

The Strange Triumph of Abner



Doble

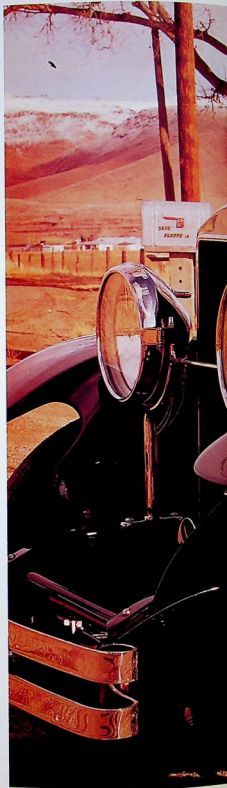
BY STEPHEN FOX

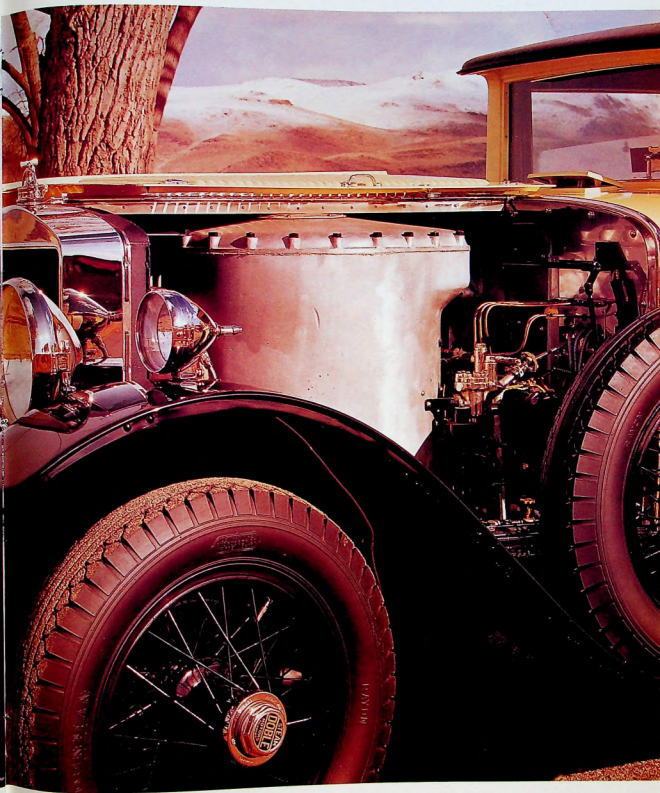
He built the finest American car of its time—huge and powerful and smooth as silk—using a technology that almost every other automaker had abandoned. If he hadn't been such a perfectionist, we might be driving steam cars to this day.

THE DOBLE MODEL E RAN LIKE NO other car of the 1920s. It even sounded different. When the driver flipped the starting switch, a distinct *whump* came from under the hood, followed by a steady, throaty, subdued rumble that suggested great power barely contained. After a short time, two minutes or less, the roar subsided. Then, as it drove away, this huge, powerful automobile made virtually no sound at all beyond the muted, liquid hum of tires on pavement. The usual jagged rhythm of shifting gears and the attendant revving and subsiding noises of a gasoline engine were absent because the Model E had no gears, clutch, or transmission. A driver simply opened the throttle mounted on the steering wheel and the car accelerated into effortless speed in a continuous, smoothly rising arc without pause or hesitation. "There was a mysterious majesty about them," a fan later recalled, "which derived from their combination of massiveness and the ability to go like the wind with scarcely a trace of sound." Driving a Doble, it was often said, was like riding on a magic carpet.

For all its windlike swiftness, the Model E was a large,

Above left: Doble at the wheel of one of his cars. Right: A 1925 Doble Model E, its hood opened to expose the steam generator.





stately automobile stretched across a wheelbase nearly 12 feet long. The car's body, executed in an assortment of expensive styles by the famed Walter M. Murphy Coach Works of Pasadena, was blocky and mammoth, accented by snappy Rudge-Whitworth wire wheels from England and drum-sized silvery Hall headlights with Bausch & Lomb lenses and reflectors. Ready to roll, with all its fluids topped off, the Model E weighed some 5,500 ponderous pounds.

