

# *Chrome Dreams*

**Automobile Styling  
Since 1893**

**PAUL C. WILSON**

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## Preface

When archaeologists thousands of years from now dig into the stratum containing implements from our time, chances are that their shovels will clang against the rusted fender of an automobile. They will dig it up, clean it off, and when they discover its importance in twentieth century life, they will interpret it as we interpret clay pottery and fragments of statues—as an icon expressive of the culture which produced it. The automobile will not be inappropriate for their purpose. While these future archaeologists will also unearth our buildings, some sculpture, and perhaps a few paintings, these will only reflect the tastes of the individuals or small groups that produced them; the automobile, by contrast, is much closer to being a collective creation of the culture.

Strictly speaking, of course, the appearance of an automobile is determined by its designers, who in turn are influenced by considerations of practicality. But the power of veto exerted by the public by simply refusing to buy an unattractive car is so great that public taste must be counted as the most important single influence on style evolution. A sculptor need only please himself, an architect need only satisfy a committee or a client, but a stylist must often appeal to a million people with a single design. And the appeal must be so strong that the buyer will make the large investment needed to buy a car. As a result, I think it is valid to consider the automobile an object of popular art, and to interpret

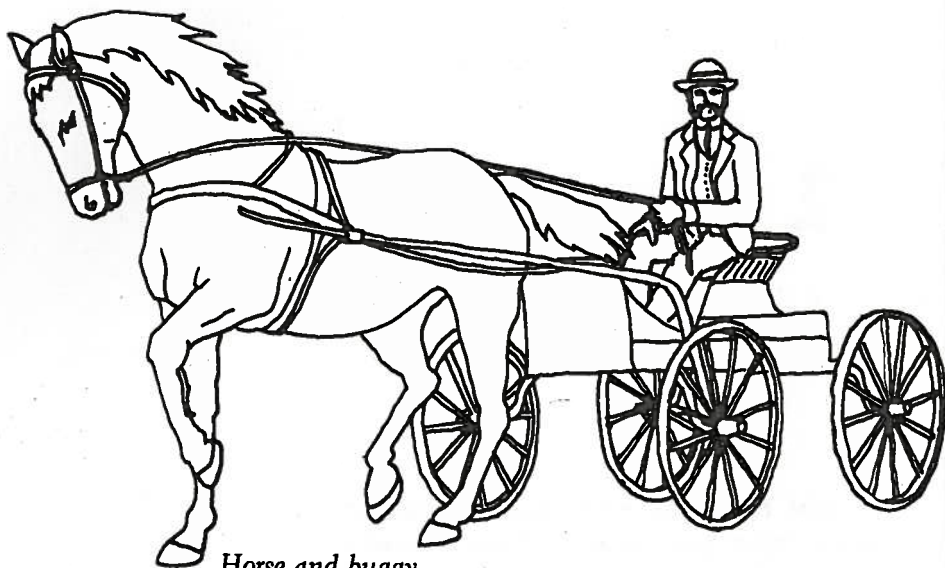
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## *In Search of a Form*

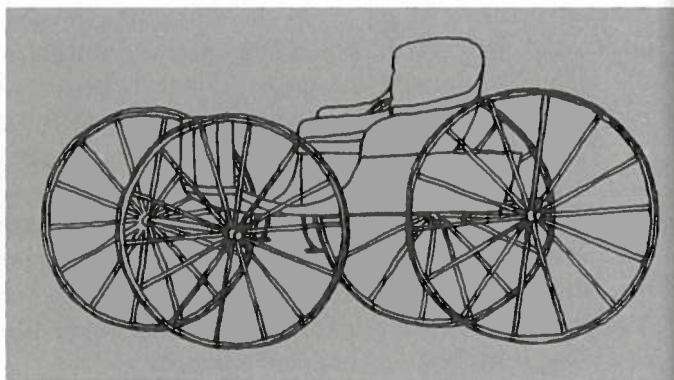
At first sight, few people would have said that the newly created horseless carriage was beautiful. There it stood, shivering like a terrified horse being led from a barn fire, burping at regular intervals, and gradually surrounding itself with a hazy halitosis. Its resemblance to a buggy made the differences grotesque: visible underneath were belts, connecting rods, and valve gear, convulsing feebly like exposed intestines. Whatever points the new thing had in its favor, an attractive appearance was not one of them.

Its immediate predecessor, the horse and buggy combination, was far more satisfying in appearance. To start with, it was logical: the motive power obviously came from the horse, and was transferred to the buggy through the harness. It showed the intended direction of travel by the placement of the horse ahead. And in the construction of the buggy itself, years of refinement had made it light and strong and graceful.

In the horse and buggy unit, the horse was the part which really stirred the owner's emotions. The buggy could be elegant and graceful, but the horse gave life to it. Young men of past centuries would talk endlessly about the "powerful shoulders of Geo. Mason's filly Cyclone" and how "that yearling Thunderclap will be fast—he has the small head of his mother." They would dream of driving through town in a light trap drawn by a pair of matched bays; though one horse would easily be able to take the load, the frankly excessive power of having two of them would add dash and excitement to the appearance of the ensemble.



Horse and buggy



1892 Oneida Buggy

The buggy was the passive part of the combination, designed for minimum resistance. For easy rolling it had large wheels and very light construction. Not only should it be light, but it must look light: wheels were made as spindly as possible, consistent with reasonable strength; bodies were compact, purposely dwarfed by the wheels; body surfaces were broken up by panel designs, in order to appear still smaller; finally, on some designs, the body was actually perforated by holes cut in the sides. The unworkable extreme of buggy design was shown in the fashion

plates of *The Carriage Monthly*: cellophane-covered drawings displayed spider-like vehicles, with absurdly tiny bodies crouched within tall but delicate wheels.

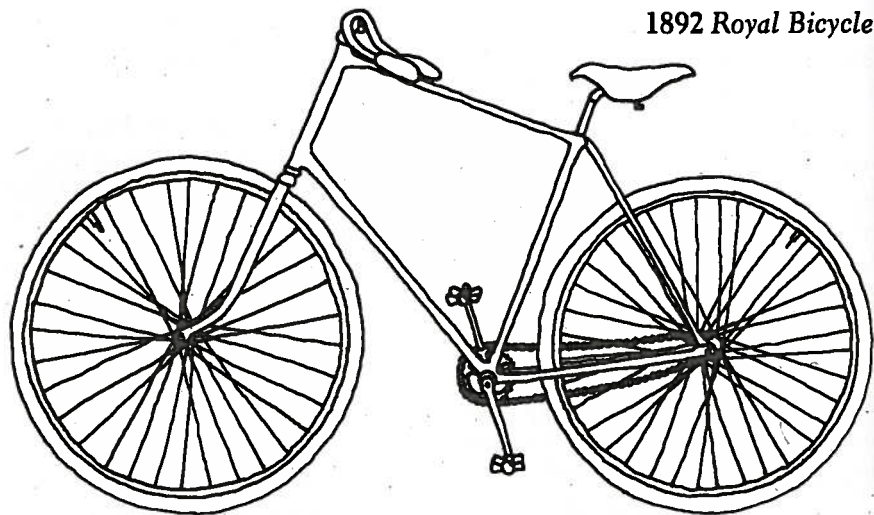
Technically speaking, a buggy is a vehicle designed to be drawn by one horse, with four wheels, a box-type body, and a single seat with room for two or possibly three persons. A dash, usually made of leather, is attached at the front of the toe board, and a folding top is often fitted.

Within these specifications there was considerable variety. Many different springing configurations were used. The buggy illustrated here is a side spring type, with springs mounted longitudinally under each side of the body. There were also variations on the exact shape of the body and seat and in the proportions of the wheels and body.

If an American of 1890 owned any horse-drawn vehicle at all, chances are good that it would have been a buggy. This was not true of his European contemporary. For informal use the European would be more likely to drive a two-wheeled gig or dogcart, while on formal occasions he would recline on the plush seats of a heavy and ornate open carriage while his coachman took the reins. With a few exceptions, early European automobiles were designed for the coach-and-four market, and thus tended to be larger and more pretentious than their buggy-derived American counterparts.

The influence of the bicycle on the fledgling automobile was also strong. Bicycle design was rapidly refined in the '70s and '80s, and by the last decade of the century America was in the grip of a bicycle craze. Everyone had a bicycle. Knowing that aged chaperones could easily be outrun, athletic "wheel men" donned stylish knickers and invited their young lady friends for a ride in the country. Bicycle racing had a wide following, and there were thousands of bicycle clubs. No matter who you were, you could not avoid exposure to the bicycle in the 1890s. It was therefore natural that designers of early automobiles should turn to it for inspiration.

Like the buggy, the bicycle has the appearance of lightness and strength. It is also a mechanism, which the buggy is not. Lacking fenders and chain guard, a bicycle of the 1890s unashamedly displayed its means of locomotion in pedals, sprock-

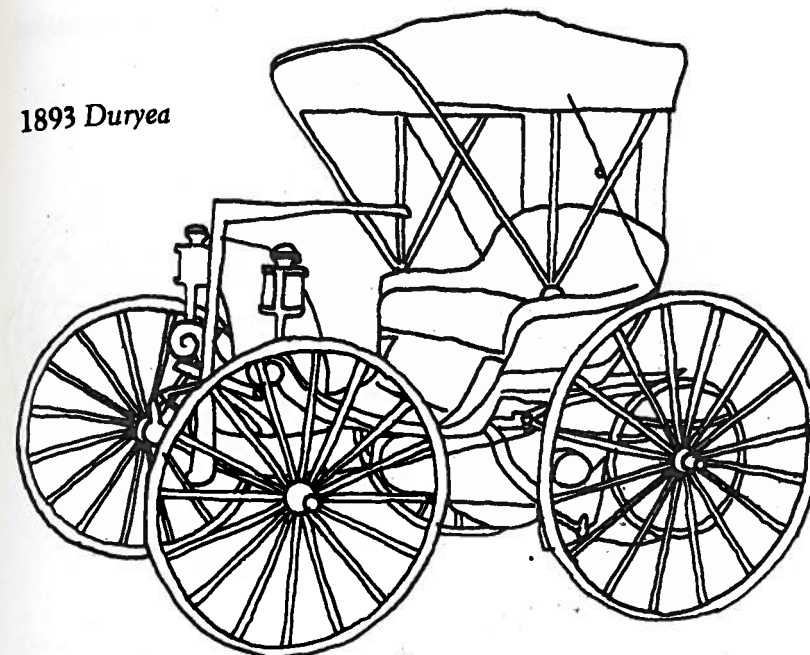


1892 Royal Bicycle

ets, and chain. Its metal tubular frame, formed into a structurally efficient truss, proclaimed its connection with the machine age. Another feature not shared with the buggy was the use of wire wheels with pneumatic tires.

In the late summer of 1893 Frank Duryea operated the first successful U.S. built gasoline automobile. The basis for this vehicle was an ordinary buggy, fully equipped with oil lamps and folding top. The driving mechanism was mounted on a modified and reinforced sub-frame, and was fully exposed. The power was taken to the fragile wheels by chains and sprockets.

In operation the vehicle was a success, but it was not beautiful. The lightness and simplicity of the body belied the growling mass of machinery visible underneath. Next to the exposed machinery, the visual feature of Duryea's vehicle which distinguished it most conspicuously from an ordinary buggy was the steering tiller mounted centrally in front. This helped to make the appearance more rational—at least one could see how it was steered. The uneasiness of contemporaries at seeing a self-propelled carriage was somewhat allayed by visual reassurances that it was under the control of the driver. On early Duryea cars



1893 Duryea

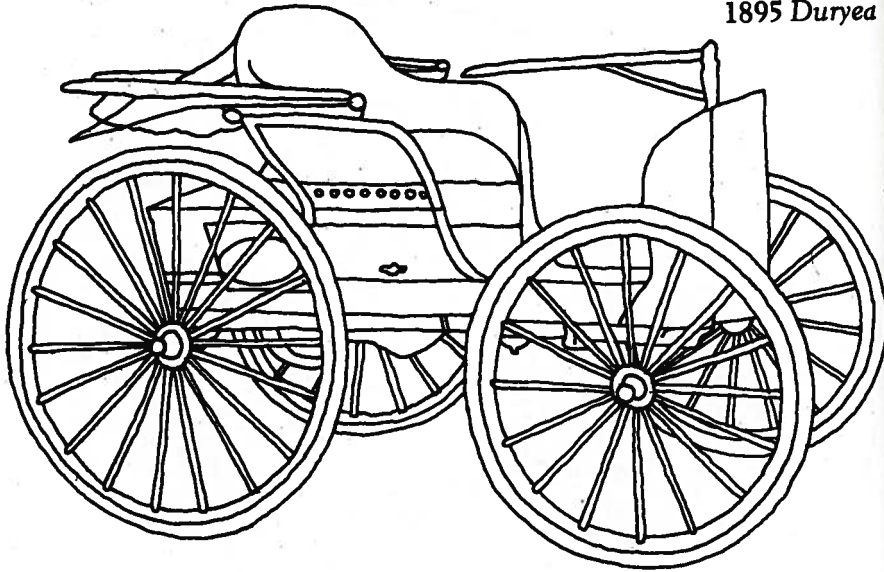
the tiller was large and prominent, and was used for control of speed as well as direction.

