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Drawings by Michael Train

The Steaming Stanley Twins

A self-confessed idolater of steam engines tells how two eccentric New Englanders invented a simply dreamy—though somewhat temperamental—horseless carriage . . . and why those inferior cars from Detroit finally pushed it off the road.

THE oldest car at the gathering was a beautiful little Locomobile, as shiny and as bright as it was on the day some forgotten carriage painter gave it his final loving touch in 1899. It had been brought from Arizona. There were two White touring cars. One was as resplendent in fire-engine red and mayonnaise-colored wheels as it was when it left its Cleveland factory in Teddy Roosevelt's time. The other was seedy and threadbare, a 1907 model, but its present owner, a retired mechanic from a nearby town, had been driving it year in and year out since he acquired it in 1923, and he owned no other car. He was a picture of the ultimate in contentment as he sat behind the wheel, hauling riders by the carload around the town in that placid, noiseless old White.

The occasion was the annual Steam Car Meet. Two hundred devotees came from every section of the United States and Canada at the summons of a post card. They met in a small college town in the rolling hills of Northeastern Ohio's Western Reserve. They ate, slept, showed their wares and talked far into the night at a dormi-

tory on the campus of Kent State University. Some of them were men of learning and some were untutored. They tended to be old in years and most of them smelled of kerosene. One of them said that they were getting *too* old, and there was much new work to be done. He was heartened to see a sprinkling of young fellows among them. They talked only of steam. They breathed it in for three sunny August days, and steam seemed to exhale with their breath and to exude from their skins. The zeal of early Christians was in their eyes and they had a lot of fun.

There were two new steam cars. One, from Detroit, was an amalgam of an old engine and a new boiler fired by a gun-type burner. The other, which had come across the state from Bucyrus, was new from the ground up and was making its first appearance in the ranks after four years of gestation. Its owner was an attorney known for his stubborn persistence. His car represented an untold number of calculations, experiments, and trials—and many more dollars than he cared to add up, somewhere between fifty and a hundred thousand of them, he thought. But there it was at last, with a Chevrolet roadster body snatched from a junk yard hastily thrown over its vitals, and sprayed with canary-colored paint at the last moment before the Meet.

But most of the cars on the parking apron beside the dormitory were Stanleys. A glance down the line was a lesson in the evolution of the famous Stanley Steamer from the horseless buggy of the turn of the century to the touring car

of the 1920s. There were more than twenty of these Stanleys with steam up. All that one could hear as these cars waited for eager passengers to climb aboard was a muffled high-pitched hissing sound as air sucked itself into the burners which produced the hellfire which made the steam which powered these legendary things on wheels.

For three days they moved silently as ghosts on and off the parking apron, through the campus drives, up and down the town's streets, and over the undulating roads of that green land. Every sitting space was filled on every trip, and the drivers got little rest, for when they returned to the parking apron and reversed into the curb with the same eerie silence which marked their forward motion, a knot of old steam "bugs" as well as small and large boys and girls of the town stood pleading for just one more spin. So off they moved, as magically as sailboats on still water, for yet another tour. The later models which condensed their steam back to water gave no hint to the ear of what propelled them forward beyond the almost inaudible hissing sound that some leprechaun might make, while the older ones which were non-condensing made a lonesome, faraway choog-choog sound in tune with the cotton-candy wisps of steam which puffed from their posteriors.

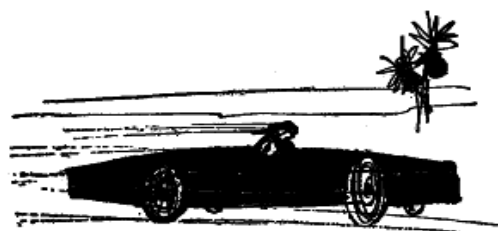
Most steam-car enthusiasts get a sharp pain when they are called antique-car fans. Steam-car people are interested in steam old and new. They regard the whirling flywheels, the canned explosions, the fantastically complex transmissions and gears of the cars we all ride as stuff and nonsense—as an intellectual and mechanical hoax which has been perpetrated on us while our backs were turned. They don't even like the smell of gasoline. They say that despite all its gadgets, the present product lacks the pick-up, the flexibility, and the power of the Steamer. They say that for fifty years the automotive engineers have been striving to match the performance of the Stanley, and then, with a triumphant gleam in their eyes, they say that the Stanley did it with twenty-six moving parts.