The Model E could achieve its extraordinary combination of immensity and grace because it was driven by steam. Like Charlie Chaplin's *Modern Times*, a masterly silent movie filmed in 1935, it was the last and finest flowering of an obsolete technology. Until the gas-powered Duesenberg Model J was introduced in 1929, no

other American car of its time could approach the Doble's blend of handling, acceleration, smoothness, and opulent, hang-the-expense elegance. It would outrun any Packard, Cadillac, Lincoln, or Pierce-Arrow of the day. "A motor-car that has shattered all conceptions of

automobile performance," the *Los Angeles Evening Express* called it in 1923.

The Hollywood mogul Joseph Schenck bought one for his wife, the actress Norma Talmadge. An Indian maharajah had one outfitted for tiger hunting, complete with spigots for beer and ice water. Howard Hughes, then an obscure 19-year-old still living in his hometown of Houston, bought a Model E in the spring of 1925. Although he owned many luxury automobiles, Hughes relied on his Doble to outrace Houston's other rich young swells in their gas cars. When he moved out to California, Hughes left behind his Cadillac but brought along his Model E.

The car inspired passionate loyalty in a small circle of devotees. Charles T. Briar of San Diego drove a Model E for 20 years. Aside from normal maintenance, in 186,000 miles of driving the car needed only two new sets of tires (plus one set retreaded), two new batteries, and a patch on the firebox. "When running on normal level road the fire is on one-third of the time at 50 m.p.h. with throttle about a quarter open," Briar wrote in 1956. "It handles excellently in

traffic, the fire is seldom on in city driving, and the stored power of steam under pressure gives unbeatable 'get-away' and very good, easy control when slowing and accelerating again. You can go a city block while gas cars are getting worked up into top gear."

Among today's collectors the Model E is even more highly prized. A particularly valuable Model E recently changed hands in California for a million dollars. In its time, though, the car was a hopeless commercial disaster. It attracted so few buyers that only 24 were manufactured before the Doble company expired in a mess of legal problems and disappointed stockholders. In both its magnificence and its failure, the car faithfully reflected its main creator—his engineering gifts as well as his personal shortcomings.

Abner Doble had lived amid the clangor and hum of machines from an early age. He was born in 1890 into a San Francisco family of mechanical engineers and perfectionists. (Later he sometimes knocked five years off his age and claimed an 1895 birthdate.) During the gold rush his grandfather had set up a forge and made miners' tools. The family business prospered, eventually developing water wheels for mountain

The usual revving noises of a gasoline engine because Doble's cars had no gears, clutches

steams in the Sierra Nevada and steel wheels and axles for San Francisco streetcars. Abner and his three younger brothers grew up in an atmosphere of metal, invention, and the highest expectations. Abner showed some promise as a pianist, but at the age of eight he started working after school in the family machine shop at five cents an hour and was hooked for life.

The most enticing new machine of Abner's boyhood was the automobile, and at the turn of the century steam cars dominated the field. Internal-combustion gasoline engines, just recently invented, were still balky and troublesome, full of clatter and vibrations. Electric cars were expensive to buy and run and provided only limit-



Abner's younger brothers Warren and Bill display a homemade steam car in 1912.





engine were absent
or transmission

ed range and speed. (See "Why Internal Combustion?," *Invention & Technology*, Fall 1990.) Steam had a long history as the chief power source for factories, railroad locomotives, and electrical generation. For automobiles, steam was quieter and more flexible than internal combustion. It also required fewer moving parts, and these could be manufactured to less exacting tolerances.