In view of the enormous technical challenges they faced, it is surprising to find that the automotive pioneers were concerned right from the beginning about the looks of their vehicles, even to the point where it influenced the mechanical layout. In January 1894 Frank Duryea wrote a letter to his brother Charles, describing plans for his second car (*Who Designed and Built Those Early Duryea Cars*, by J. Frank Duryea, Madison, Conn., Oct. 15, 1944).

(I) want to show you then a rough sketch of the new design. It will be good. Shall use a piano-body buggy, side spring. Increase wheelbase what I may without making it unsightly . . . an increase of three or four inches over the greatest length in use will not look bad.

In the same letter he says he had decided not to use chain drive. It makes the frame too long, and "besides the sprockets on wheels look more like a machine than it would be if we drove the axle." It

1895 Duryea

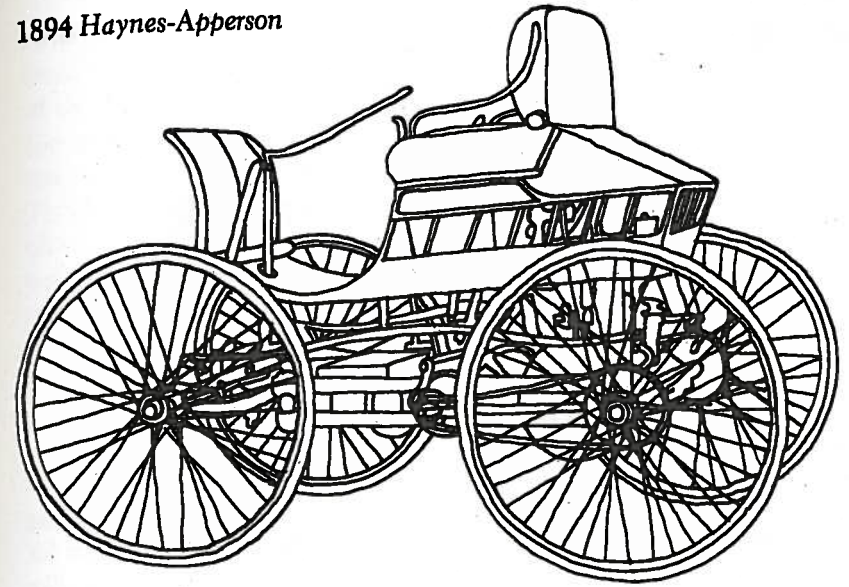


should not be too long, or look "like a machine"; implicit in these comments are the aesthetic standards of the '90s, in which the horse-drawn buggy formed the ideal model.

This second car is the one he drove to win the *Chicago Times-Herald* race of November 1895, the first auto race in this country. The car was much better looking than his first one. The wheels were made thicker and stronger, and the rear ones were reduced in diameter. Pneumatic tires were used. The longer wheelbase made the car look less awkward than before. The most striking change, however, was the enlargement of the body and rearrangement of the driving mechanism so that all the machinery was concealed. This not only made the car look much better, but it also helped to keep grit away from the working parts. After the race Duryea astonished spectators and fellow competitors by washing down his car with a water hose; the others were forced to wipe off each part separately to avoid getting water into the ignition and carburetor.

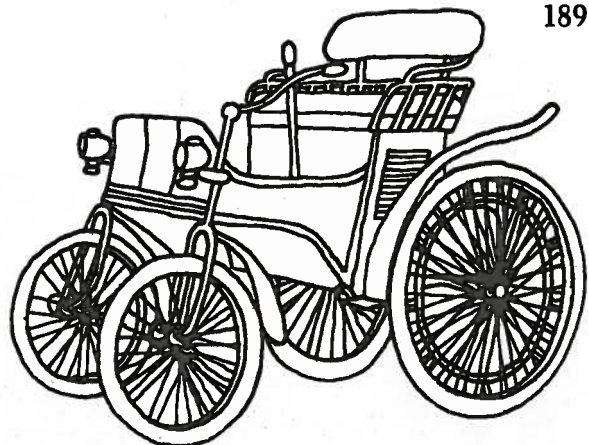
In the summer of 1894 the first Haynes-Apperson was completed. It had a light body from a buggy, perched above the fully exposed engine and running gear. High wire wheels and a tubular

1894 Haynes-Apperson



frame gave evidence of bicycle ancestry. Like the first Duryea, the Haynes-Apperson combined active machinery with a passive body in a logical but rather incongruous whole. The parts were not really united in spirit. It gave the same impression as a canoe with an outboard motor—a convenient arrangement but somehow rather makeshift. The division of active and passive parts was accentuated by the positioning of the springs between the body and the frame, as on a baby carriage, rather than between the frame and axles. This arrangement not only looked awkward, but the lack of springing between the heavy machinery and the road put a great strain on the tires and running gear when the car was driven on rough surfaces.

In 1895 and 1896 more than a score of experimental vehicles were built and operated. In the appearance of all of them their ancestry showed clearly. The bicycle influence could be seen in the tubular frame and wire wheels of the Ford and in the bicycle-fork front wheel mountings of the Hertel, while cars like the King were little more than motorized wagons. The sight of exposed machinery was universally disliked. Like Duryea, most inventors first designed an experimental car which was more or less naked of bodywork, and then made efforts on the succeeding models to



1895 Hertel

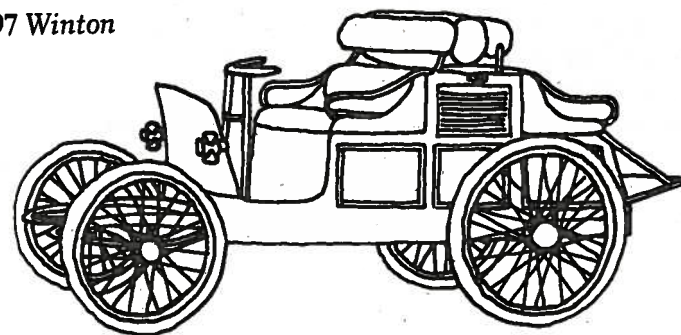
conceal the working parts. There was no movement among American constructors in the '90s to develop a unique shape for the automobile: motorists apparently wanted them to look like neat and symmetrical horse-drawn vehicles. "Most designers struggle," remarked *The Horseless Age*, May 3, 1899, "to make the self-propelled carriage as innocent of machinery and as short as though a horse were to be attached at any time."

In some ways function forced changes from the traditional carriage aesthetics. Buggies were built high so that the driver would be able to see past a large horse. On horseless vehicles the visibility problem did not exist, except for situations when the engine died and the car was ignominiously pulled home again. Optimistic builders did not care to design cars with this eventuality in mind, and cars gradually became lower.

Light appearance was the basic aim of bicycle and buggy manufacturers, and was adopted as a goal by the makers of early automobiles. The weight and speed of the automobile imposed strains on the structure which were more severe than most people anticipated, however, and many constructors came to grief because they balked at using what seemed to them to be excessively heavy, clumsy-looking components. Features such as thick-spoked wooden artillery wheels were only accepted when their necessity was proven beyond question. Year by year, frames, axles, and wheels were strengthened, gradually losing their resemblances to buggy parts.

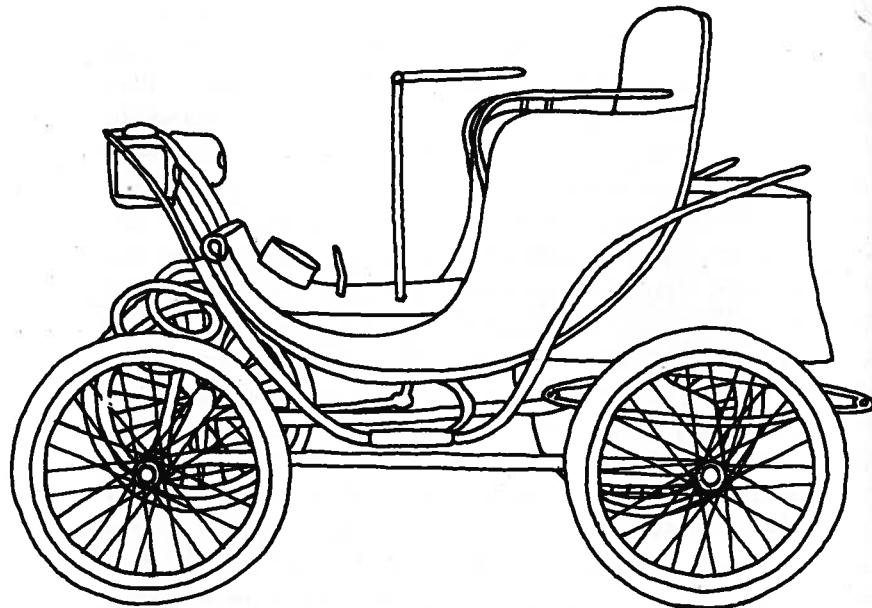
The arrangement of the components also caused changes from the basic buggy shape. On the 1897 Winton, the central part of the body was filled with machinery so that a rear seat facing forward would have had no legroom. To solve the problem Winton placed the rear seat so that the passengers faced backwards. This body style was called the "dos-a-dos" and was used occasionally on horse-drawn vehicles such as dogcarts. However logical it was, this solution was unsatisfactory in the long run because passengers in the rear seat complained of riding discomfort and motion sickness. Unable to see where they were going, they tired quickly, probably by subconsciously flinching from an expected collision (not an unlikely possibility in view of the road conditions and the braking ability of the early cars). In any case, backward-facing seating arrangements have never had much success in automobiles.

Another feature of the first Winton which was shared to some extent by most early automobiles was a visual concentration of weight over the rear wheels. While in front the toeboard and dash remained the same as on a buggy, the body box at the rear grew rapidly in order to cover all the machinery. The rearward weight bias was not just a visual effect, either: some early automobiles had as much as five-sixths of their weight on the rear wheels. The dynamics of vehicle balance were unknown then, and though this gave the cars more traction it also gave them treacherous road behavior. Handling was so bad that some of them carried devices called sprags, which looked like reinforced ski poles, mounted under the chassis. When the car began to slide sideways or backwards down a hill the sprag was dropped like an anchor, nailing the car into the road. The device was also needed to hold cars on



1897 Winton

1899 Columbia Electric Victoria

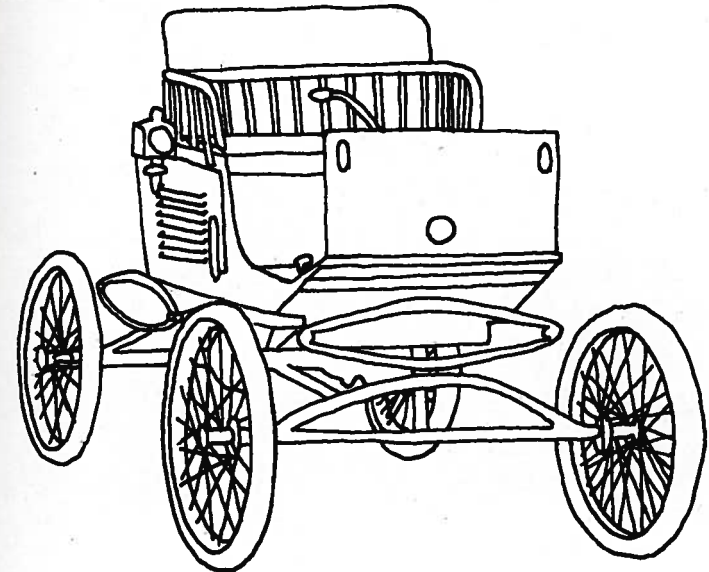


hills, because some early brakes were designed to work only in the forward direction.

The years from 1897 to 1900 saw the gradual emergence of the first standard type of American automobile, the light runabout. If in 1900 a person were asked what a horseless carriage looked like he would describe a car like the 1900 Locomobile steam runabout. This car drew praise from the *Scientific American*, November 17, 1900, for its "clean lines and general light and symmetrical appearance" and is a good example of the type of vehicle that comprised the vast majority of U.S. cars built between 1898 and 1902.

The Locomobile has an engine-under-seat configuration combined with a central chain drive to the rear axle. The body is a simple box construction, neat in appearance, which hides practically all the machinery. One seat, which is wide enough for two people, is mounted midway between the axles. Fairly small, equal-sized wheels are used on the front and rear. On the Locomobile these are the wire type, though wooden artillery

1900 Locomobile



wheels were also common and growing in popularity. The car has pneumatic tires which look fat by bicycle standards.