HOW FAST WILL IT GO?

THE steam car has the same general outward appearance as the internal combustion car, but the internal anatomy of the two vehicles is completely different. Under the hood of the steam car sits a boiler rather than an engine. The Stanley, which is the prototype of the species, has a steam pipe rather than a drive

shaft running back from the boiler in the direction of the rear wheels. This pipe leads to the engine, a small flat two-cylinder thing slung under the rear seat. The engine is hooked directly to the rear axle. There are no high and low gears, no reverse gear, no clutch, no Dynaflo, no Hydramatics, no torque converters.

When you want it to go backward, you press a pedal with your left foot. This sends the steam coursing through the cylinders in the opposite direction, and you can go backward as fast as forward. Nothing is running when it is stopped, and therefore stalling is not a word in its lexicon. When you want it to crawl at a snail's pace, you crack the throttle open the smallest bit and the wheels begin to revolve in imperceptible stealth. If you decide to move



forward fast you give it full throttle and it leaps ahead noiselessly like a stone from a slingshot. It is this rubbery sort of responsiveness to the driver's maneuvers, in fact, which turns ordinary mortals into chronic steam bugs.

How fast will a steam automobile go? The Stanley brothers wondered about this many years ago but never learned the full answer. The oft-repeated story that they offered to make a gift of one of their cars to anyone who would open it up is apparently one of those American folk tales which refuse to die, despite its purely fictitious origin. The actual facts are somewhat different, but no less interesting. In order to answer this question, the Stanleys built a special racer with an oversized engine and a body shaped like an inverted canoe. They took it down to Ormond Beach, Florida, and put Fred Marriott, their husky chief mechanic, behind the wheel and turned him loose. The date was January 27, 1907 A.D.

He fired the boiler pressure up to 1,200 pounds per square inch, twice that on which the Stanley usually operates. He opened the throttle and started down the beach in his upside-down canoe on bicycle wheels. There had been a storm the night before which had made a shallow trough in the otherwise flat beach. His speed was not recorded officially, but according to Marriott's

own testimony, he was going 197, repeat 197, miles per hour when he hit this trough. The uptilt of the sand's surface on its far side acted like a springboard, and he became airborne. Marriott and his canoe made a lazy quarter-turn in the balmy blue Florida air and came down crosswise to the direction in which they were progressing.

Pieces of the vehicle were picked up later as far as a quarter mile down the beach. One of Marriott's eyes was laid out on his cheek and he broke just about all his ribs. He collected sundry other traumata too numerous to mention, but he lived to tell me and many others about it until he died a short time ago at the ripe age of eighty-two years. The Stanleys loved Marriott, and his ordeal brought their speed experiments to an abrupt end. After his accident they never permitted another speed trial. He repaid them in kind by operating a garage in the Boston suburb of West Newton, Massachusetts, where he repaired and reclaimed old Stanleys in the afternoon of his life, around the corner from the factory where they had been born.

ITS TROUBLE WITH DRINK

IF THE Stanley was as good as all that, why did it die? There have been dark mutterings from time to time that a vague ogre, usually called "The Interests," did the steam car in. This theory holds that powerful people from Texas where they refine gasoline, or from Detroit where they make internal combustion cars, or from Pittsburgh where there is a pile of steel, or from Wall Street where there is a pile of money, killed the steam car singly or joined in unholy alliance. Only the more hysterical and sophomoric historians find the necessity for reaching out for this paranoid explanation. There are other, more cogent reasons. Some of them are mechanical, but interestingly enough, the more important ones are human.

The Stanley was the best and most popular of the dozens of steam cars which blossomed forth shortly after the turn of the century, but it had its faults as well as its virtues. I have used half a box of kitchen matches and more than three hours lighting the burner under the boiler of my Stanley and getting up a head of steam. Experts need at least fifteen minutes for this task with the help of a blowtorch. This was permissible and proper in the old days when the man on the move was geared to the tempo of the horse. It took about that long to hitch up, so nobody complained. Toward the last, the

Stanleys added an electric spark instead of a match to light the burner but it could not compete with the self-starter.

