt. They had landed the day before, after five days of Anglo-French air attacks on Egypt, and seaborne forces were going ashore that morning. The news the ministers heard concerned money. Sterling was being sold hard, the reserves that stood behind the $2.80 rate were draining, and the Chancellor, Harold Macmillan, told his colleagues that Washington would give no help with a drawing on the International Monetary Fund until Britain agreed to a ceasefire. The ceasefire took effect at midnight.

The Eisenhower administration kept its hand on the money after the guns had stopped. Treasury Secretary George Humphrey released American support only on 3 December, once Britain had accepted full withdrawal and set a deadline of 22 December for its troops to leave. The next day Macmillan had to announce that November's losses had taken the reserves below the floor of $2 billion. On 10 December the IMF approved the package, and Britain drew

$561.5 million at once, with more on stand-by behind it. By 22 December the last British troops had gone. A government with an army in the field had agreed to stop on the day it learned that the defence of its currency depended on American consent, and the lesson its successors drew was to guard the rate.

They guarded it for another eleven years. On Wednesday 20 July 1966 Harold Wilson stood in the Commons and told the House that the government had been "blown off course by the seven-week seamen's strike", and that sterling had been under pressure for two and a half weeks. His answer was to take more than £500 million of demand out of the home economy: a six-month standstill on wages and salaries, and a rise in the down payment on cars, motor cycles and caravans to 40 per cent. Anyone buying a motorcycle on hire purchase that summer had to find that deposit first, so that the rate could hold.

It held for sixteen more months. Then the Six-Day War of June 1967 closed the Suez Canal and brought a sell-off of sterling by Arab countries, a dock strike kept exports on the quays, and the lenders who had propped up the pound grew less willing to go on doing it without conditions. On Saturday 18 November 1967 the government devalued, from $2.80 to $2.40. Eleven years apart, the two episodes show one order of priority: the rate first, defended with the reserves in 1956 and with the home market in 1966, and the firms that made

and sold goods asked to carry whatever the defence required. Britain's later return to the Fund under James Callaghan has been told already. The priorities it followed had been fixed a decade before.

The gold window

The American side of the story is usually told through the three explanations set out at the start of this book: better plants abroad, dearer labour at home and more capable machines. What that account leaves out is the money, and in the summer of 1971 the money came to a head.

That July a commission chaired by Albert L. Williams delivered its report, United States International Economic Policy in an Interdependent World. It argued for open trade and more flexible exchange rates, and advised that if the payments problem persisted the country should be ready to put a temporary surcharge on imports. The figures for the year would show why the question was pressing: in 1971 the United States imported more goods than it exported for the first time since 1888.

On the afternoon of Friday 13 August Richard Nixon took about fifteen advisers up to Camp David in the greatest secrecy. The Treasury Secretary, John Connally, was there, with Arthur Burns of the Federal Reserve, Paul Volcker from the Treasury and George Shultz; the State Department and the National Security Council were not told the meeting was

happening. The group came down on Sunday with a programme, and at nine that evening Nixon spoke to the country from the Oval Office. The address bumped NBC's Bonanza, a choice the advisers had worried over, as Jeffrey Garten records in his account of the weekend. Nixon suspended the conversion of dollars into gold, put a surcharge of 10 per cent on imports and froze prices and wages for ninety days. "The product of American labor will be more competitive," he said, "and the unfair edge that some of our foreign competition has will be removed."

The rest of the world was left to absorb it. Connally told European finance ministers that year that "the dollar may be our currency, but it is your problem", and the surcharge stayed on until the Smithsonian Agreement of 17–18 December 1971 set new rates against the dollar. Where Britain had squeezed its own economy to hold its rate, Washington changed the rules and let the rate go. Labour was pressing its own question in Congress that same autumn: why American production was leaving.

The bill that put it was the Foreign Trade and Investment Act of 1972, introduced in September 1971 by two Democrats, Representative James Burke of Massachusetts and Senator Vance Hartke of Indiana, as S. 2592 and H.R. 10914. The AFL-CIO, Fortune reported, had helped to write it. It would have capped imports at their levels of the late 1960s, put controls on the export of capital and technology, and taken

away the tax advantages American firms gained by producing abroad. The federation's economist, Nat Goldfinger, said that December that devaluation did not reach "problems of the multinational firms and their export of jobs, technology, and capital". Burke–Hartke never came to a vote. It stayed on the congressional record, a plain statement of what the unions expected to happen while the rules about the dollar were being rewritten.

Steel

At 7.30 on the morning of Saturday 9 June 1973, at Pohang in South Korea, the first molten iron ran from No. 1 blast furnace. The furnace had been lit the day before, and the company behind it, POSCO, had been founded only in 1968, partly with Japanese reparations money. Its founding chairman, Park Tae-joon, told the men who had built it that they had achieved a feat that would be remembered in history. On 3 July the first integrated works was complete.