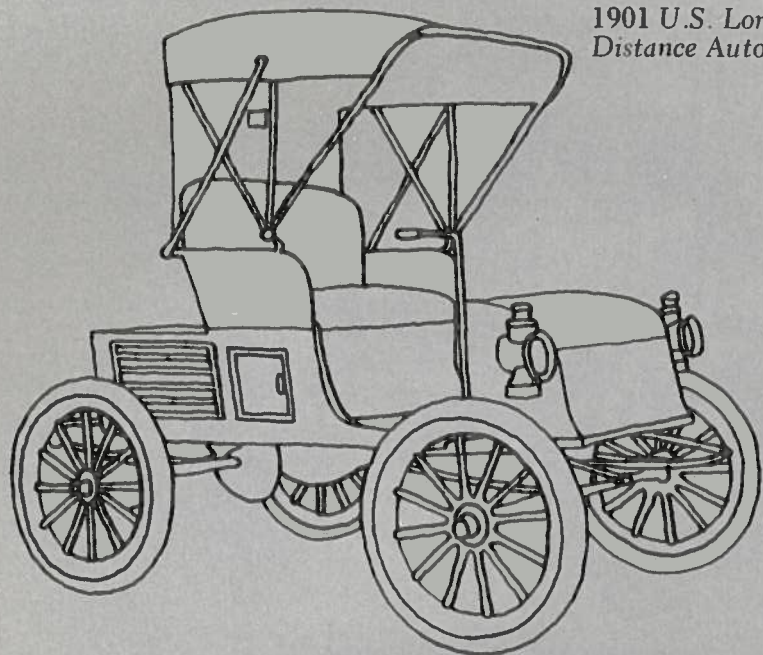
Like almost all cars of that year, the Locomobile is steered by a tiller. Between the time of the early Duryeas and 1900 steering tillers and control levers had become steadily less conspicuous, to the point where one often had to look carefully to see any means of control at all. A few cars adopted wheel steering in 1900, but its practical advantages were not generally appreciated and its use was thought to be an affected imitation of contemporary practice in Europe. "As to steering," snorted *The Horseless Age*, November 7, 1900, "a few have adopted that foreign freak, the wheel."

Fenders were optional in 1900. They were not a novelty, having been used for centuries on carriages. They were usually made of leather or plywood. Folding tops were sold to some people, such as doctors, who used their cars for practical purposes. Many cars, used just for fun, did not have them. In any case, the tops did not help much when the car was in motion because they were usually entirely open in the front so that the top scooped in the rain as the car ran along.

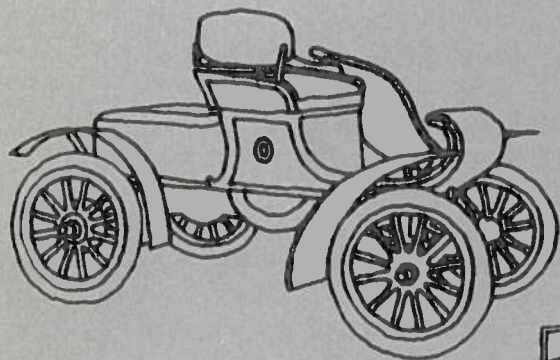
There were always a few slight variations from one make of car to the next so that they could be identified. The sides of the



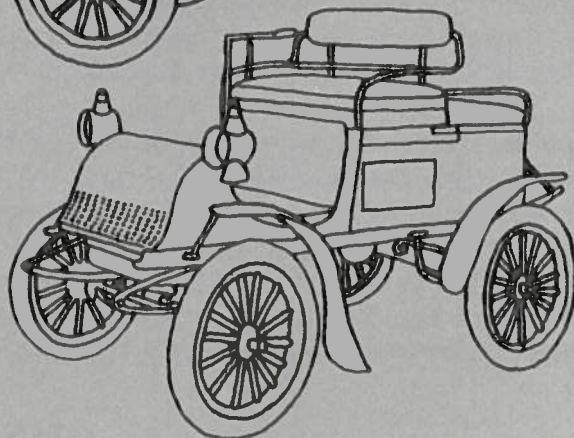
1901 U.S. Long  
Distance Auto



1902 Oldsmobile



1902 Autocar



body were decorated with moldings of various patterns, and the louvres or grille in the engine boxes were distinctive. Several different types of dash design were used: starting with the simple flat dash of the Locomobile, manufacturers branched out into curved dash designs, such as the Oldsmobile, and the solid box-type used on the Autocar.

Objectively it is difficult to find fault in the design of the 1900 Locomobile or the curved dash Oldsmobile. Their lines are crisp, and the bodies neatly enclose the machinery. There are no frills; the car is utterly functional, yet balanced and pleasant.

What more could one ask? It was hard to say, exactly, but there was a widespread feeling that the standard runabout design was somehow inadequate. Automobile styling contests were held, magazine readers polled, and artists consulted, but no one seemed to have the solution. Suggested changes were usually either functionally awkward (with the driver seated eight feet off the ground, above and behind the passenger compartment) or aesthetic catastrophes influenced by Art Nouveau (with fenders shaped like lily pads and the steering tiller disguised as a jungle growth). They were proffered without enthusiasm and were rejected with loathing by the general public.

The trouble with the runabouts, people said, was that they had a "horse-wanted look." R. I. Clegg, writing in *The Horseless Age*, May 3, 1899, remarked that contemporary vehicles "gave the impression that a horseless vehicle was simply minus the horse," and that, from the expressive standpoint, this was quite unsatisfactory. He continues:

I can account in no other way for the fear shown by some horses at the approach of a motor vehicle; it is, to them, the very evident lack of something quite essential to the orthodox wagon.

A glance back into the origins of the automobile gives a clue to what he meant. The horse and buggy combination, rather than just the buggy, was the aesthetic unit which the automobile superseded. The components of this unit had a clear meaning to the

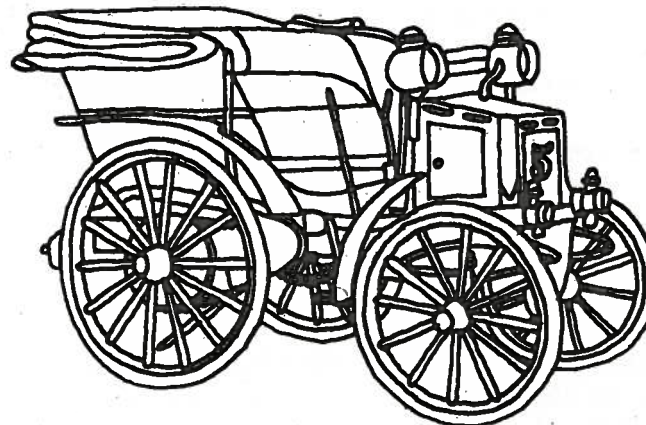
observer. The power for motion clearly came from the horse's muscles; it was logically transferred through the harness to the buggy, which, as the passive partner in the combination, rolled lightly along behind. The horse gave a sense of power and direction to the static buggy design.

The lines of the runabout were inoffensive, like the modern refrigerator, but they expressed nothing. It needed the addition of a universally accepted symbol of power and direction for its appearance to be satisfactory. Without this, it inspired the same feeling of uneasiness that people now have at the idea of a flying carpet. Before the machine age no one worried about how the carpet flew—they could accept it on faith. By the nineteenth century, however, people felt a need to make even their imaginary creations mechanically logical: Jules Verne's spaceship and submarine, for example, had real-looking rivets and doors in the illustrations, and the technicalities of their operation were carefully described.

It is not surprising that the aesthetic problem of the runabout was so difficult to solve. The refined runabout looked as if it were propelled by magic, since all of its drive mechanism was carefully concealed. Yet the early designs, with fully exposed machinery writhing and thrashing for everyone to see, were clearly even worse. It would not suffice to revert to earlier practice and expose the engine. What the automobile needed was a symbolic substitute for the horse, an easily recognized symbol of power that would combine harmoniously with the rest of the body shape.

The breakthrough came from Europe, where automotive evolution had followed markedly different lines than in this country. France was unquestionably the world leader in car development in the '90s, and its foremost designer was Emile Levassor. In 1891 Levassor first conceived the idea of placing the engine vertically in the front of the car and driving the rear wheels through a shaft-type, centrally mounted transmission. In the summer of 1895 his ideas were convincingly demonstrated by the performance of his car in the famous Paris-Bordeaux race, where it maintained a 15-mile-an-hour average over 732 miles and was the first to arrive back in Paris.

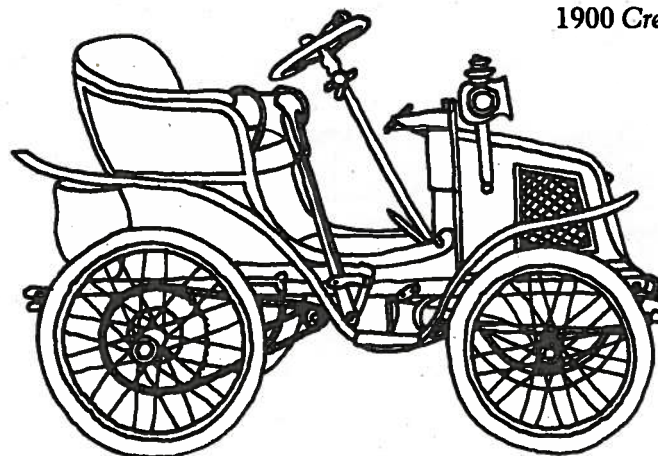
1895 Panhard-Levassor



The prestige of the Panhard-Levassor cars and the logic of M. Levassor's configuration persuaded other manufacturers to follow his example, and by the turn of the century the typical French car looked like the 1900 Creanche. Compared with the standard American runabout, it was slightly longer and heavier. The engine was housed in front, under the prominent hood. It had one seat, built wide enough for two people, mounted back on the chassis just forward of the rear wheels. In France a steering wheel was almost universally used by this time, and fenders were usually included.

French cars were fully described in American publications, but before 1900 their appearance found little favor here. An edito-

1900 Creanche

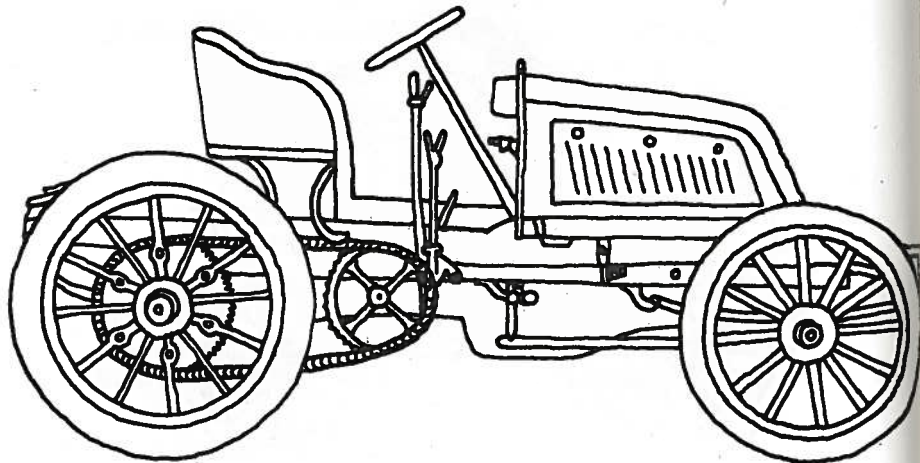


rial in *The Horseless Age* of May 16, 1900, pointed out that "it is common to arraign the French vehicles as being 'hideously ugly,' 'machines all over,' 'too complicated for any use,' etc." The multiplicity of pedals and control levers on French cars struck Americans as being crude and unnecessary. The biggest visual difference between them and the American runabout, however, was the front hood, and at first this feature was very unpopular in this country. It was a blunt reminder of the machinery American designers had worked so hard to conceal. French cars were thought to look like "clumsy road rollers."

The event which marked the beginning of a change in American taste was the first Gordon-Bennett Cup Race, held in France in 1900. On June 14, huge grunting racing machines charged out of Paris on their way to Lyons, 351 miles away. Thousands of people lined the road as the monsters bellowed past. The winner of the race, Charron, drove his Panhard-Levassor over the distance at an impressive average of 38.4 miles per hour.

The success of the first event sent designers rushing to their workshops, and for the Paris-Berlin race of the following summer the cars were greatly improved. Henri Fournier, driving a Mors factory racing car, won the race at an average speed of 47 miles per hour. The speed would have been much higher if he had not

1901 Mors racing car



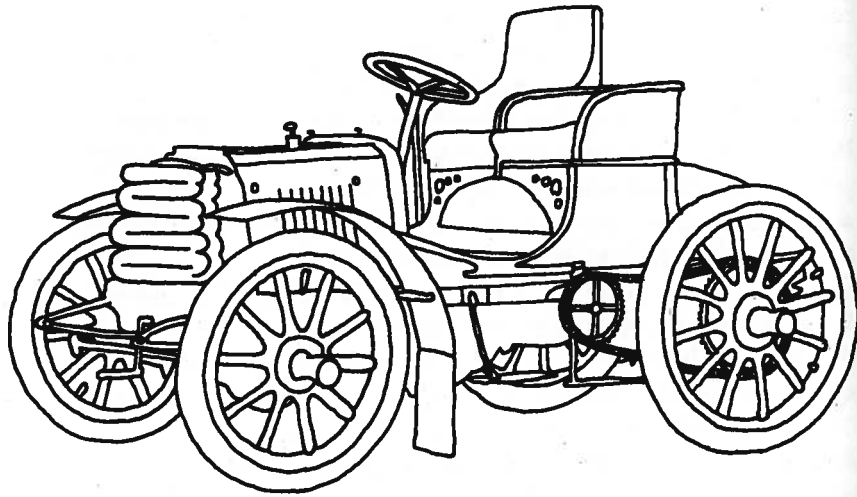
had eleven flat tires on the way; it was said that the faster cars reached 70 to 75 miles an hour on open stretches of road. For unstable, virtually brakeless machines running on poorly surfaced roads, these speeds are breathtaking even today.