This burner was quite a temperamental thing. Like the Bunsen burner we struggled with in Chemistry I—which is built along the same lines—it took a notion now and then to burn back at the hole where the air came in. When this happened in a Stanley, a jet of flame three feet long burst forth from its ventral aspect on the starboard side, causing devout women to cross themselves and infidels to run for cover. The Stanley instruction book advised the driver to keep going, to turn a knob on the dashboard to cut off the kerosene supply, to keep his blood pressure down, and to wait it out until the distemper cured itself. If the Stanley drivers ever got adjusted to these crises, the populace never did. It is probable that these periodic flamboyant displays gave the Stanley the reputation of being a dangerous instrument of locomotion that blew up every whipstitch. In the interest of honesty let it be recorded that this never happened.

The burner had a limit to the amount of heat it could put out. The boiler ran out of breath on long hills and had to rest and refill its lungs with steam. This, too, was like a horse and was tolerated as long as they remained competitors. In a way, the horse connived with the Stanley to improve the art of transportation in more innocent times. The Stanley did well to get a mile on a gallon of water. Its belly held twenty-six gallons in the larger models, less in the smaller. This necessitated frequent stops for a drink. The early Stanleys had a length of garden hose folded along the running board with a strainer on the end. It was easy as pie to wheel up to the ubiquitous watering troughs which dotted the country roads and city streets, to flip the end of the hose into the trough, and—without getting out from the driver's seat—to siphon water into the Steamer's tank. This was modernism! This was really living it up!

Then Thomas Edison came along with his incandescent light bulb and people quit using oil lanterns. General stores in the country and drug stores in the towns quit carrying kerosene, which was a better fuel for a Steamer because it was cheaper and produced more heat than gasoline. The horse began to fade from the thoroughfares. The water troughs ran dry and then got torn down. The nice modern hose disappeared from the running board of the Stanley because it wasn't so modern any more. In its stead a condenser grew at the anterior

end. This was like the radiator of the car of today but of larger capacity. The spent steam left over after it powered the Stanley engine was routed through the condenser's pipes and cooled back to water. Then it was piped to the storage tank until it was called upon to make more steam. With this device the Stanley could go almost a hundred miles without stopping for a drink.

A peculiar fault of steam engines is that they squeak if they don't get lubricated from within. To get around this difficulty, small quantities of heavy oil are pumped into the steam as it courses down its pipe toward the engine. This was quite all right when the spent oily steam got dumped out on the road behind the car, but when it was condensed back to water over and over again it got oilier and oilier. The oil adhered to the interior of the boiler as scale. Stanley boilers began to mud up, as the saying goes, and to lose their steaming efficiency. Various oil separators were proposed to the Stanley brothers but they turned up their noses at them for reasons as yet unexplained. The cars began to lose their zip in performance, and with it there seemed to come an indolence about styling. The Stanley was on the skids.

About this time a big human event took place in this saga. The Stanleys came from Kingfield, Maine, and they worked outside Boston. They shuttled back and forth between these two places a great deal in their cars. They liked to move along at a fast clip. One day one of the brothers was zooming down from Maine under full steam when he found himself confronted by two farmers leaning out of their wagons talking about the crops and blocking the road. Rather than plow into them he veered off to the side and ran head-on into a pile of cordwood and killed himself.

Thus ended what the biologists might call a symbiosis.

TWO-IN-ONE PERSONALITY

THE Stanley brothers (Mr. F. E. and Mr. F. O.) were identical twins—so identical in appearance that people who worked with them for years could never tell them apart.

The renowned British neurologist, Kinnier Wilson, has written that identical twins are one biological individual parading as two people. This was obviously the case with the Stanleys. They were in each other's physical presence as much as possible, and their minds were in constant harmonious rapport. Woodbury, the

author of *The Story of a Stanley Steamer*, writes that they were resourceful and shrewd country boys who were always whittling on a piece of wood with a pocket knife. This penchant for whittling led them into making fiddles, and they were first to mass-produce violins. While they were in their early twenties they invented the dry photographic plate. Prior to that time, anyone using a camera was always wet up to the elbows. They sold their invention to Eastman for a handsome sum and became rich young men.

In the late 1890s it became the fashion for young bloods to acquire horseless carriages and to compete with them in hill-climbing contests. The Stanleys designed one to be propelled by steam and had it made by Boston artisans. They won prizes wherever they went and prospective buyers urged them to make more of them. The clamor grew loud enough to convince the twins that they ought to do so. They had heard of reinforced concrete, and when they decided to build a steam carriage factory in West Newton they became their own architects and contractors and made one of the first reinforced concrete buildings in New England, and the first one they had ever seen. When it came time to make the wood patterns for the metal castings they would need in their cars, they whipped out their pocket knives and whittled them instead of hiring pattern-makers. Their first steam carriage came off the line in 1897.