In addition, a steam engine could develop unmatched torque, even from a dead stop. Steam pressure can be built up and stored, to be released at full force on demand. An internal-combustion engine, by contrast, generates usable

power only while it is actually turning the wheels. And since it must turn within a narrow range of revolutions per minute (rpm) to operate efficiently, it requires a complicated set of gears and a tricky transmission to propel a car at varying speeds. Moreover, in the cylinder of a gas engine, the greatest force is exerted at the explosive instant of ignition, with the power dissipating as the piston completes its stroke. But in a steam engine's cylinder, the steam enters, expands, and continues to push for as much as 90 percent of the stroke.

Steam, however, had problems as well as advantages. With its extensive plumbing, a steam

Abner Doble drives his Model D-1, prototype for the Model E, in a parade in Oakland, California, around 1923.

car was heavier than a gas car of comparable horsepower. Steam engines ran at lower thermal efficiencies than gas engines, losing much of their heat to the atmosphere. And while the working parts of a steam engine were quite



Cutaway view of a Model E steam generator. If unwound, the coiled tube would be 576 feet long.

simple and durable, the ancillary equipment—boiler, burner, and all manner of pumps, valves, and gauges—was dauntingly complex, demanding constant attention and much grubby maintenance. The most popular steam cars of the early 1900s—Stanley, White, and Locomobile—took 10 to 30 minutes to work up adequate steam pressure from a cold start and then had to stop

for water every 30 to 100 miles. Gas cars started faster and had greater range, a vital advantage when service stations were sparse.

After the turn of the century, steam-car technology remained essentially stagnant for years, while gas cars quickly improved. Mass production and economies of scale soon left steam behind as an overpriced technological dinosaur. White and Locomobile both converted to internal combustion by 1910, leaving Stanley virtually alone to serve a market whose annual sales totaled a few hundred. The brief battle between gas and steam was over before Abner Doble even got a chance to join the fray.

But join it he did. The Dobles owned a 1906 White steamer, and using it as a model, Abner (who was still in high school) and his younger brother John (perhaps the family's true engineer-

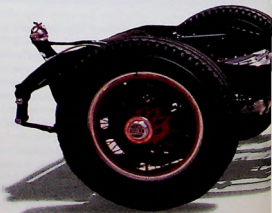
financing his activities with an allowance from his family. Each was more ambitious than the last. Again assisted by his brother John, he rethought, and in many cases reconfigured, every aspect of automobile steam technology. Now a serious inventor, he was granted his first patents: for a flash-boiler regulator, an electric preheater for pilot burners, and a thermostat and a fuel and water regulator for boilers. (He eventually accumulated 32 patents over the next two decades.)

The Model B's most significant innovation was its condenser. True, previous steam cars such as the White had come with a condenser—that is, a pipe radiator—to recover expelled steam from the engine and convert it back to water, thus extending the car's range. But the steam was not completely condensed, so the range was still only about 100 miles, and the condenser quickly became fouled with heavy cylinder oil that entered with the steam. For the Model B's condenser, Doble used a honeycomb or cellular radiator, which had six times the radiating surface of a White condenser, in conjunction with a lighter cylinder oil that did not clog the small honeycomb apertures. "This we succeeded doing late in 1913," he wrote three years later, "and realized several startling results. The car would run anywhere from 1000 to 1500 miles on one supply of 24 gallons of water. The boiler in its operation was entirely oblivious to the fact that all of the oil used by the engine cylinder was

In both its magnificence and its failure, the Doble car faithfully reflected the qualities of its main creator.

ing genius) built their first steam car in the basement of the Doble home. The boys cobbled it together from a boiler taken from a wrecked White, some other salvaged parts, and an engine of their own design. Unsurprisingly, the car did not run well. It nonetheless launched Abner on a career, indeed a lifelong obsession with the holy grail of chasing the perfect steam automobile.

