

FOREWORD

Far More Than Just a Machine

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If I were to ask my students who invented the automobile, I suspect their most likely response would be Henry Ford. That answer would be wrong, but wrong for the right reasons. Although there are a number of candidates for the first creator of a road vehicle powered not by animals but by steam or electricity or petroleum, no one person can be given credit for the transportation technology that ultimately changed the face of the planet over the course of the twentieth century. By the time Ford began adding gasoline engines to four-wheeled vehicles in the 1890s, he was one of a small legion of inventors all trying to do the same thing. He became famous in 1904 when one of his cars set a new land speed record of more than ninety miles per hour, but that is not why my students (and most of the rest of us) remember his name more than anyone else associated with the early history of the automobile. It was his invention of the wildly popular Model T in 1908 that assured his place in history and in our memories.

Ford's Model T may not have been the first automobile, but it was the first to make a compelling case that owning and operating a car might become a normative experience for most Americans. By embracing a robustly simple design that any reasonably competent mechanic could maintain, by using standard interchangeable parts, and by manufacturing the vehicles by arranging workflow along an assembly line (a technique he introduced in 1913), Ford was able to reduce his costs of production so much that he could repeatedly cut the price of these "Tin Lizzies," successfully marketing them to middle-class customers and even to his own workers. When his employees began quitting because of the grueling pace required by the assembly line, Ford doubled their wages by introducing the five-dollar workday, which had the indirect effect of making it more possible for these working-class Americans to purchase the cars they were building. Ford eschewed changes in style, famously remarking that his customers could have the car in any color they wanted as long as it was black, and this too held down costs even though it opened the door to the changing styles and brands that by

the 1920s would characterize one of Ford's most successful competitors, General Motors. But that lay in the future. By the end of World War I, half the cars in the United States were Model T's.

That is why my students would not be entirely wrong if they guessed that Henry Ford invented the automobile, for that error hides a deeper truth. Although we tend to think of a car as a single object—that is, after all, the way we purchase it—it actually consists of myriad different parts, each of which has behind it a complex history of invention, development, and use. The internal combustion engine has quite a different history than the petroleum distillates that power it, the generator providing the sparks to ignite that fuel, the drive shaft that conveys rotational energy to the wheels, or the rubber with which the tires on those wheels are made—and this list only scratches the surface of all the different pieces that must be brought together if a car is ever to make it out of the garage and onto the road. Ford's genius was to figure out a way to assemble these parts in the cheapest possible way, which in turn enabled him to sell more than fifteen million Model T's by 1927.

But the car itself is hardly the end of the story. If most of us take utterly for granted the complex inner mechanisms beneath the hoods of our automobiles, the same is no less true of complex features of the highways and street systems on which we operate these vehicles and the landscapes through which we drive. Although a passing familiarity with the history of transportation technologies quickly leads one to conclude that the twentieth century was the age of the automobile just as the nineteenth century had been the age of the railroad, most of us rarely stop to think about what that actually means. In truth, the rise in the United States of a culture in which mass ownership of automobiles became typical constituted one of the most sweeping cultural and environmental revolutions in human history. What Ford and his fellow automobile manufacturers helped invent—with help from countless others—was essentially a technological ecosystem, an intricate set of interconnected inventions, institutions, and behaviors that by mid-century more or less defined the American way of life.

This is the great insight that organizes Christopher W. Wells's superb new book, *Car Country: An Environmental History*. Wells

seeks in this lively, playful, and wonderfully accessible account to introduce readers to the transformations wrought upon the national landscape of the United States to make it fit for Americans and their cars. He tells us the stories not just of Ford and his Model T, but of highway engineers, street designers, real estate developers, policy-makers, and all the other people and professions who created the automobile infrastructures that became second nature to Americans during the twentieth century. Almost nothing about Car Country escapes Wells's eye: the gravel and asphalt with which highways are paved, the layout of streets designed for different speeds of travel past and through neighborhoods, the road signs and other navigational devices that enable strangers to make their way through communities they have never visited before, the retail institutions that were able to attract ever larger numbers of customers from ever greater distances—and, of course, the concomitant challenge of figuring out where all those customers could possibly park all those cars. Witness the emergence of this automobile-dependent landscape in the pages of this book, and you will never again see the world around you in quite the same way.

You can read this book purely for the pleasure of discovering the stories behind endless features of your own life and world that are probably so familiar that you barely even notice them. I know of no other book that explores in a single volume so many different aspects of our automobile-dependent culture: the design of cars, the paving of streets, the engineering of highways, the refining of gasoline, the taxing of fuel sales at the pump, the laying out of subdivisions, the marketing of real estate, the zoning of cities, the building of parking lots, the lobbying of legislatures, and so on and on and on. If any of these sound dry or technical, never fear: Chris Wells is an engaging storyteller, and the only thing dry about this book is his sardonic wit. Amid his many explanations of how and why Car Country works the way it does—and he is a master explainer—is a constant peppering of anecdotes and observations that make the book a delight to read.

But Wells also has a much larger purpose in mind. He opens the book by reflecting on his own youthful enthusiasm for the first vehicle he ever owned, a 1975 SR5 long-bed Toyota pickup truck that symbolized freedom and adulthood and that made his teenage comings and

goings far easier than would otherwise have been the case. Then he went off to a small liberal arts college without a car and found to his surprise that he rarely missed it—except when he returned home to Atlanta and found himself in need of a vehicle to do almost anything. During extended travels in Europe, he again found himself missing his car almost not at all—until he came home to Atlanta and again felt his mobility and lifestyle severely cramped, because neither his bicycle nor the available mass transit options were sufficient to get him safely to where he needed to go. “With such poor options for getting around,” he remembers, “I felt incapacitated without a car.” Then he went off to graduate school in Madison, Wisconsin, where the university and its student neighborhoods are compactly laid out on an isthmus between two lakes, and suddenly the car again became as much an inconvenience as a benefit.

From this small autobiographical sketch, Wells draws a large and important conclusion. Once one recognizes that the automobile is not just a machine but a single element in a vast technical ecosystem in which every part is connected to every other and all human behaviors and institutions are shaped by its presence or absence, one is forced to recognize that any changes in this car-dependent landscape are almost inevitably trickier and more complicated than they first appear. It’s not just that Americans love their automobiles; it’s that the landscape we have created for them makes no other options available to us. We have no choice but to love them. John Muir once famously said of the natural world that “when we try to pick out anything by itself, we find it hitched to everything else in the universe.” The same is equally true of the human world, for reasons that have as much to do with history and culture as they do with nature. It has taken more than a century to create the complex interconnections that have made Car Country second nature to us. The scale of our resulting dependence on the automobile is so vast—ranging fractally from the largest public works project in history (the interstate highway system) all the way to what we do when we feel the impulse to drink a well-made cup of coffee—that unwinding these dependencies is hard even to imagine. And yet we may have no choice in the matter, since some of the elements on which the system depends—cheap liquid fuel most of all—may prove less sustainable

in the twenty-first century than they appeared to be in the twentieth. Sustainable or not, the challenge of imagining our transportation future will require a better understanding of our transportation past than most of us now possess. To grasp the complexities and fascinations and paradoxes of Car Country, I know of no better guide than this engaging book.