The Stanley Steamer was a sensation from the start. It did all sorts of amazing things and became a natural at making publicity for itself. In 1899 Mr. F. O. and his wife performed the unbelievable feat of climbing to the top of Mt. Washington in one of these buggies. This made almost as much noise in the world's newspapers as McKinley's assassination. A group of New York financiers dangled a quarter-million-dollar carrot in front of the Stanleys' noses for their patents if they would agree to stay out of the field for one year. The Stanleys pocketed the money and took the year off to do some serious thinking and tinkering. They came back with such a vastly improved vehicle that the Locomobile (for that was the name the New York people had given to the earlier Stanley) soon threw in the towel and turned to explosion engines. The Stanleys dreamed up so many inventions so rapidly for their car, and covered them so well with patents, that some fifty other steam-car builders had to give up the ghost in the next few years to boot. It never occurred to the Stanleys to enter into patent-sharing

schemes. That wasn't the way these arch-individualists operated.

As they settled down to making their cars, other aspects of this two-in-one personality revealed themselves. The Stanleys were hot-tempered and blew their tops when they were provoked. The workman who happened to be crossing their line of vision at the moment was fired on the spot, but he never left his bench. The men in the shop were Down East types for the most part and knew their Stanleys. Within a matter of minutes the irate twin was back rehiring the worker who had never quit.

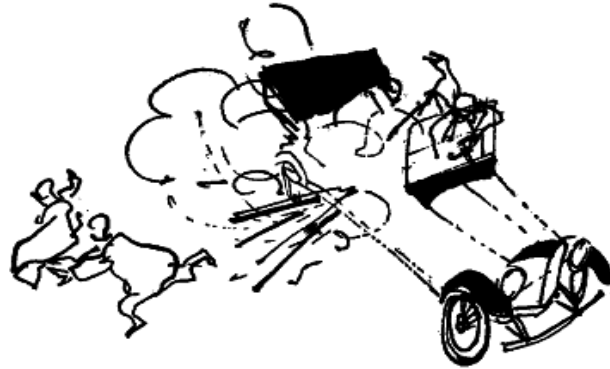
The Public Relations Department, manned by Mr. F. E. plus Mr. F. O., can best be described as rudimentary. The story is told that an owner of one of their cars came in one day and accosted the twin who was doubling as Director of Public Relations at the moment. The visitor launched into a long bill of complaints about the contraption he had bought. The twin listened him out in silence, reached into a drawer, wrote out a check and flipped it across the table.

"Here's your money," he said. "We want the car back. You're not the sort we want riding around in one of them."

The Stanleys had very positive ideas about advertising. They were against it. They regarded it as unnecessary, an unsound waste of money, and perhaps unethical. The only piece of copy ever turned out by the Stanley Advertising Department, composed as it was of Mr. F. E. plus Mr. F. O., was a small sober brochure entitled "Announcement." It gave a careful description of the workings of the car, answered some of the more persistent questions which were asked about it, and stated its price. You could pick one up at the factory or you could request one by mail, and hope to get it if the Mailing Division, made up of Mr. F. E. plus Mr. F. O., was not otherwise engaged.

They had very positive ideas about installment buying. They were against it. Anybody who wanted one of their cars could get it by the simple process of laying the cash on the barrel head, taking a fast lesson in how to fire it up, and driving it away.

The Stanleys knew everything about their factory from the front door to the back. In the early morning they usually sat on the front doorstep whittling and talking until the first of the men showed up for work. Then they opened up and went inside. One of them took



up his position in the office and the other went back to the shop. Since they were mirror images of one another, nobody knew which one was where.

Fred Marriott, after years of research on this problem, concluded that F. E. and F. O. were completely interchangeable. In addition to knowing everything about everything around the place, they were perfectionists. It has been said that almost no part went into a car unless one half of the twinship checked it, and almost no completed car left the place until it had the approval of the same agency. They seemed incapable of turning these tasks over to others. With this additional clinical data at hand, a student of behavior would call them more than rigid—he would say that they were obsessive personalities. A layman would not be far wrong if he called them perfectionists with one-track minds.