In 1902 the course was from Paris to Vienna, in 1903 from Paris to Madrid. Speeds mounted every year, and the crowds grew larger. Mors, Panhard-Levassor, Mercedes, Napier, Renault, and De Dietrich were the cars to watch; the most daring of the men who drove them were Count Zborowski, Jenatzy, Farnman, De Caters, Jarott, De Knyff, Fournier, S. F. Edge, and the Renault brothers. Speed, danger, the thunder of exhaust pipes, the smell of hot engine oil—for a taste of these, thousands of spectators crowded the roadsides at the risk of their lives.

Long and well-illustrated articles brought news of these events to Americans. Enthusiasm for motor sports grew rapidly in this country, and the associations of great power and speed suddenly began to sway the American public in favor of the low, stark form of the racing car, with its huge, long hood, thick frame, and heavy artillery wheels. This was a carriage no longer, but a machine. It did not pretend to be propelled by magic: its means of locomotion was expressed directly by the sprockets and driving chains, and symbolically by the massive hood, which was generously louvred on each side to allow the smoke and heat of the engine to escape. No longer did the machine apologize for being what it was, as the discreet, castrated runabout did before: chains, shafts, and levers were nakedly displayed. With the power of the machine brought out into the open, the means of controlling it also had to be made more prominent: one feels that a racing car should require more levers and pedals than a runabout. One would naturally assume that controlling such power required continuous use by the driver of both arms and legs.

It was not very long before a few European racing cars found their way to the United States. An American sportsman named A. C. Bostwick bought a Panhard-Levassor racing car in 1900, and allowed it to be shown at the New York Auto Show in November. Admiring throngs surged around it for the length of the show. During the following summer he drove it in several races and demonstrations. In the fall of 1901 two Mors racing cars were brought over from France. A crowd of 25,000 lined Ocean

1900 Panhard-Levassor racing car



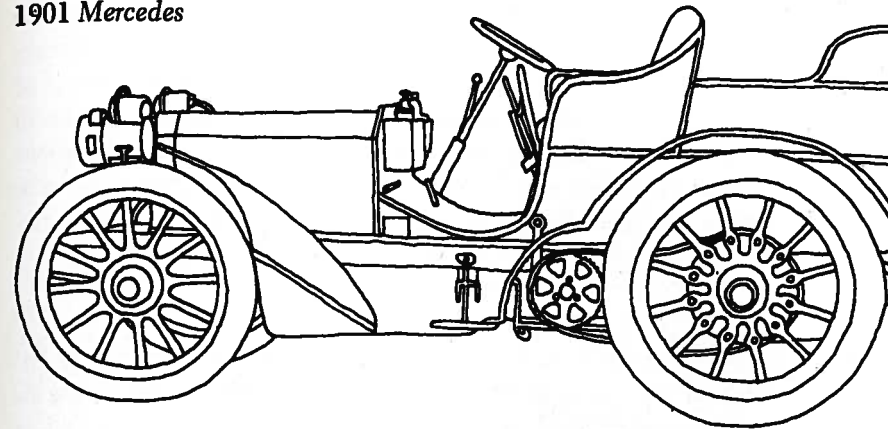
Parkway, Brooklyn, to watch them rush past at 75 mph over the one-mile timed course, where they placed first and second over weak opposition.

By the summer of 1901 it was clear that the appearance of front-engined racing cars had a strong appeal for many people, but pure racing cars did not have the comfort or the capacity needed for use on the road. A new form was needed which could combine the look of power and speed of the racing car with adequately large and well-protected passenger accommodation. In 1897 the tonneau body, a tub-like rear seating compartment entered through a rear door, first appeared in Europe. These bodies were fitted to chassis similar to those of front-engined racing cars, and by 1901 they were low and sleek-looking compared with earlier cars.

A good example of a European racing-derived automobile with tonneau body is the 1901 35 hp Mercedes. On August 21, 1901, *The Horseless Age* said:

The most striking feature about the Mercedes is undoubtedly its lowness of build, and it is safe to say that for the average American road the limit in this direction has been reached in this vehicle.

1901 Mercedes



A year earlier, February 21, 1900, an editorial in *The Horseless Age* said that "the motor machine must skim the ground like a swallow" and this Mercedes was the realization of the dream. In addition to its pleasing proportions, the new car had a long hood which hinted at great power and speed, and large, flaring front fenders which seemed to be swept back by the wind. The rich paint was set off by polished brass headlights, horns, levers, and instruments. The dazzle and glitter of the machine was awesome.

Public acceptance of the "French form of automobile" was hastened by the enthusiasm shown for them by the Very Rich. Not only were the foreign cars exciting in themselves, but they were considered highly fashionable by the famous "400"—the Vanderbilts, Goulds, Oelrichs, Goelets, Stuyvesants-Fishes and others, families worth countless millions who wintered at Palm Beach and summered in Bar Harbor or Newport. A. C. Bostwick, the sportsman who imported the Panhard-Levassor racing car in 1900, was a member of the circle; he had a mansion on Fifth Avenue only a few doors down from John Jacob Astor and an easy walk from the Vanderbilts.

Between 1900 and 1905 automobiling was a favorite summer activity among the millionaires at Newport. The Vanderbilts were generally considered the most reckless: Alfred Gwynne Vanderbilt

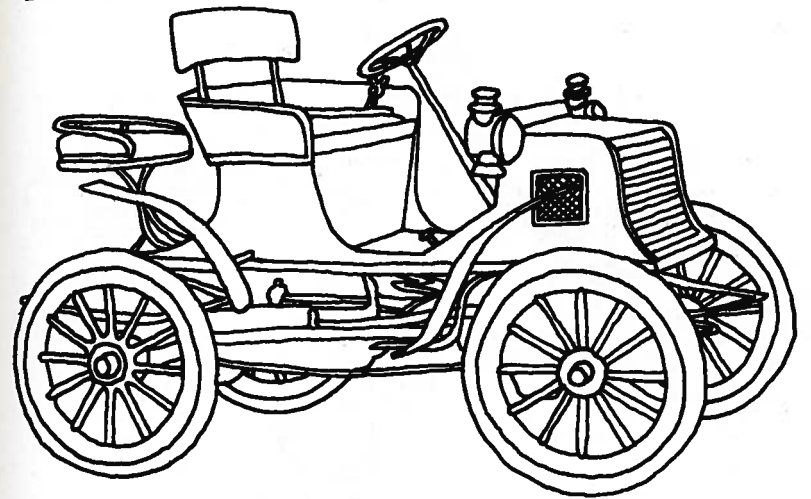
was notorious for his flat-out drives from his Fifth Avenue residence to the family "cottages" at Newport such as "The Breakers," a 70-room Renaissance palace. J. J. Astor liked variety: at one time he owned 17 automobiles, all housed in a magnificent garage and tended by uniformed chauffeurs. A favorite event among the ladies was a floral decoration contest, in which the family De Dietrich, Panhard-Levassor, or Mercedes was bedecked with flowers at immense cost.

The New York Auto Show of November 1901 marked the beginning of an American stampede toward front engined tonneau-bodied touring cars of the Mercedes type. As soon as visitors walked through the door to the show their senses were assailed by the sight of low-slung, immensely powerful looking cars, lacquered in gleaming colors and bejeweled with brass ornaments. It made the blood rush to the head. All of a sudden the conventional runabout looked tame; visitors were overcome by the magnificence of the big new models. Deaf to the magazine editorials which criticized the extravagance and impracticality of the big machines, they secretly estimated how much of the price they could raise by mortgaging the house or selling heirlooms.

Foreign manufacturers were the first to take advantage of the shift in public taste, and the lead time that they had over the American builders allowed them to stage a significant "foreign car invasion" between 1901 and 1905. The numbers of foreign cars sold were not large, but the prices paid for them were phenomenal. Smith and Mabley, agents for Panhard-Levassor, Peugeot, and Renault, recorded the following sales at the 1902 New York Auto Show: one 40 hp car, \$17,000; one 12 hp car, \$8,000; one 24 hp car, \$12,500. When one remembers that the dollar was worth several times as much in 1902 as it is today, these prices are fantastic.

Foreign car agents were not the only ones who were impressed by the money being made on the new cars. Domestic manufacturers soon took up the challenge. At first, however, they appear to have misinterpreted the appeal of the new configuration. The 1901 Columbia gasoline runabout, for example, is an unpretentious car similar to the French Creanche. Its engine is in

1901 Columbia

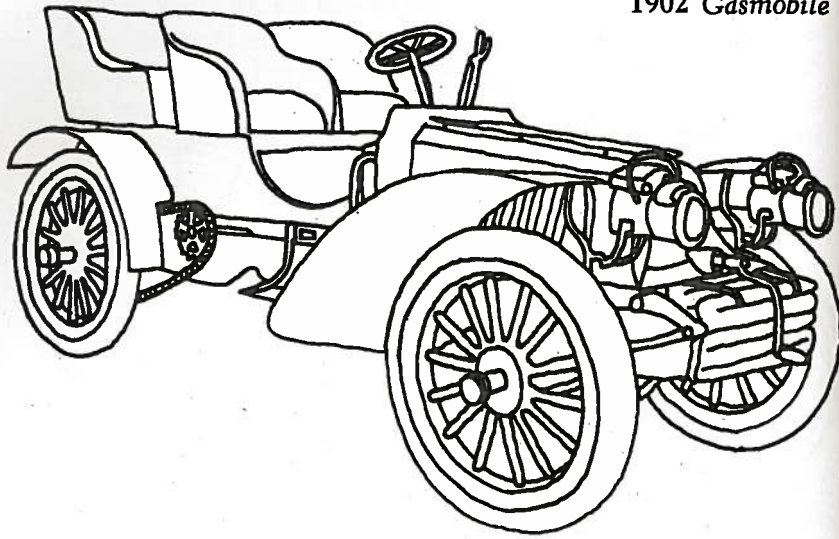


front, but in its small size and sober design it is closer in spirit to the mid-engined runabout than to the big European cars. The American public had been shown pictures of this type of vehicle for several years and had never indicated much interest in it. The front-engine arrangement by itself had little appeal; it was the combination of front-engined appearance and symbolic overtones of speed and power which made people excited. No one wanted a Columbia; they lusted after a Mercedes instead, and ended up buying the closest visual approximation to it that they could afford.

Unquestionably the most exciting American car at the New York Auto Show of November 1901 was the massive 35 hp Gasmobile. Its overall weight of 3,300 pounds was twice that of most runabouts. At a time when most cars had one or two cylinders, this one had six. November 16, 1901, *Scientific American* reported breathlessly that:

[its] ponderous and resplendant appearance . . . has fascinated those automobile visitors, who love a big machine and high speed. This leviathan of the "teuf-teuf" family relies for its power on a 6-cylinder engine capable of 35 horsepower—an unusually large amount of power for a touring vehicle of such dimensions.

1902 Gasmobile



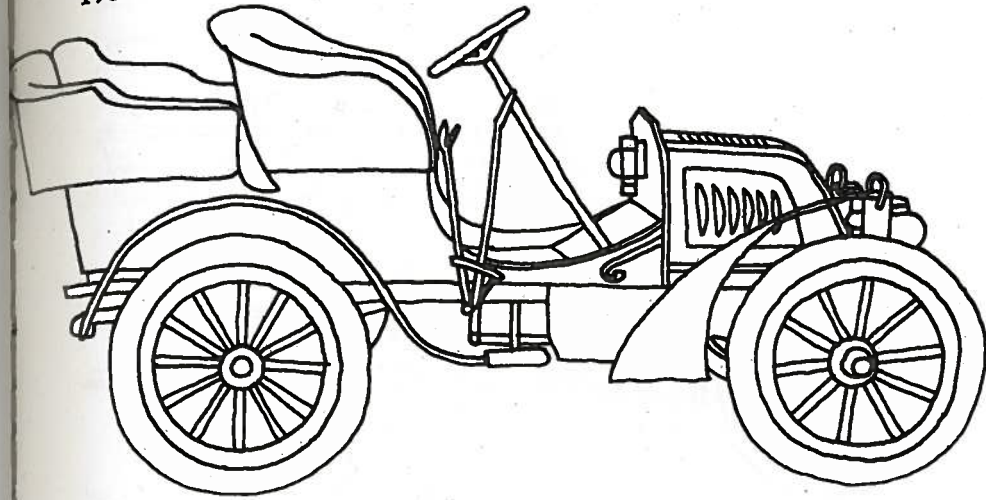
Its price was high and its mechanical design unproven, but nevertheless a "sold" sign appeared on it after the first day of the show.

In addition to its size, the attractive style features of the Gasmobile were its long, louvred hood; huge, ornate, kerosene-powered brass headlights; brass horns; wide, flared front fenders; heavy artillery wheels (by now the same diameter on both ends of the car); and wheel steering. From racing practice came the coiled tube radiator mounted low in front, chain drive, and separate bucket seats for the driver and front seat passenger.