The American market was already open to it. Imports had supplied 4.7 per cent of the steel used in the United States in 1960 and 16.7 per cent by 1968, on the American Iron and Steel Institute figures that Michael Moore set out in his study of Big Steel's influence on trade policy. Washington answered with a series of arrangements. In 1969 it negotiated voluntary limits with the steelmakers of Japan and the European Community, which left everyone else free to ship. In 1978 the Carter administration introduced a

system of trigger prices below which imported steel would draw an investigation. The share kept rising, and by 1984 imports had taken 26.4 per cent of the market.

On 18 September 1984 Ronald Reagan decided on a new round of voluntary restraint agreements, aimed at pulling the import share back to about 18.5 per cent. The Congressional Budget Office had published its study of what such a quota would do two months earlier. It expected steel prices to rise by about 10 per cent, with the cost falling on every American firm that used steel, and it saw "little prospect that the quota would reverse the secular decline in the industry, since it does not address the underlying factors that have conditioned this decline". Fifteen years of restraint had been negotiated country by country and price by price, and each round had treated the share of imports as the problem.

Plaza

The price that governed those shares was being set elsewhere. Over the five years to 1985 the dollar had climbed 44 per cent against the other major currencies, which made every imported ton of steel cheaper in dollars and every American export dearer abroad. The man who moved to bring it down was James Baker, Reagan's Treasury Secretary. Through the summer of 1985 his deputies met their counterparts from Japan, West Germany, France and Britain in secret, and on Sunday 22 September the five

finance ministers and their central bankers gathered at the Plaza Hotel in New York and announced the same day that they would act together to lower the dollar.

The markets had been given no warning, and the dollar fell about 4 per cent the next day. Over the two years that followed it fell by 40 per cent. The Plaza Accord is the clearest evidence in this chapter that the price at which American factories competed was a decision, taken by five governments in one hotel on one Sunday. It came after the steel import share had passed a quarter of the market and a year after the restraint agreements of 1984, a quota set to answer a problem that the exchange rate had made worse.

The China vote

The last decision on this map was taken in the spring of 2000. Since 1980 American presidents had granted China normal trade relations, the ordinary tariff treatment most trading partners received, but only a year at a time. If a renewal failed, Chinese goods would face the far higher rates of the Smoot-Hawley Tariff Act of 1930. The bill numbered H.R. 4444 proposed to make the treatment permanent, and the unions fought it in person. On 6 April thousands of Teamsters rallied at the Capitol behind their president, James Hoffa, and six days later NPR counted about 15,000 union activists on Capitol Hill.

Before any of that, on 1 February, Robert E. Scott of the Economic Policy Institute, whose later count of the NAFTA losses appears in the chapter on that agreement, had published a short paper, The High Cost of the China-WTO Deal. Working from the administration's own analysis, he projected that over the decade to 2010 the deal could cost a net 817,000 American jobs. It was a projection, and it said so. It was also specific, dated and public, and it was about the industries that made things. On Wednesday 24 May 2000 the House passed the bill by 237 votes to 197. Republicans carried it; most of the President's own party voted against, as it had on NAFTA seven years before. The Senate followed on 19 September, by 83 votes to 15. On Tuesday 10 October President Clinton signed the bill on the South Lawn of the White House, and on 11 December 2001 China joined the World Trade Organization.

The argument about what happened next was left to economists. In Muncie, Indiana, Michael Hicks, then director of Ball State University's Center for Business and Economic Research, published a study with Srikant Devaraj in 2015, Manufacturing in America: The Myth and the Reality. They put nearly 88 per cent of the manufacturing jobs lost between 2000 and 2010 down to productivity. On their reading the machines had done most of it. In Kalamazoo, Michigan, Susan Houseman, then a senior economist at the W.E. Upjohn Institute, went back into the productivity figures themselves. She found that the

measured growth came largely from one industry, computers and electronics, where the statistics count each improvement in the product as extra output, and that outside it “there is no prima facie evidence that productivity caused manufacturing’s relative and absolute employment decline”. Trade, she concluded, had contributed significantly to the collapse of the 2000s.

Two other teams asked where and when. Justin Pierce at the Federal Reserve Board in Washington and Peter Schott at the Yale School of Management wanted to know why the fall in factory jobs turned so steep after 2000. They traced it to the vote. Once permanent normal trade relations removed the threat of the old tariffs, the industries that had most to fear from those tariffs lost the most jobs, and Europe, which had made no such change, showed no such pattern. They called their paper “The Surprisingly Swift Decline of US Manufacturing Employment”.