In the fall of 1910 Abner entered the Massachusetts Institute of Technology. He stayed for only one semester, though he later claimed to have spent two years there. Even before that single term had ended, he launched his own "experimental workshop," as he called it, in nearby Waltham, Massachusetts. There, during the next four years, he designed and built his second steam car, the Model A, and then a third, the Model B,



pumped into it." Two traditional limitations of steam cars had seemingly been resolved.

Although it was only a prototype, the Model B brought Doble his first national attention in the automotive trade press. One influential journal, *The Automobile*, devoted a two-page spread to the car in April 1914. With its 25-horsepower, two-cylinder, single-expansion engine, the Model B prototype went from 0 to 60 miles per hour in only 15 seconds—"remarkable acceleration," said *The Automobile*. Furthermore, "no steam is visible at any speed owing to the perfected condensing system." And after running more than 500 miles, the water tank was still more than half full.

Still, it was only a prototype, not an actual car in actual production. In the summer of 1915 Doble drove his Model B to Detroit, the center of the American car business, to seek financial backers. It took him about a year, but he finally connected with two experienced auto men, C. L. Lewis and Morgan J. Hammers. With an announced capital stock of \$200,000, they launched the General Engineering Company and made plans to manufacture a steam car.

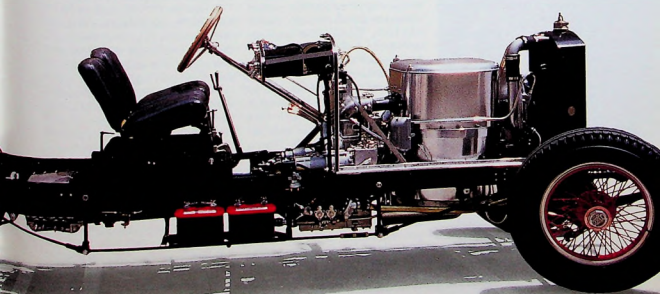
In their new vehicle, the Model C or Doble-Detroit, Abner and John Doble retained the innovations of the Model B while addressing the one great restriction left on steam automobiles, the problem of "firing up"—starting the flame in

the boiler and producing enough steam to move the vehicle in a reasonably short time. John, who was especially proficient at electrical engineering, seems to have made the crucial breakthroughs. To replace the slow, fumbling, uncertain match and blowtorch procedures of previous steam cars, the Dobles borrowed from the electrical ignition system recently developed for gasoline cars.

The Doble system worked by forcing kerosene through a specially designed carburetor-burner and igniting the fuel-rich spray at a very high temperature with a spark plug like those found in internal-combustion engines. A multivane electric blower pumped in air and blew the ignited mixture into a combustion chamber, which maintained a steady flame, heated the boiler, and generated steam. The entire process was automatically controlled from a switch on the dashboard. For the first time, a steam car could be started as easily as a gas car. After starting, of course, the driver still had to wait for the engine to produce enough steam to get the car moving, but within 90 seconds or less, Abner asserted, the Doble-Detroit would be ready to roll. Once it was under way, another automatic device maintained the proper steam pressure, applying flame to the boiler as road conditions and driving speed dictated.

To eliminate scale and other sediment left in the boiler by evaporating water, the Dobles added

The chassis of a recently restored Model E at the Nethercutt Collection, in Sylmar, California.



THE RETURN OF STEAM

For a brief time in the 1960s and 1970s, it appeared to be making a comeback



William Lear's license plate gives an apt summation of what his steam-propulsion schemes finally amounted to.

Even after the death of the Model E, a handful of inventors kept pursuing steam-car research, seeking the same advantages that attracted Abner Doble: silence, power, simplicity, fuel efficiency, and low emissions. Their efforts all foundered, not only because of auto-industry indifference but also because of the weight of steam engines and the water they require and drivers' unwillingness to wait half a minute to get up a head of steam.

In 1968, though, a renaissance in steam-car technology suddenly began, amid newfound concern about the pollution caused by internal-combustion engines.