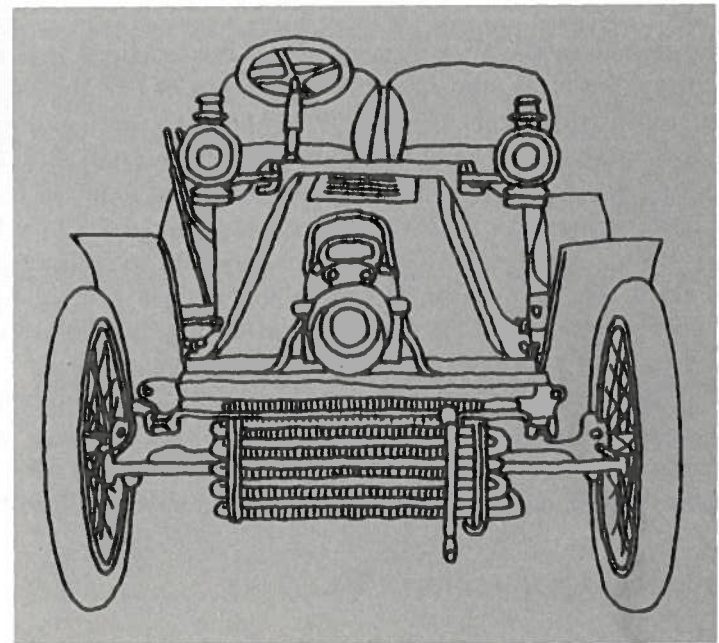
More typical of the new American cars at the Show was the Peerless. Most of the styling features of the Gasmobile were incorporated in it, but everything was on a miniature scale. It had a two-cylinder engine instead of a six, and weighed scarcely half as much. Nevertheless, its proportions and the general effect of its appearance were similar to those of the big cars, and its comparatively low price attracted droves of buyers.

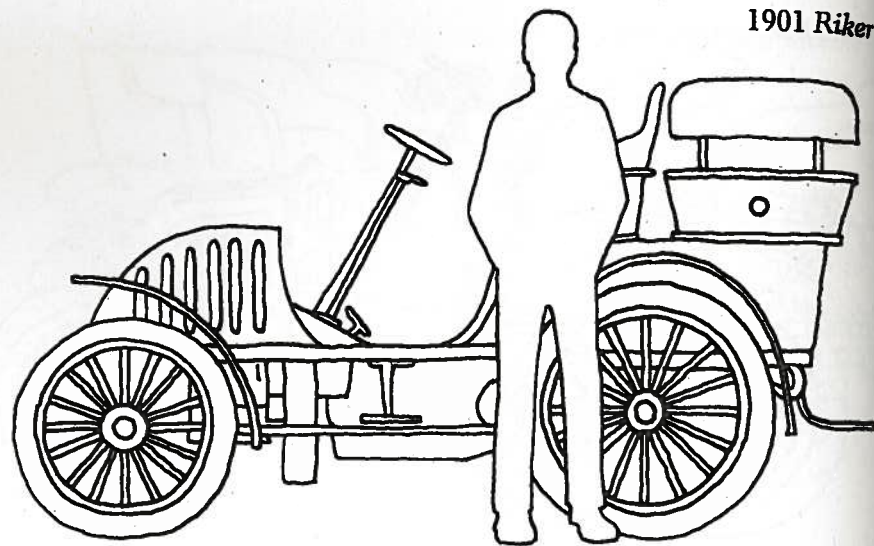
To people in 1902 the first generation of front-engined cars looked big and long and low slung, but this was only true by contrast with the earlier runabout type. Most of them were still pretty small. The 1901 Riker, for example, had a wheelbase of only 66 inches: a tall man could stretch out his arms and place one

1902 Peerless Tonneau



1902 Peerless Touring Car





1901 Riker

hand on the front hub and one on the rear hub. Height made up for the short length. One really needed the steps provided for climbing up to the driver's seat. Once enthroned, the driver viewed the road from a position more elevated than his ordinary standing height.

The shift in public taste in favor of the front-engined look occurred with startling rapidity. At the beginning of 1900 there were no front-engined cars being built in America, and motorists showed either apathy or active dislike for their appearance. At the end of 1901, however, opinion was almost unanimously in favor of front-engined style, and many people expressed distaste for the old forms. "One would hardly have thought," remarked *The Horseless Age*, November 13, 1901, "that such a revolutionary change of taste could have come about so quickly. The vehicle that does not wear a bonnet in front . . . is not *a la mode*."

The shift marked an important break with the automobile's horse-drawn background. While formerly the word "carriage" was used as a general term for automobiles ("Vanderbilt has five carriages in his garage"), after the new look had appeared the term

"machine" was used instead ("one of the new machines at the show is the Gasmobile"). The motorist's dissatisfaction with the flying carpet look of the classic runabout came out in the vehemence of his rejection of it once a satisfactory alternative had been found. The most popular of the new vehicles were those in which horse-drawn lines were least apparent and those which displayed their mechanical nature most overtly. According to *The Horseless Age*, November 13, 1901:

Nothing better shows the fickleness of public taste, and the complete change of which it is susceptible in a very short time than the enthusiasm that is displayed this year over carriages of the extreme "un-horsey" type, which would have been derided a year or two ago.

The meaning of the change was instinctively recognized by everyone. The prominent front hood gave the automobile a symbol, phallic and aggressive, to express what the horse had stood for in earlier days. The appearance of the new cars was likened to the railway locomotive, with its exposed cranks and long snout. In 1901 this resemblance was often mentioned in derision—front-engined cars were called "hideous road locomotives"—but by 1903 the comparison was welcomed. By then some people seemed to want their cars to look like locomotives: the 1903 Grout Steam Tonneau actually had a cow-catcher mounted in front.

Front-engined appearance coincided significantly with the beginning of a "speed craze." In the early days, cars were designed for people who wanted only enough power in their cars to climb hills safely, to negotiate mud, and to maintain a reasonable pace of 15 miles per hour over most roads. This suited most of their owners, but not all of them. Charles Duryea, in a letter to *The Horseless Age*, May 24, 1899, quotes the opinions of one of his customers on the subject:

When I first received my vehicle it would do about eight miles per hour, and I was immensely pleased. . . . The satisfaction, however, was short until more speed was desired. By reboring the cylinder and changing the gears I manage to coax out sixteen miles per hour under good conditions now, but I wish it was thirty-five.

When asked if thirty-five was not stretching the matter a little he replied, "Not at all. When one sees several miles of clear road ahead he enjoys shooting it at the highest speed possible."

With the new form of automobile, motorists became insatiable in their demands for power. Six or eight horsepower would not do; they wanted thirty or even forty horsepower if they could get it. *The Horseless Age* commented, February 24, 1904:

The extraordinary popular demand for high-powered cars is one of the most marked features of the automobile industry . . . it is interesting to conjecture as to the cause of this state of things. . . .

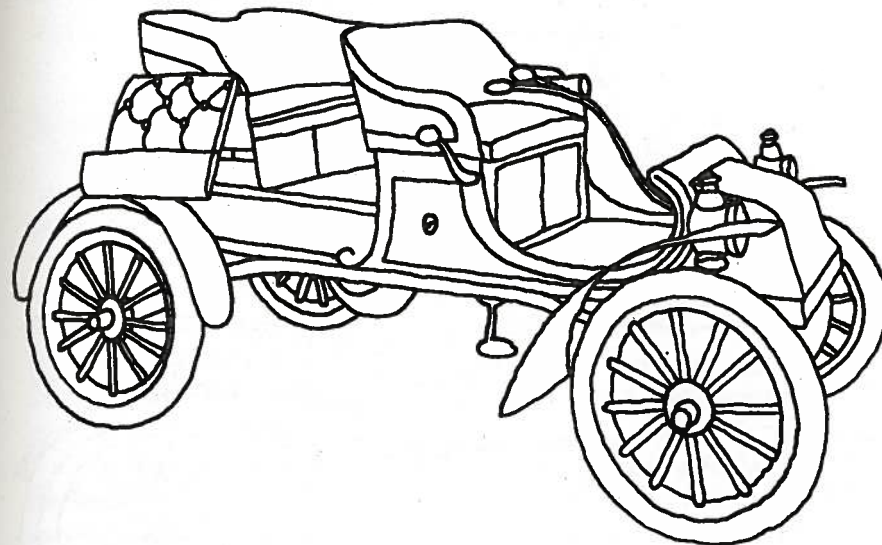
High-powered cars imply high speed capabilities, but in view of the universality of speed restriction it is impossible legally to make use of this quality. . . .

While the conservative editors of *The Horseless Age* pretended not to know why people wanted power, most manufacturers seemed to understand perfectly the impulses of people like Duryea's customer. In addition to having more power, many of the new cars were equipped with muffler cut-outs which gave a slight increase in power and, even better, allowed the driver to enjoy the ear-shattering noise of the engine while thundering down a country road at top speed.

Newspapers and magazines carried stories of unidentified young men who were seen driving at terrific speed through towns, scattering chickens and terrifying the populace. Their cars were invariably red or yellow, and they drove with the muffler cut-out open. It was described how the local police scarcely had a chance to blow their whistles as the machine rushed past, and the outrage of righteous citizens at such "scorchers" was amply reported. How shocking! How glorious! Thousands of readers secretly wished to have been the anonymous one.

Many manufacturers were reluctant to change the whole mechanical configuration of their cars for something new and untried, but it was clear that the old runabout style would not sell. An interim solution was to graft the appearance of a front-engined car onto an engine-under-seat chassis. Specifically, this

1903 Oldsmobile Tonneau



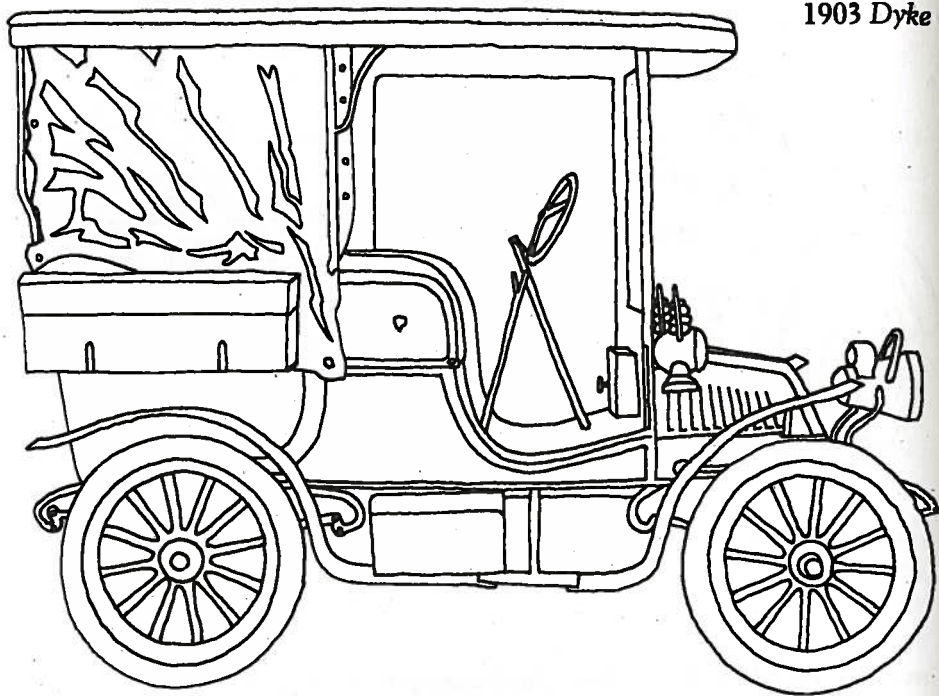
involved the addition of a hood, and usually also an increase in the wheelbase. The great popularity of these peculiar hybrids suggests that the buyers did not care what was underneath as long as the external appearance was appealing.

In 1902 or 1903 the imitation did not have to be very good in order to be acceptable. The only real necessity was for the car to have a hood, whether it looked capable of containing an engine or not. The 1903 Oldsmobile Tonneau, for example, had a small box grafted on to the easily recognizable curved dash body. The radiator is not prominent, and the lever steering and the flywheel visible under the seat indicate at once that this is the same old runabout, thinly disguised.

A more sophisticated duplication of stylish appearance in a small runabout was the 1903 Dyke. This car had the usual single-cylinder engine under the seat, but was fully decked out with a dummy hood of fashionable shape complete with louvred sides and a forward-jutting brass headlight. Note also on this car the folding steering wheel, which facilitated access to the racing-type bucket seats.

Enthusiasm for the look of a front hood led many owners of





1903 Dyke

runabouts to restyle their cars. The following letter, written to *The Horseless Age*, March 16, 1904, is typical of many:

Will you kindly inform me in your next issue whether the front end of a car, like the Cadillac, Ford, or Knox, can be provided with a hood . . . with the object of improving the appearance of the car, without injuring the mechanism. . . .

A Subscriber

Some readers sent in descriptions and photos of their modified cars. Usually their efforts resulted in small appendages similar to that on the 1903 Oldsmobile, which apparently fulfilled their symbolic purpose satisfactorily.