David Autor at MIT, David Dorn in Madrid and Gordon Hanson in San Diego took the question to the map itself. They divided the country into 722 local labour markets, measured how exposed each one was to Chinese imports, and found that the competition explained a quarter of the fall in American manufacturing employment between 1990 and 2007, with higher unemployment, fewer people in work and lower wages in the places hit hardest. The machines were real, and none of these studies says otherwise. What they

showed is that the break in the series came after a dated decision.

The numbers for the decade bear them out. American manufacturing employment stood at 17,284,000 in January 2000 and at 11,439,000 in February and March 2010, a fall of about a third, and the losses were heaviest in the industries and places most exposed to the decision of 2000. Britain had shown in 1956 and again in 1967 what it costs an industrial country to organise its economy around the standing of its money, and the American decisions of 1971 and 2000 were taken with that record available. Each also had warnings of its own on file: Triffin's before Congress in October 1959, labour's in the Burke–Hartke bill in September 1971, and Scott's in February 2000, sixteen weeks before the House voted.

From the men who were there

A reader who in 1963 worked in a small motorcycle shop in Somerset, which was also a Honda dealer, remembers three Honda 50s sold before they had even arrived, and young riders trading in their BSAs, Royal Enfields and AMC machines for Honda 125s and 250s. One older rider swapped his 500cc Triumph twin for a Honda 305 and never came back for the Triumph. In 1966 the same reader walked into a dealer in Bath and found the showroom packed with big British bikes that could not be exported because of the seamen's strike.

CONCLUSION

The decisions in this book were taken a long way from the works: in a Sunday magazine, at a regulator in Washington, in boardrooms in Detroit and Pittsburgh, at a Chancellor's dinner table, on the floor of the House of Representatives. Milton Friedman told executives in 1970 whom they worked for, and in 1982 the Securities and Exchange Commission made buying back a company's shares the legally safest use of its profit. Ford's engineers had their crash results before the Pinto reached the showrooms. General Motors ran the answer to its troubles on its own payroll at Fremont and did not ask the men who learned it. Ross Perot told a town meeting in Richmond what the trade agreement would do, and the board of United States Steel bought an oil company in the weeks after a congressman said where the money was going. Winston Churchill heard the case against gold across his own table three days before he chose it. In almost every case the warning or the test result was in hand before the decision, and the decision stood. The run-down of American manufacturing was made of choices of this kind, most of them taken by people who had been told what they would cost.

What those choices cost was set out, in the summer of 2009, by two professors at the Harvard Business School. Gary Pisano was one; the other, Willy Shih, had come to the

school in January 2007 after a long career in industry, much of it at IBM, and several years as president of the consumer digital unit of Eastman Kodak. In the July–August issue of the Harvard Business Review they began with a charge: “Decades of outsourcing manufacturing has left U.S. industry without the means to invent the next generation of high-tech products that are key to rebuilding its economy.” The article carried a table, headed “Going… Going… Gone”, of products whose making had left the country, among them the flat screens of televisions and telephones, the rechargeable batteries inside the telephones, notebook computers and hard disk drives. What had gone with the factories, they argued, was an industrial commons: “R&D know-how, advanced process development and engineering skills, and manufacturing competencies related to a specific technology.” In 2012 they expanded the argument into a book, Producing Prosperity.

A commons of that kind does not appear on any balance sheet, and that is why a board working to its balance sheet could give it away without recording a loss. When Energizer closed its plants in Fennimore and Portage, the equipment could be shipped to Asheboro, and the experience of the people who had run it in Wisconsin could not be shipped with it. The first METTLE book kept returning to the same loss in its own terms, the judgement built over a working life that no manual ever held. Pisano and Shih gave it an economist’s name and added the consequence that matters

for what comes next. Once the engineers and the suppliers who work beside the lines have gone, on their account, the capability to design the next product goes with them.

The places do not come back quickly either. In 2016 David Autor, David Dorn and Gordon Hanson, the three economists who had mapped the Chinese import shock across the country's local labour markets, set out in the Annual Review of Economics what the research had learned. "Adjustment in local labor markets is remarkably slow," they wrote, "with wages and labor-force participation rates remaining depressed and unemployment rates remaining elevated for at least a full decade after the China trade shock commences." At the level of the whole country, they added, employment had fallen in the industries most exposed to imports, and the offsetting gains in other industries had "yet to materialize". That was where the evidence stood on the consequences of the House vote of May 2000.