The U.S. government had recently imposed strict emissions limits on automobiles, and in May 1968 several federal agencies held hearings on alternative power plants. Among the first to speak out in favor of steam were Calvin E. and Charles J. Williams, twins from Ambler, Pennsylvania, who for years had been using profits from their family's construction business to experiment with steam. They drove their steam-powered convertible, on which they dubiously claimed to have spent \$2 million, to Washington and invited Sen. Edwin Muskie, Sen. Warren Magnuson, and others to go for

spins. Bureaucrats were impressed by the vehicle's silence, acceleration, and supposed 30-mpg fuel efficiency (on kerosene). The Williamses maintained in committee hearings that steamers burn fuel more slowly and steadily, and thus more completely, than internal-combustion engines. Steam power, they said, is also more mechanically efficient.

That same year, Don E. Johnson, the 36-year-old president of Steam Dynamics, in Mesa, Arizona, argued that his 150-pound, 150-horsepower steam engine was much lighter than an equally powerful conventional one. He could make this assertion by ignoring all the ancillary parts of the engine, such as the boiler, burner, and tanks. Johnson had originally developed his engine for helicopters but believed it would work just as well in automobiles.

Ford and General Motors had already gotten into the act, albeit in lukewarm fashion. In March 1968 Ford had announced a joint steam development program with the Thermo Electron Corporation, of Waltham, Massachusetts—the home of Abner Doble's first laboratory. GM, meanwhile, worked with another start-up steam company, Energy Systems, Inc., and offered to supply several steam-powered sedans to the California Highway Patrol for in-service testing.

The man who made the most noise about steam, though, was the brash and overconfident William P. Lear of Learjet fame. At a decommissioned military base outside Reno,

Nevada, Lear developed several types of steam and steamlike engines. One was what he called an "involute expander," which used intermeshing helical screws. Another was a 12-cylinder opposed-piston engine based on the British Napier Deltic diesel; the cylinders formed side-by-side triangles. A third was the Lear Vapor Turbine System, which involved a sealed turbine that used not steam but a revolutionary new fluid called Learium. Unfortunately, Learium was never developed.

In the end Lear did build a steam-powered Chevrolet Monte Carlo and a steam-turbine bus. With his usual hyperbole, he announced plans for a steam-powered Indianapolis race car, and he even scraped out an oval track behind his warehouse, supposedly to test it. But because he had so many different projects going—plus horrific problems with his engineering staff—nothing ever came of any of his steam-powered visions.

In October 1973 the Arab oil embargo hit, forcing automakers to turn their attention away from steam to the more immediate challenges of downsizing and making the internal-combustion engine cleaner and more fuel-efficient. They succeeded well enough to put steam out of contention. Despite the progress some engineers believed they were making between 1968 and 1973, steam cars continue to pose seemingly insuperable challenges, principal among them being fuel economy. There's no promise of future improvement, as there is with electric cars, in which batteries are being made smaller and smaller.

So steam cars have been left mostly to hobbyists, and they will likely never again emerge as a serious automotive alternative.

—Michael Lamm writes often for *Invention & Technology*.

For the first time, a steamer could be started as easily as a gas car, with a simple switch on the dashboard.

regular internal-combustion cylinder oil to the circulating system. When heated and agitated, the oil formed a protective emulsion with the water, coating the inside of the boiler with a thin, slippery film that protected against both scale and rust. This emulsion also lubricated the engine valves and cylinders. Any stray particles of scale were carried by the steam through the condenser to the water tank, which could easily be drained and cleaned when necessary.

It seemed, then, that the Doble-Detroit had met all the major objections to steam cars by starting easily, running reliably, requiring little maintenance, and providing adequate range—all this while retaining steam's undisputed benefits of torque, silence, smoothness, and no transmission. From the perspective of the 1990s, it seems apparent that steam automobiles were already dead by 1916. But the generous initial reception of the Doble-Detroit suggests otherwise: that the continued problems of gasoline cars made a vastly improved steam automobile at least potentially viable and that the automotive public could still be intrigued by that possibility.