Dummy hoods were generally designed to be used as storage space, but their shape was not very suitable for this. At most, they were able to contain little more than a simple tool box. One disadvantage was that, by 1904, the radiator was usually mounted in front, making the space so hot that it was useless for most forms of luggage. Sometimes they were used for oil and fuel tanks, but

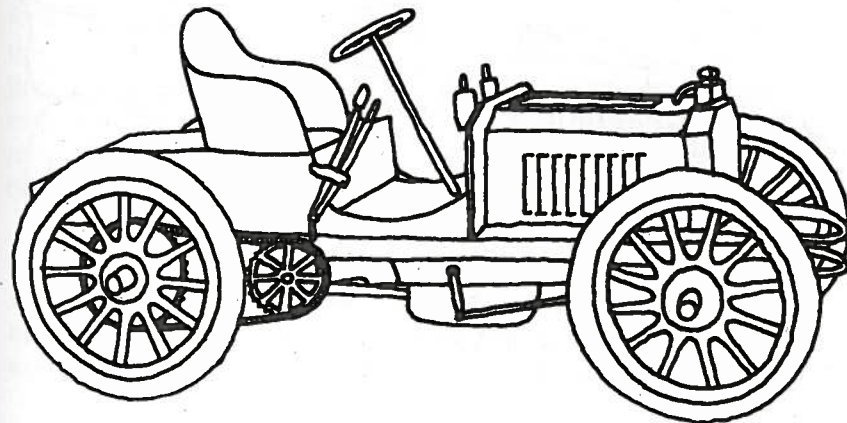
the radiator heat also caused problems for this. A few realistic manufacturers frankly recognized their function as pure cosmetic, and simply omitted any means of access to the space inside.

Between 1902 and 1904 the style of the new cars was rapidly refined. In 1901, when the front-engined look first came into favor, U.S. manufacturers quickly set out to provide cars which would meet the new tastes. Because their own tradition gave them nothing to build on, most of them set out to copy European designs. Since European cars were rapidly changing in this period also, the alteration of basic forms and the proliferation of new style features were bewildering to the car buyer. From one year to the next, practically nothing which characterized a car's appearance seemed to stay the same.

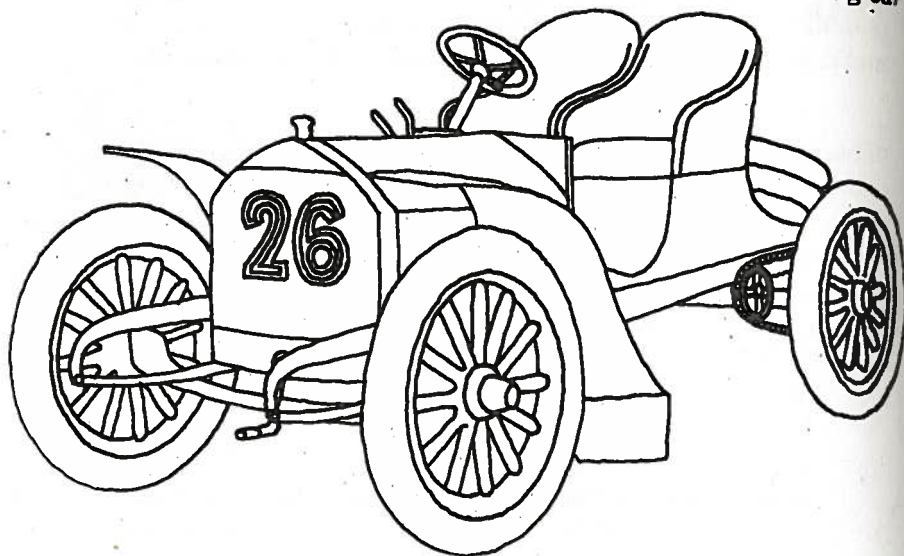
The most important new motif to appear in this period was the honeycomb radiator. It was first used on Cannstadt-Daimler cars in the late '90s (before they were renamed Mercedes), but it came to the attention of the general public when it appeared on the first Mercedes racing cars. In 1901 these cars staged a startling upset over the favored French machines at the Nice-La Turbie hillclimb, the premier event in a week-long race festival at Nice, and their features were extensively reported. The next summer a refined version of this car, driven by Count Zborowski, placed well in the Paris-Vienna race.

The new radiator was more efficient, which saved weight by allowing less water to be used, but its neat and finished appear-

1901 Mercedes racing car



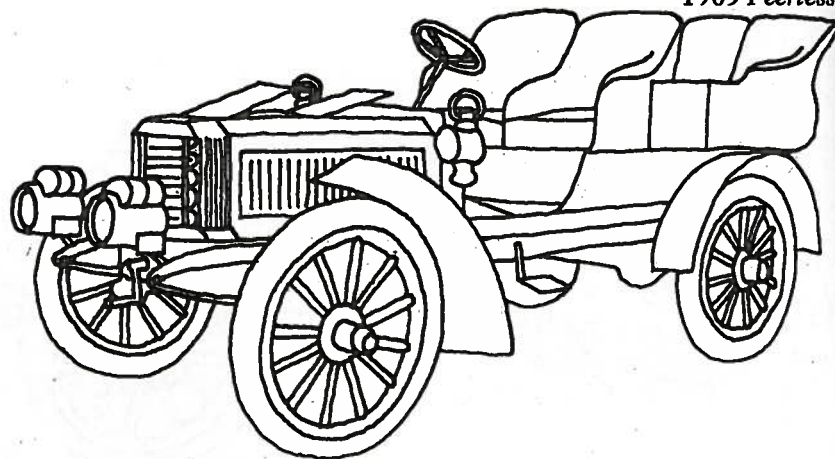
1902 Mercedes racing car



ance recommended it even more strongly than its functional advantages. Instead of hanging low near the front axle, like the former flanged-tube type, it was shaped to form the front of the hood. By straightening the hood line it gave a square, aggressive look to the car.

The appearance of the Mercedes radiator, rather than its inner construction, was the first thing to be imitated in this coun-

1903 Peerless



try. The 1903 Peerless was thought to be "one of the finest appearing models brought out this year," according to the April 11, 1903 issue of the *Scientific American*, principally on account of its long, box-like hood. Its conventional coiled-tube radiator was raised up to form the front of the hood. The hood sides were extended to conceal the radiator from the side view, but when viewed from the front it still did not have the smooth surface of the true honeycomb type.

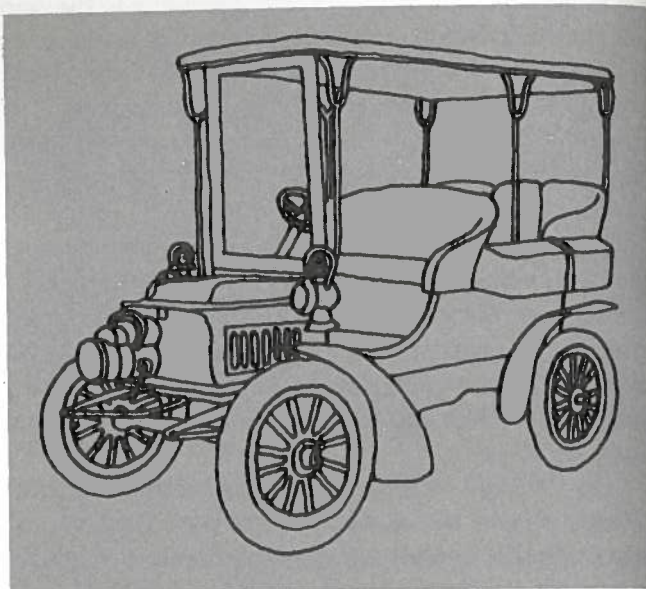
The looks of the honeycomb radiator were popular from the first, but initially it was expensive, leaky, and difficult to fix. The idea of making the radiator form the front of the hood caught on immediately, but it was a few years before real honeycomb radiators were used on many cars. The 1904 Rambler, for example, had a radiator surface covered with holes big enough to put a finger into.

In 1903 and 1904 manufacturers developed unique hood and radiator shapes to distinguish their cars. Packard, in 1904, first introduced the famous radiator form that they would keep for half a century. Half-round and rounded top/flat-sided hoods were popular, and a few cars, like the Franklin and National, used fully rounded barrel-like hoods. By 1905 radiators which resembled the Mercedes type were in the majority.

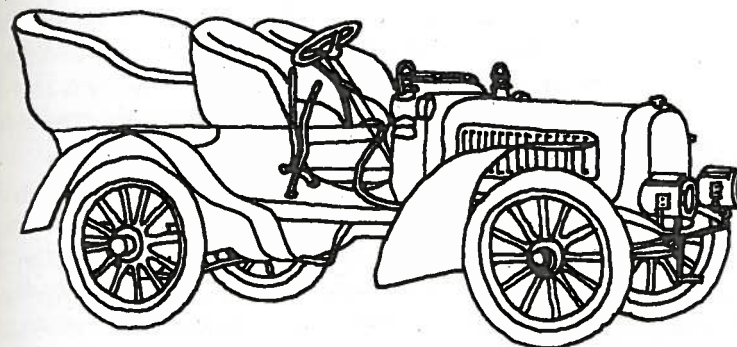
The rear-entrance tonneau body appeared on U.S. cars at the same time as the hood, and the two features were almost invariably combined. More seating capacity was greatly appreciated by owners of two-passenger runabouts. The popularity of touring, or long sightseeing expeditions by car, was rapidly growing; and for this, parents, children, dog, camping equipment, tools, spare tires, and a dozen other things had to be crammed into the car every day for a week or more. This feat was flatly impossible with a runabout, and would be thought impossible with any car but for the undeniable fact that people often did it.

Early tonneau bodies would contain people, but they were often quite uncomfortable. In all but the biggest cars the seats were the size of kindergarten chairs, and passengers sat bolt upright with their chins practically on their knees. "I have often wondered," wrote J. C. Brandes to *The Horseless Age*, April 1,

1904 Rambler



1904 Pope-Toledo



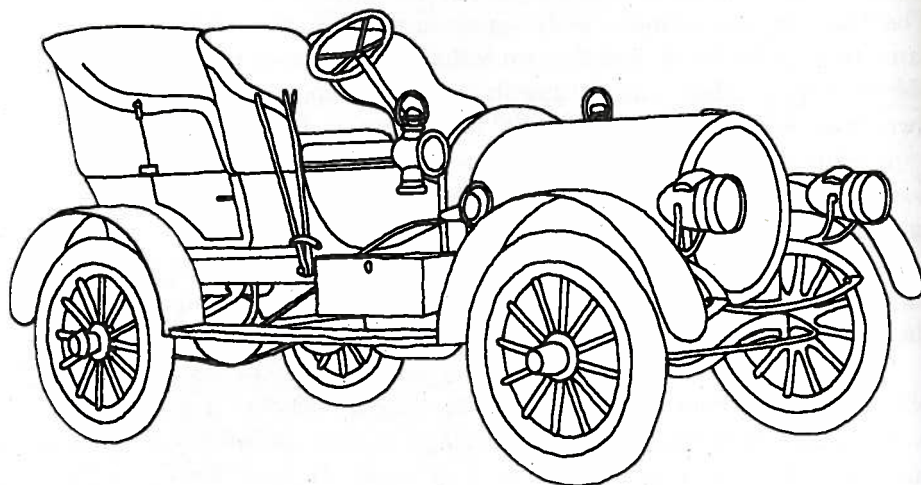
1903, "how people of larger dimensions than Barnum & Bailey's living skeleton could squeeze into such sardine boxes." Because the rear passengers were slightly behind the rear axle, bumps in the road were amplified.

The cramped dimensions were caused by the proportions of the chassis. Builders were reluctant to lengthen the wheelbase too much because it would make the car less maneuverable, and would put more strain on the chassis. The hood had to be long to enclose the engine and also for the sake of appearance. As a result, the steering wheel was at least midway between the axles and usually aft of this, and the front seat was just forward of the rear wheels. The rear seat just had to be wedged into the remaining space as well as possible.

The first major improvement in the tonneau body was the "Roi des Belges" style. Leopold II, the Belgian king who financed Stanley's trip to the Congo, was an avid motorist. When ordering a new body from Rothschild et Cie., the Paris coach-builders, he complained that the rear seats in all the projected designs were too small for his portly figure. Legend has it that his mistress, Cleo de Merode, was the one who suggested that the rear seats be made to resemble some huge stuffed chairs that happened to be in the reception room. The body for the king's new Mercedes was accordingly built with a wide, bulging tonneau which overhung the rear wheels. (*The Horseless Age*, 10/21/13; also see Anthony Bird: *Antique Automobiles*)

Technically, a Roi des Belges body not only had large rear seats, but was built with a voluptuous tulip curve in the rear profile

1905 National

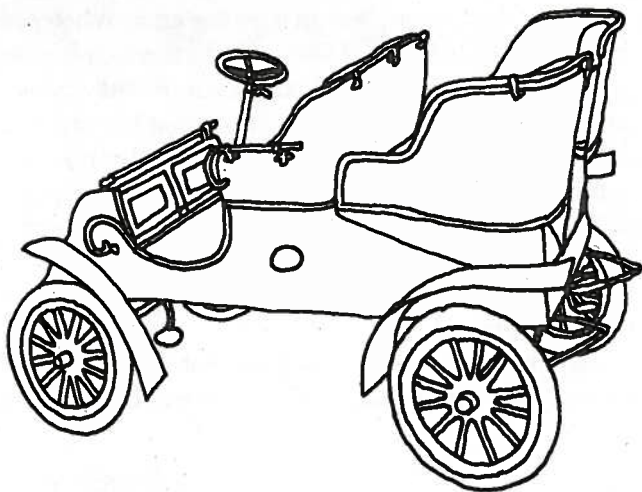


like the 1904 Pope-Toledo. The name had such a rich sound to it, however, that manufacturers quickly extended it to cover any car with a large rear tonneau, and then by degrees to any car with a tonneau body at all. Only by 1905 or 1906, when curvaceous bodies on automobiles began to go out of fashion, was the term again restricted to bodies with double-reverse-curved backs.