The Stanley twins nailed themselves into a tight box in complete innocence. Their wonderfully creative brains froze almost everybody else out of the steam-car field. They were temperamentally unable to delegate responsibility in the usual way. As a consequence, their enterprise never developed the mass-production methods and organizational patterns which the growing automobile industry demanded. They worked like demons and did all the jobs, but try as they might they could only turn out 650 cars, personally checked, in any given year.

Bright young men coming out of the engineering schools were fascinated by this burgeoning new industry and many of them cast their lot with it. There is no evidence that the twins invited any of the better ones into their factory. The sad surmise that they were too rigid to accept the creations of other men's brains and to share responsibility with them appears to be a valid one. The intellectual energy of the

bright young men got funneled off in the direction of Detroit. The cars they have created there over a half-century have grown progressively better until they now approximate a wizard's specifications. The handful of Stanleys made each year got lost in the crowd, and they did not continue to improve as the taste of the car-buying public became more sophisticated.

Then half of the double man who created them got killed. It is a well known medical fact that obsessive persons develop melancholia more easily than the rest of us. That is what seems to have happened to the remaining member of the team of twins. The fact that he had an arrested case of tuberculosis probably didn't help matters either. He quit going to the factory, he developed an inertia foreign to his usual nature, and he got swallowed up by silence. The Stanley Steam Carriage Co. of West Newton, Mass., was sold to investors, but they couldn't breathe the new life into it, and it petered out quietly in 1925.

WHEN THE OIL PUMPS SPIT MUD

THERE is an epilogue. A man named Abner Doble, another creative genius in steam automotive engineering like the Stanleys, picked up where they left off and carried the development of the Steamer forward in the period between the two world wars. He improved the whole vehicle from the burner to the condenser. His monotube boiler could get up steam in less than a minute at the turn of a key on the dashboard. He made forty-five cars in all, and the steam bugs who know them speak of them in tones of reverence. He ran out of capital and out of that inward human drive for which there is no word as the storm clouds of the second world war began to gather. Apparently he tired of trying to do battle with the Detroit Giant which had only been man-size when the Stanleys started.

Nowadays a few astute men are going forward with further development of the Doble improvements. Will they or somebody like them ever put the Steamer back on the road? One sincere student of the steam automobile feels that it would be impossible to compete with the present-day car even if one were armed with the wealth of an Indian maharaja. He feels, however, that there are three special situations where a modern steam car would find a welcome market tomorrow. The first is taxicabs. These vehicles often go to pieces in about six to twelve

months. One reason is that they idle so much. A steam car doesn't idle. The engine stops when the car stops.

Another application for steam cars, he thinks, is the small house-to-house truck, such as a milk delivery truck. Here, again, with steam, the problem of idling and of frequent stops and starts would be handled more economically, both in terms of fuel and of repair cost.

The third logical place for steam automotive propulsion is in large trucks crossing the desert areas of our American Southwest. No filters have been devised to keep the fine desert sands out of the carburetors and therefore out of the cylinders of gasoline and diesel trucks making this run. Engines need repeated and costly overhaul in this service. A steam engine is a closed system from which the environmental air is excluded, so that here, too, steam should prove superior.

There is another possible future for the steam car if one takes a longer view. Let me put it in the homely words of a practical man who loves and lives steam. On the morning of the last day at the Kent Meet I sat down at breakfast in the student cafeteria with an old steam bug who sells farm machinery in rural Ohio for a living. We fell to talking about guess what. He epitomized the discussion which had been going around the Meet about the prognosis of the steam car in these words:

"I figger that they'll have to come back. Those holes they've been drilling into the ground all over the world are bringing up oil at a terrible rate every day. The geology guys say not to worry, that there's plenty more down there, but now and then you read about one who ain't quite so cocksure. Anyhow, it stands to reason that we're bringing it up faster than it's being made, and the day's got to come when the world's oil pumps will be spitting out mud and salt water. Before that day comes, God willing, this atomic energy will be ready for small power installations. Look at those submarines, the *Nautilus* and the others like it. They can go from one end of the earth to the other under water, but don't forget that it takes a steam engine to push them there. There's the answer as plain as the nose on your face. Leastwise, that's the way I look at it. I figger we'll all be pushing ourselves around on wheels with steam generated by atomic heat some fine day. I wouldn't care to guess how far off that day may be, but I figger that it will surely come."

As I drank my coffee I found myself thinking that he might be figgering right, at that.

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