Favorable press reports began appearing in the fall of 1916, with the car still only a prototype. "Strictly up to date," declared an article in *The Automobile*. "The Doble car starts practically instantaneously, although steam is not already up. All that is necessary to start and run the car is to turn the switch to the running position." *Scientific American* published a detailed cutaway picture of the Doble's workings and said that its clever design was attracting "the close attention of the automobile engineers of the City of Detroit."

In January 1917 the important annual National Automobile Show in New York exhibited 91 gas cars, 5 electrics, and 1 solitary steamer. The Doble was saddled with an unfavorable location on the fourth floor of an exhibition hall called Grand Central Palace. Nonetheless, "the crowd about it was so great that it could not be penetrated," the *New York Tribune* reported. Ralph De Palma, the greatest race-car driver of the day, took a ride in the Doble and thought about racing it. The car drew daily throngs for the show's duration. Many

sales were reported, though the car was not even priced yet and deliveries were not expected until at least the fall.

The buzz kept building through 1917. In March the company announced a price of \$2,500 for both the touring car and the roadster. One month later it engaged a Detroit agency to advertise and sell the cars. Within three months of the New York show, 5,390 firm orders, with deposits, had been received. A dealer in Fort Worth, Texas, ordered 500 Dobles; another in San Francisco asked for 1,000. In September the Doble company signed a lease for a factory of 52,000 square feet in Detroit. First deliveries were predicted for early 1918.

And then nothing. The car never got into mass production and the company soon disappeared. Abner Doble later ascribed this collapse to steel shortages after the United States entered the World War in April 1917. The emergency War Industries Board, said Doble, "stopped manufacture for the period of the war, because of need for steel in vital war-time industries." But this version of events makes no chronological sense. Despite the war, American car production in 1917 reached a new record of 1.75 million vehicles. The War Industries Board imposed no substantial restrictions on steel for cars until July 1918, more than six months after regular Doble manufacturing was supposed to have started. In blaming the war for the demise of his car, Abner Doble was passing the buck.

Two other explanations are more likely. First of all, in daily use the Doble-Detroit turned out to have major technical problems. "Sluggish and unreliable," recalled a driver who managed to buy one of the 11 Doble-Detroits to be built; "one never knew on starting whether the car would go forward or in the reverse direction." As Doble later acknowledged, the engine—a totally new two-cylinder uniflow design—ran jerkily, with irregular torque, and was "uncertain in maneu-



A Model E in front of the Stanley Steamer Museum in Kingfield, Maine, one of the great repositories of steam-car knowledge.

vering, apt to block on hills . . . and undesirable for high speed." The water-tube boiler, even after a redesign in the spring of 1917, also remained unpredictable, its mixture of oil and water causing harmful foaming and carbon deposits. Despite the vaunted automatic controls, maintaining a proper water level in the boiler proved difficult in extended use, and this led to scorched tubes and breakdowns.

Moreover, Abner and John Doble had fallen into a bitter quarrel about the car's innovations. Publicity materials mentioned only Abner as the company's inventive genius, and his brother quite reasonably felt slighted. While working with Abner, John had applied for his own patents, and in the fall of 1917 he claimed that patent No. 1,131,683, for an automatic fuel-control system—filed by him in January 1914 and granted 14 months later—was unfairly infringed by the Doble-Detroit. The family patriarch, William Doble, joined John in his claims against Abner, giving interviews and taking out ads about the awkward showdown. Family ties, an automotive trade journal commented in October, had so far kept the matter out of the courts, but eventually John did sue Abner for patent

compound four-cylinder engine. Two high-pressure cylinders drew steam directly from the generator; the expelled steam then entered the two low-pressure cylinders, finished its work, and returned to the condenser. Smooth, powerful, and reasonably reliable, Abner's revamped engine gave the Model E its catapulting pickup and speed. It was built integrally into the rear axle, with no drive shaft to vibrate or hum. At 90 mph the motor turned an unhurried 1,350 rpm.