In 1902 the public suddenly began clamoring for tonneau bodies, just as they did for front hoods. The builders of small runabouts dutifully supplied them, though the combination of this body with an engine-under-seat chassis was often dangerous and impractical. The first problem was footroom: the engine took up the space where the feet should have been, so the rear seats practically rested on the floor. This is an early example of "design for the legless," which later was to become an American automotive tradition.

Another problem was weight. The feeble single-cylinder engines of the runabouts were sometimes hard pressed when carrying only two people. The added load of the empty body was enough to slow the car noticeably, and when the rear seats were occupied the performance was reduced even further, so that, in the driver's mind, a slight upgrade loomed like the skyward inclination of a yak-trail in the Himalayas. Even so, it was all right if the trip was successfully completed, but sometimes it was not.

1903 Ford Model A



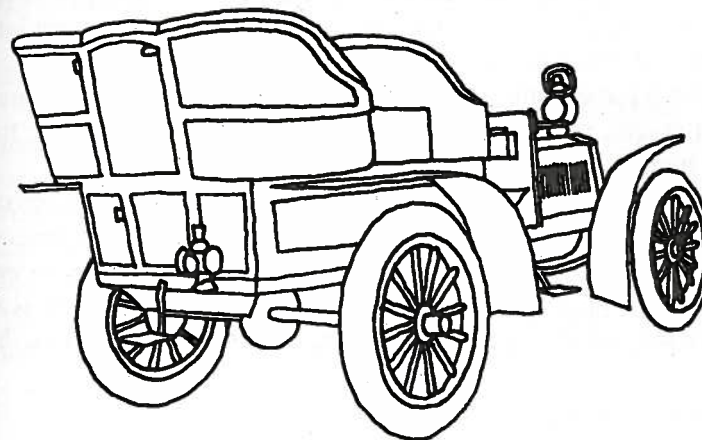
Two extra passengers put such an added strain on the chassis that a big bump often broke the frame or the axle.

Efforts to compromise created the most frightening problem of all. Manufacturers designed a convenient removable body, which could be put on when passengers were carried. Ordinarily it was left in the garage, and the car was then a light, sporty runabout with a stylish sloping rear deck. Advertisements stressed the ease of detachment ("only three bolts to undo"); unfortunately, these rear tonneaus had a terrifying tendency to self-detach at high speed, dumping the hapless passengers into the road. This lugubrious incident was common enough to inspire editorial comment in *The Horseless Age*, August 13, 1902.

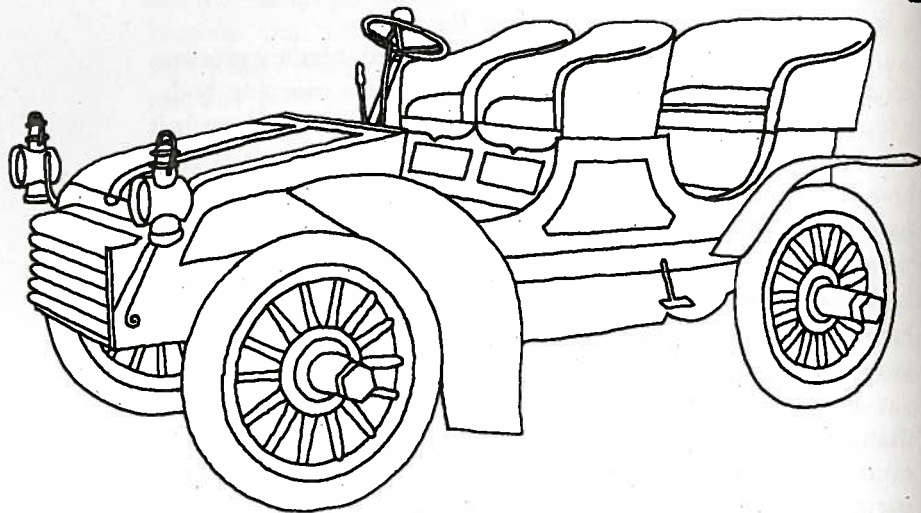
Even though the rear entrance tonneau body was a lot better than having no rear body at all, its shortcomings were clearly seen even in the early days of its popularity. The "Roi des Belges" curves and bulges helped, but it was still uncomfortable and cramped. The rear door let passengers out into the road, which was often covered with ankle-deep mud. Another problem was that the placement of the door made it impossible to design a light and practical folding top.

The advantages of side-entrance bodies were recognized early, and in fact many were built on early mid-engined chassis. Their design came straight from the surrey, a horse-drawn vehicle with front and back seats which could carry from four to six

1904 Packard



1902 Packard Model G

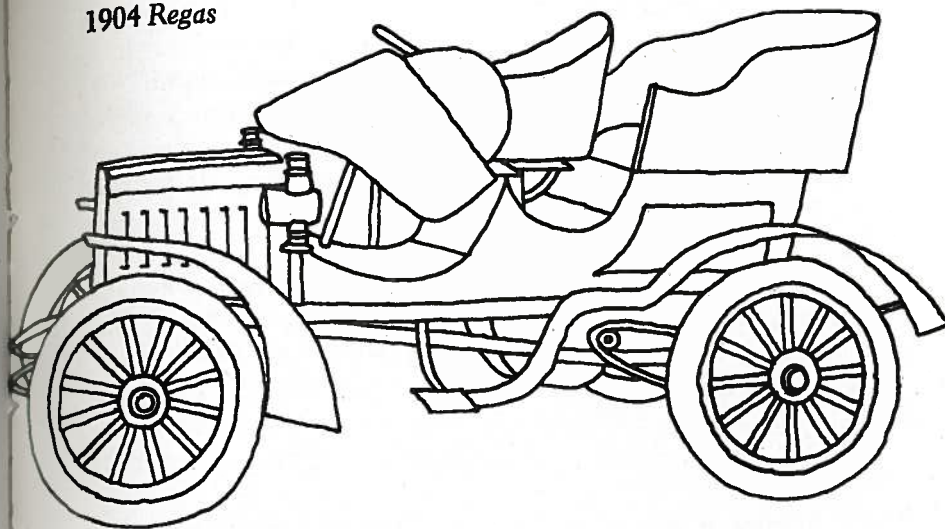


people. A late example of a surrey-bodied automobile is the 1902 Packard Model G. Following the fashion, this car had a dummy hood in front, but the engine was under the floor. The front seat was mounted ahead of where it would be on a front-engined car, and this allowed room for a side entrance to the rear seat forward of the rear wheel.

Several things related to the change in mechanical configuration combined to make the surrey obsolete and to delay the introduction of second-generation side-entrance bodies. One has already been mentioned: the standard proportions of front-engined chassis pushed the body way to the back of the frame. Also, wheel diameters had increased between 1900 and 1904. A third problem was the use of side-mounted chain drives, which had come into use by 1904 through European racing influence. Passengers entering from the side into a chain-driven car were likely to be smeared with grease, even if they were agile enough to clamber over the obstruction of the housing.

An early solution to the problem is the arrangement used on the 1904 Regas. This front-engined car had the customary proportions of that year and used chain drive. Access to the tonneau was through a side door which formed the bottom of one front seat; when the seat was tipped forward, an opening appeared. This did

1904 Regas



let passengers out at the side, but it was not satisfactory: a movable front seat would have complicated the design of a folding top, and the passengers still had to be athletic to climb in and out. The Regas had few imitators.

The real impediment was the short wheelbase. If it could be extended another foot or two there would be ample room for a side door. Arguments of practicality were put forth by manufacturers to justify short wheelbases, but perhaps the most important reason was that they were afraid people would not like the looks of a longer car. The rear-entrance type already looked radically elongated compared with a buggy, and they felt that a car that was much longer still would be rejected as freakish. To a motorist of 1903 it might look as awkward as an airport limousine looks to us now.

As it did so often in this period, the impulse for change came from Europe. As early as 1902 a few side-entrance tonneau bodies were made for Panhard-Levassor and other European luxury cars which already had long enough chassis to allow room for a side door. The trend gradually spread to lower-priced cars, and most European touring cars of 1904 had side entrances. Pictures of these cars were shown in the U.S., and soon the fears of domestic makers were found to be groundless. After a short adjustment

period, American motorists decided they liked the looks of the new long cars with side entrances much better than the old style.

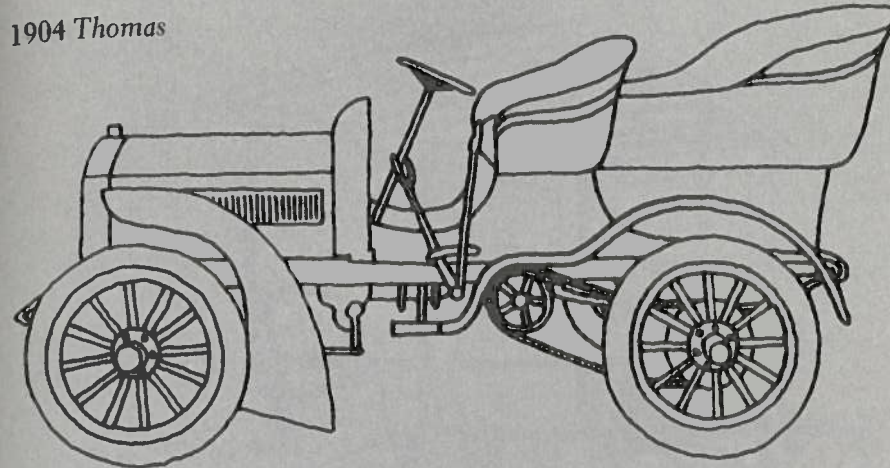
As in the winter of 1901-1902, U.S. manufacturers in 1904 had to develop new and quite different models almost overnight in order to keep pace with public tastes. Feverishly they worked out new steering geometries, stronger frame designs, and the exact arrangement of the body that they would use. Wheelbases were stretched an average of 15 to 20 inches. In some cases, chain drive was dropped in favor of shaft drive to allow more room for the rear door. New tops were designed to take advantage of the absence of a central rear door. In early 1904 side-entrance touring cars were still thought to be a novelty, but at the New York Auto Show in January 1905 they had swept the field. The exhibits included sixty-six side-entrance types and only fifteen rear-entrance types.

One can appreciate how much the appearance changed in this year by comparing the 1905 Thomas with the 1904 model. The new car is much longer, and when seen on the road it looks comparatively huge. The frame rails are practically twice as deep as before, and the folded top extending out at the rear increases the visual effect of length. The 1905 car is also notable for its Roi des Belges body, its sporty searchlight mounted inside the dash, and the combination of a windshield with a folding top, which was unusual for that year.

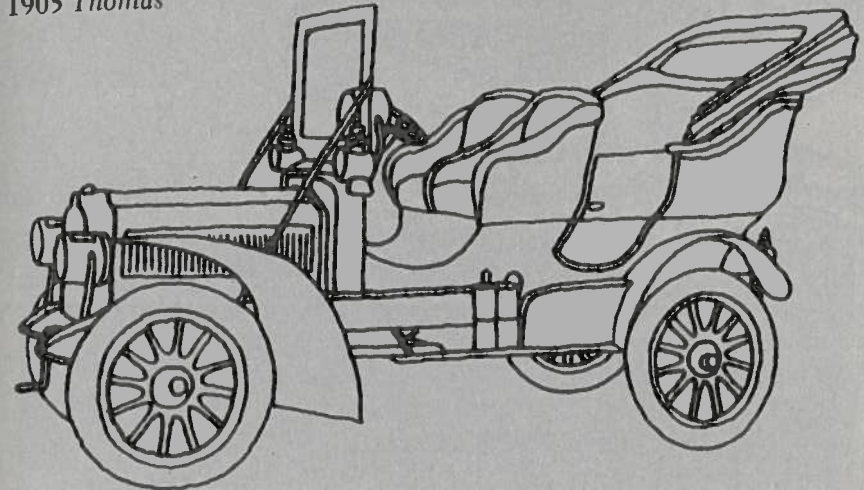
The enlargement of cars for 1905 can only be partly explained by the need to have a side door to the tonneau. It also represented a new concept of how big a car should be. Sometimes a change in scale can be as startling as a change in proportions. One gets a strong feeling of this when walking through a chronologically arranged exhibit of old cars. Those built after 1905 seem nearly as long as modern cars, and of course are much higher; most earlier ones are tiny by comparison.