Britain supplies the forecast, because it made its choices earlier and has lived with them longer. It put its currency first in 1925 and again, under Labour, in 1966, freed its capital and raised its interest rates in 1979, and sent a man from an American bank to run its steel and coal. On the World Bank's figures manufacturing produced under 8 per cent of Britain's national output in 2024. Germany, which faced the same machines and the same competition from Asia, drew about 18 per cent of its output from

manufacturing in the same year. Since the two countries shared the technology and the competitors, the gap between them is best explained by what each chose, and the chapters on Britain have set out what London chose. The first METTLE book followed a dozen British firms and industries to the end of that road.

Pisano and Shih subtitled their book Why America Needs a Manufacturing Renaissance, and the fair test of a renaissance is the one American governments have set themselves. When President Clinton signed the implementing act for the North American Free Trade Agreement in December 1993, the promise, as Chapter 7 recorded, was 200,000 jobs by 1995: a promise made in jobs, and measured in them. From its low of 11,439,000 in February and March 2010, recorded in Chapter 14, the factory series rose to 12,638,000 by August 2026. That is about 1.2 million more jobs than at the bottom, gained over sixteen years, and nearly seven million fewer than at the peak of June 1979. Output tells a kinder story, and Susan Houseman's work, described in Chapter 14, explains why: the measured growth came largely from computers and electronics, where the statistics count every improvement in the product as more output. A renaissance measured in output can arrive in the figures without arriving in the towns.

The men who led the change have made two admissions of a kind, and they belong in the record for what they are. In

March 2009, on the day his old company lost its AAA rating, Jack Welch told the Financial Times that shareholder value was “the dumbest idea in the world”. In August 2019 the Business Roundtable, which had called the stockholders management’s paramount duty in 1997, put them fifth on a list of five. Welch had long since retired when he spoke, and when two Harvard law scholars looked at the companies whose chief executives had signed the Roundtable’s statement, they found governance guidelines that still mostly put the shareholders first. The pay did not move either. On the Economic Policy Institute’s figures of September 2026, a large company’s chief executive earned about 325 times as much as a typical worker in 2025, against about 31 times in 1978. Neither admission has yet been matched by a change in how the companies are governed or how their chiefs are paid.

None of this makes the usual explanations wrong. Manufacturing’s share of employment fell in every rich country, and it would have fallen in America whatever its boards and governments decided. Automation removed jobs on a large scale, and how much of the fall it explains is still disputed. Japanese and German factories often made better goods, and American buyers chose them freely. Some of the decisions produced gains that were real and measurable: General Electric’s shareholders saw the company’s value rise many times over, and the trade agreement added a little to American welfare taken as a whole. The Pinto’s fire record

was close to that of its class. Geoffrey Howe denied that he had ever advocated managed decline, and the government he served spent public money on Liverpool. The firing of the air traffic controllers was a signal and an accelerant, and no document of 1981 has been found that predicted what it would do to industry.

Those forces explain why the factory's share of American work would have fallen anyway. They do not explain how far it fell, how fast, or where, and on each of those the decisions left marks that can be dated. The steepest fall in American factory jobs came after a vote in 2000 that an economist at the Economic Policy Institute had warned about in February of that year. The losses from the trade agreement fell on apparel, textiles, footwear and brickworks in parts of Georgia, the Carolinas and Indiana, the pattern Perot had described in general terms in 1992. United States Steel put about $6.3 billion into oil in 1982, after its chairman had pledged that its investment in steel would continue and a congressman had complained that the company was buying oil instead of modernising. And in the American companies, the people who decided were increasingly paid through the measures their decisions moved, the share price and the options that rose with it.

The pattern also predicts. As long as the pay of the people at the top rises and falls with the share price, the costs of their decisions will keep landing where the share price does not

see them: on the commons of skills around a plant, on the town around the works, and on the next product that no American line is left to make. Losses counted place by place will keep looking small in the national averages while particular towns empty, and announcements of returning industry, made in investment and output, will keep running ahead of the employment figures.

In February 1980, at a pretrial hearing in the steelworkers' case, Judge Thomas Lambros put into words what the valley had lost when United States Steel decided to leave. The schools and the roads had been built because of steel, he said, and it seemed to him that a property right had arisen from the long relationship between the company and the people who had given their lives to it. In April he ruled that the law gave him no basis to find such a right, and the appeals court sent the steelworkers to Congress. What Lambros described was the relationship that the closures at Youngstown, Norwood and Fennimore ended, and none of the decisions that ended it put a value on it.

The United States lost more of its industry, faster and in more concentrated places than the long fall in manufacturing's share required, and the difference came from decisions that had names, dates and warnings attached. Most of the people who took them had been told enough to foresee the result, many of them were paid through the measures the decisions were meant to move, and few were

ever asked to answer for the places that paid the cost. Britain had made the same kind of choice first and shown where it led, and the American employment figures of 2026 record the same result.

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