In early 1924 the Model E was tested in New York under the auspices of the Automobile Club of America. First it was left overnight in a garage in the dead of winter. After being rolled out to the street, it stood for 90 minutes in freezing temperatures. When the ignition was turned on, the boiler roared to life and reached operating pressure in only 23 seconds. At 41 seconds the car took off with four passengers. It accelerated from 0 to 40 in 12.5 seconds. The examining engineers were startled. In factory tests the Model E did even better: A stripped chassis leaped from 0 to 75 in a scorching, barely believable 10 seconds.

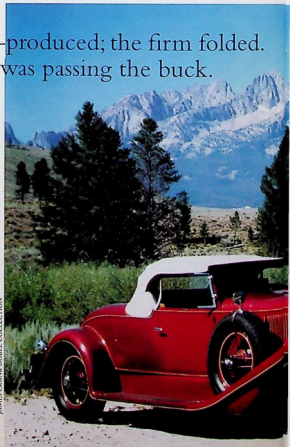
Notwithstanding the New York test, the new Doble made few inroads east of the Rockies. Af-

The Doble-Detroit was never mass-produced; the firm folded. Abner blamed World War I, but he was passing the buck.

infringement. Launched with such hope, praise, and hype, the Doble-Detroit foundered in a welter of internal troubles. Abner left Detroit and went home to San Francisco.

John Doble died of lymphatic cancer in February 1921, only 28 years old. The tragedy seems to have brought the family together for yet another attempt at a practical, successful steam car. Five months after John's death, Abner and his two surviving brothers, William, Jr., and Warren, announced the formation of Doble Steam Motors. With a few associates they tinkered and fussed for almost two years, first in a factory on Harrison Street in San Francisco and then in another factory across the bay in Emeryville. Finally they produced the first prototype of a chassis for the Model E.

To solve the two main problems of the Doble-Detroit, they scrapped its troublesome boiler in favor of a monotube steam generator consisting of a single seamless steel tube, 576 feet long and tightly coiled into a unit 22 inches in diameter and 13 inches high. Abner also designed a new



JAMES CRANK DOBLE COLLECTION

ter his earlier failed efforts in Boston and Detroit, Abner Doble had retreated to his native California. The Model E was essentially a West Coast undertaking, far removed in every sense from the centers of automotive financing in New York and of automotive design and manufacturing in Michigan. Though a much-improved car, it never received as much national attention as the doomed Doble-Detroit had. The dubious, well-known history of the Doble-Detroit must have scared many buyers and investors away from the Model E. With so little national exposure, its commercial possibilities were severely limited.

It was a very expensive car as well, pitched at \$9,500 for the chassis alone and up to \$9,000 for the Murphy body. Even at that chassis price, the company lost money on each one sold. "Abner would never stand for second-best," Warren Doble said later. Almost all the components were the finest available: a Bosch electrical system; a frame of chrome nickel steel and tubular cross-bracings, on the Rolls-Royce pattern; a carved ebony steering wheel; leaf springs of chrome vanadium steel, polished to

minimize friction and corrosion. To fabricate the 16-inch finned brake drums to Abner's satisfaction, the factory started with 95 pounds of forging steel and machined it down to 14 pounds of drum, leaving 81 pounds of very expensive shavings on the shop floor.

Abner was cursed and blessed with a temperament that was never satisfied. Once he unsparingly listed his more regrettable qualities: "high-strung and sensitive," "impulsive, though now reasonably well controlled," "difficult to hide impatience with what I believe to be hypocrisy or shallow reasoning." And hypocrites and shallow reasoners seemed to beset him distressingly often. He was a great engineer, imaginative and implacable, but he couldn't leave his designs alone long enough to get them into serious production. No two Model E's were exactly the same because Doble was always hovering nearby, improving and delaying.