Up until 1903 very little progress had been made in weather protection for motorists. Early runabouts sometimes had buggy tops, but since they were open in front they did not help much. Accessory makers offered rubber lap robes, but these were messy and inconvenient. In the early days, effective protection from the

1904 Thomas



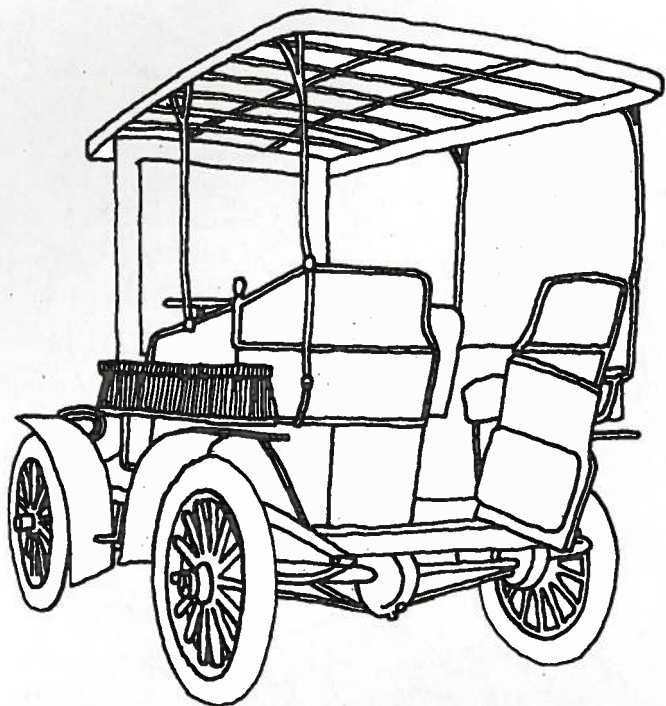
1905 Thomas



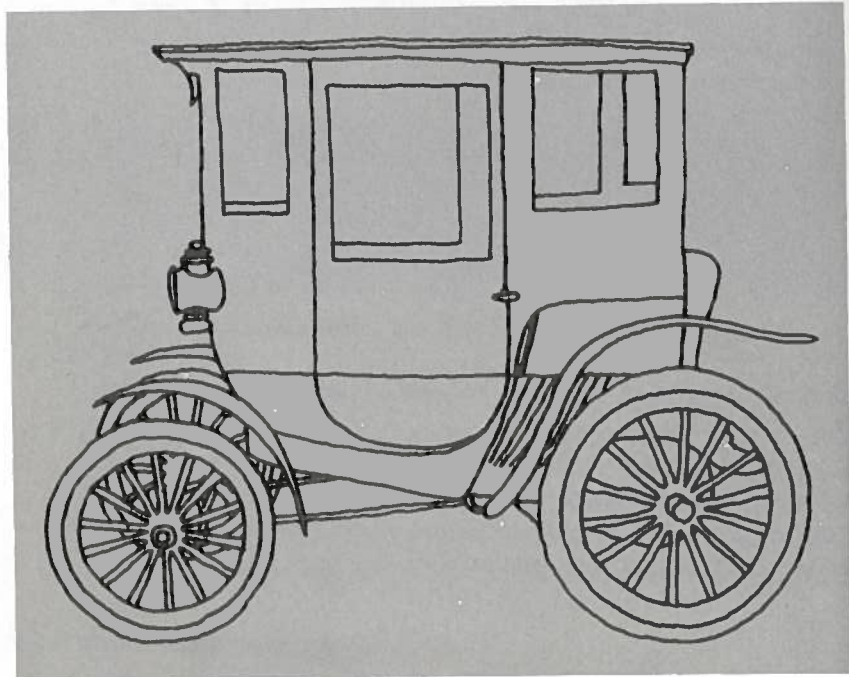
elements depended primarily on one's choice of foul weather gear.

In 1903 the canopy top first appeared, and was welcomed by motorists. One of these is shown on the 1903 Autocar. Also called a surrey top, it is a semipermanent wood frame construction supported by metal rods mounted on the body. A "glass front"

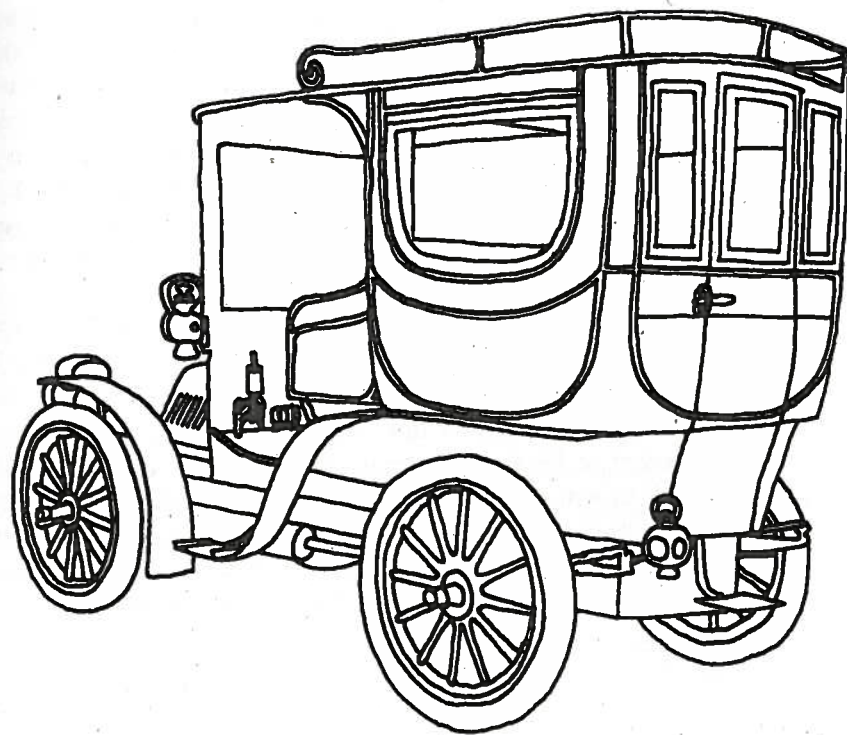
1903 Autocar



1903 Duryea



1903 Packard



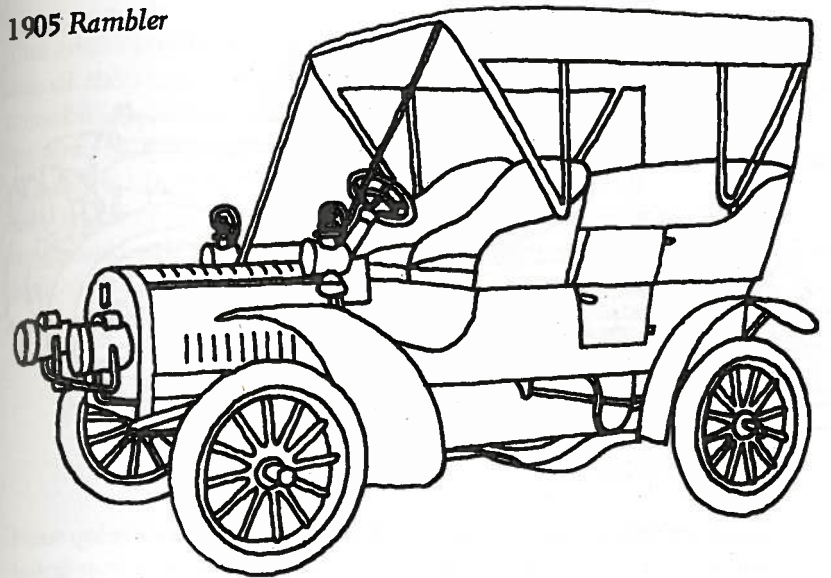
or windshield was mounted on the dashboard, and sometimes a second windshield was placed behind the rear seat to protect the passengers from eddies of dust. In bad weather curtains could be hung on the sides. Generally these were made of rubber, making it impossible for tonneau passengers to see out, but at least the interior was kept dry. Weather curtains are mounted on the 1903 Dyke shown earlier in this chapter. As well as the more obvious advantages of the canopy tops, touring enthusiasts appreciated the additional luggage space provided by the roof rack, which supplemented the meager capacity of wicker baskets hung on the sides of the tonneau.

Also in 1903 the first U.S. built closed passenger cars appeared. One of these was the 1903 Duryea Doctor's Vehicle, designed to be a convenient and comfortable all-weather vehicle for doctor's use. More popular, however, was the limousine, another European invention. This car was designed to be driven by a chauffeur. It had a closed rear body compartment with a central rear door, and a canopy or canvas top over the driver's area. The 1903 Packard is an attractive example of this type.

These early closed cars had many disadvantages. One was cost: they were entirely handmade, and were so expensive that only the very rich could afford them. They were also very heavy. Usually the bodies were made with wood framing covered with sheet aluminum. In any case, their weight had the effect of a manacled ball and chain on the performance of even the most powerful cars. Elegant limousines invariably seemed to sink hub-deep in mud when they strayed beyond well-paved city streets.

Some shortcomings of the limousine were shared by cars with canopy tops. Windshield wipers, for example, were far in the future, so when it rained the driver who was in a hurry had the awkward choice of either opening the windshield and receiving the torrent in his lap or keeping it closed and plunging blindly onward, trusting to luck that no one equally foolhardy was coming the other way. Visibility to the rear and rear quarters was nonexistent in a canopy-top car with its curtains up, and was poor on most limousines. Though lighter than a full limousine body, the canopy top weighed enough to hurt the performance of some cars. Also, it had to be either left in the garage or mounted in

1905 Rambler

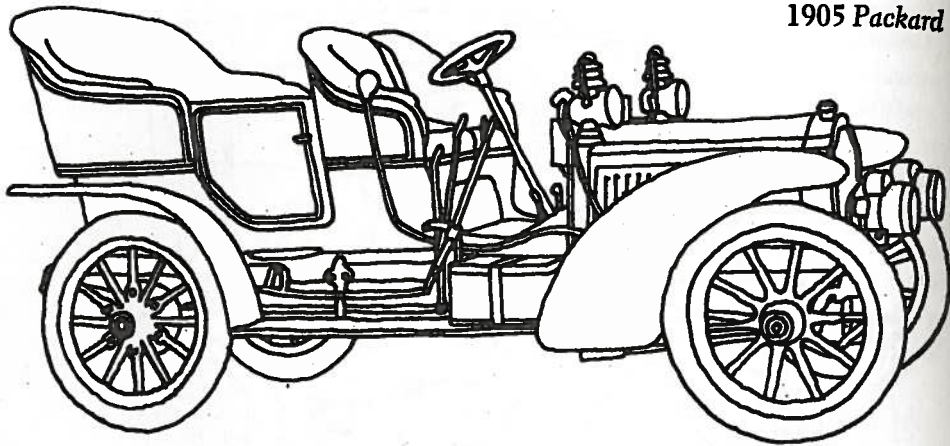


position; it could not be taken down and stowed in the car on sunny days.

On the side-entrance touring cars of 1905 a new kind of top appeared. Called a Cape Top or Cape Cart Top, it was made of fabric and was mounted on a folding frame. One of these is shown here on a 1905 Rambler. Compared with the canopy top it was light and inexpensive, and its folding feature endeared it to tourists. Even though the protection it gave from rain was still not very good, its users seemed to be fairly satisfied. The same general design remained in use for nearly ten years without major changes.

With the arrival of the front-engined, side-entrance touring car, automobile appearance reached the first major plateau in its evolution. In the previous decade the auto had rapidly developed from a motorized buggy, through the intermediate stages of a small, neat runabout and a lumpy-looking rear-entrance tonneau machine, to the graceful shape exemplified by the 1905 Packard touring car.





1905 Packard

Generalizations on the role of style in this early development are hard to make. Sometimes public tastes accelerated functional improvement, sometimes they retarded it. Frank Duryea and others worked hard to conceal the working parts of their vehicles, an aesthetic improvement that was also unquestionably a functional one; but the overall influence of style considerations on automobiles built before 1900 must be considered a negative one. The conservative public wanted automobiles to look like horse-drawn vehicles, and in yielding to this pressure, builders made their cars too light for adequate strength, and too short and high for either riding comfort or directional stability. Early preference for the "horse-drawn look" also delayed the introduction of the "French form" of the front-engined car, which gave better weight distribution and accessibility and allowed more freedom in body design.

After 1902 style preference had a more positive influence. The great switch in taste in favor of the "French form" accelerated its adoption in this country. The new configuration must be counted as a functional advance, though the fad for dummy hoods on mid-engine chassis, which also resulted from violent public enthusiasm for the front-engined look, certainly cannot be. As might be expected in this formative period, a great many of the changes in auto appearance before 1905 cannot be related to style considerations at all, but were due entirely to functional needs.

The addition of fenders, windshield, and top, and the strengthening of the frame and wheels, giving a heavier look to the automobile, had little to do with style, and the adoption of the tonneau body was prompted by the practical desire to carry more passengers. In retrospect, the obvious and rapid functional development of cars in this period tends to overshadow the role of style, making it seem as if functional improvement were the only goal of the automaker; but the maker had to sell cars to stay in business, and *The Horseless Age* remarked, August 19, 1903:

The fact is that the average purchaser of today . . . sees only the general form of the car, and the outside finish. . . the bulk of orders, therefore, go to the maker who offers a car of satisfactory appearance . . . at the lowest possible price.

Then, as always, considerations of style and function went hand in hand.