Still, in a decade of heady prosperity and very expensive cars, the Model E might have found a limited niche at the high end of the luxury market. It probably could never have actually made a profit. Even the carriage-trade Lincoln auto-

Four Dobles assemble for a scenic family portrait during the 1988 Idaho Steam Car Tour.



The Model E was essentially a West Coast phenomenon, far removed in every sense from Detroit and New York.

mobile—manufactured with the economies of mass production, promoted by lavish advertising budgets, and forced on the vast network of Ford dealers at the insistence of Henry Ford himself—lost money all through the 1920s. Doble's automobile had none of these advantages and was saddled with the additional handicap of being a steam car in a gas-car world. But given better management and better luck, the Model E might have achieved a modest local success at least in California—and surely a more substantial production run than 24 vehicles.

Ultimately the car was most damaged by Abner Doble's lifelong tendency to shade the truth. In 1924, after Doble Steam Motors had sold a million dollars' worth of stock, the California commissioner of corporations ruled that no more stock could be issued until the company had produced 50 cars and shown them still running well six months later. Doble had already spent half of the first million dollars on the Emeryville factory and most of the rest on prototypes and an initial production run. To raise more money, the company's agents—with, it seems, the knowledge and encouragement of their boss—sold additional stock illegally through fraudulent shell corporations and other dishonest means.

Doble and three of his associates were indicted in May 1924 for violating the California corporate securities code. After many motions and delays, the case went to trial in San Francisco early in 1926. The associates all pleaded guilty, turned state's evidence, and testified against Doble, who was found guilty on five counts and sentenced to a term of one to five years in San Quentin. The associates got off with fines of \$5,000 each. Doble remained free on bond as his conviction was appealed and finally reversed in July 1927 by the California Supreme Court because of improper instructions to the jury. By then, though, years of bad publicity and massive legal expenses had killed off the Model E.

Until his death in 1961 Abner Doble supported himself as a steam-vehicle engineer and consultant, working on prototypes in England, New Zealand, Germany (before World War II), and various

places in the United States. Long after the phrase *gasoline car* had become a redundancy, Doble insisted that steam was an equally valid option. "The present pre-eminence of the internal-combustion engine in road transport," he insisted in 1937, "is due to an aggressive policy [by gas-car makers], and is not the result of any fundamental superiority in an engineering sense." In the early 1950s he was still at it, designing and building a steam car called the Paxton Phoenix for the McCulloch Corporation of Southern California.

James D. Crank of Redwood City, California, has loved Doble cars since he first saw one at age 12 in 1947. Today he knows more about Dobiles and their engineering than anybody else. His own Model E, a phaeton with a fixed soft top, has gone about 370,000 miles. Aside from parallel parking—a heavy chore because of the vehicle's weight, truck-sized tires, and lack of power steering—Crank says his car is easy to drive. Commercial jet fuel provides a "soft" fire in the burner. The steering is quick and precise, the cornering and handling unmatched by any other American car of its era. Crank's Doble accelerates rapidly to a comfortable cruising speed of 80 miles an hour, with background noise limited to wind, tires, and the burner coming on and off. Occasionally Crank checks the dashboard gauges—for steam pressure and temperature, water level, and the engine lubricator—but he knows the car so well that he hardly needs to. The near-silence, low rpm's of the engine, and absence of vibration create a calm serenity. "These cars talk to you—they have a rhythm," he says. "You could drive it blindfolded."

Despite Abner Doble's ethical failings, there remains something grand about his sheer persistence. Though buffered by the wearing, repeated rhythms of great hopes and greater disappointments, he continued to pursue his own peculiar dream of the perfect steam car. Like some other notable figures in automotive history, he was better at inspiration than execution. His insatiable perfectionism served him well in design but poorly in production. The Model E remains his great, undeniable monument. ★

Stephen Fox, a historian and independent scholar, lives near Boston.



The hubcap of a 1924 Model E.