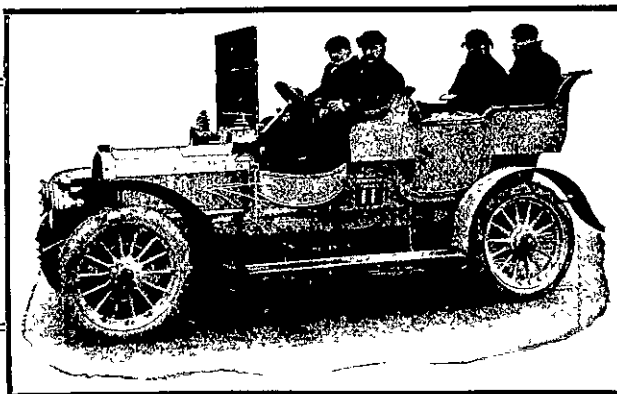


Motors



Motoring

The Automobile in 1909.

If added proof were needed of the constantly increasing popularity of motoring, it would be afforded by the increasing prominence given to the automobile in most of the large English and American newspapers and magazines. In France, for the moment, the aeroplane tends to push the motor somewhat into the background; but over the Channel and over the water this tendency is not notable. Despite grumblers and alarmists, the automobile is more popular than ever in England and America, and the steadily growing vogue of light motors must tend to make it more popular still.

The fact is that the great manufacturers are beginning to foster their industry on scientific lines. It is especially noteworthy just now that rapid progress is being made towards complete standardization and interchangeability of parts. In the average automobile for 1909, the interests of the purchaser are considered as they never have been considered hitherto. For the bringing about of this highly desirable state of things, the greatest credit must go to America. Up till now, simplicity and cheapness have often enough been dearly bought. Many of the cheap and "simple" machines have been dear at any price, and a more expensive motor has often been a more economical investment. But that time is over. Several hundred thousand American citizens now own automobiles. They have become familiar with their machines, expert in matters relative to the requirements of the motorist. Their demand is for simplicity and cheapness—with reliability. That is the demand the great American manufacturers have to meet. They are meeting it.

Really excellent motors are now offered at prices undreamt of two or three years ago. More than half of the cars shown at recent big exhibitions have been listed at £300 and less; many of them at very much less. The typical moderate-priced machine in the United States is driven by a four-cylinder engine of from 20 to 30 horsepower, and weighs from 1,500 to 2,000 pounds. Tires are 3½ inches on the front and 4 inches on the rear wheels; 34 inches in diameter; wheel-base from 100 to 115 inches. Magneto ignition, with battery ignition in reserve; water cooled cylinders; forced feed lubrication; direct shaft drive, with three speeds ahead and one reverse; sliding gear transmission; pressed-steel riveted frame; good leather-covered cone clutch; seating capacity for four people. This is an excellent specification for a cheap auto, and this is what the American motorists are demanding and getting.

The latest machines of this type are notable for the change in the chassis. Manufacturers are using the drop frame, thus bringing the frame and gear nearer the ground, with the advantage of reducing the angle in the driving shaft at the universal joint. It is likely that the use of the full-elliptic spring will become the standard practice of the future. The appearance of the car-bodies is being greatly improved: greater simplicity, more refinement.

The 6-cylinder engine has not fulfilled its earlier promise of popularity. It reduces vibration, and is preferable for hilly work; but the public prefers the 4-cylinder type, and in the ultimate result the public rules. Roller-bearings are pushing out ball bearings, especially for the front wheels. The belt-drive for fans is being abandoned in favour of the gear-drive. The most marked tendency in engines is towards the lengthening of the stroke. There is much to be said in favour of this tendency. It reduces shock and vibration, saves wear, and makes possible a general reduction of weight.

In the motorist's interest, reduction of weight is a great thing. It prolongs the life of the machine, and keeps down running expenses. The ponderous machine of excessively high power is disappearing. During the past year, light cars of moderate power have covered long distance courses at speeds little below those of the most powerful racing machines. A few miles extra speed in a day (with its accompaniment of greatly increased expense) is of absolutely no benefit to the average motorist. Any good, light machine will go at a higher speed on roads than the authorities will permit.

The decrease in weight has produced a great increase in the duration of tires. Probably for that reason, there have been no special novelties in tyres introduced during this last year or so.

The sliding-gear transmission, with three speeds ahead and one reverse, continues to be the prevailing type, although the friction disc transmission is also exhibited and is attracting attention. Mention should be made in this connection of the hydraulic drive, for in this ingenious device is found the most striking and radical departure of the year from the commonly accepted standard practice. Although it is at present adapted mainly for heavy and relatively slow-moving vehicles, it possesses corresponding advantages in its application to high-speed vehicles, for which its great flexibility, absence of shock, and minimum amount of wear, give promise of ultimate popularity. The cone clutch still remains the most popular.

Some of the finest mechanical work on the automobile is shown in the live rear axle construction, which is generally of the

floating type. Great attention has been paid to the housings, which have been made more rigid. In some cases, they have been made in two pressed steel, coned halves, with the resulting advantages of complete inclosure of the parts and unusual rigidity.

The direct shaft drive is almost universal in the standard American machine. Much attention has been given to the improvement of the brakes, the tendency being to lessen the number of brakes on a car and improve their quality. Some vehicles show two sets on the rear wheels and others one set. The diameter of the drum has been increased, and the faces have been widened, with the resulting advantage of greater power and longer life in service. Asbestos and cork are being largely introduced, although many machines still adhere to the straight metal contact.

Unquestionably, the low-price car, costing less than £200, has come to stay. If we include the comparatively new and increasingly-popular buggy type of machine, it is safe to say that a large proportion of the space at recent American exhibitions was taken up by automobiles of this class, costing from £100 to £190. The £100 machines are, of course, of plain appearance. They are driven generally by 2-cylinder engines, of the opposed horizontal type. But perhaps the "biggest show for the money" was presented by the runabouts costing from £160 to £200. These machines contain all the essential elements of the elaborate, high-powered, high-priced machines, since they embody pressed-steel frames, 4-cylinder, water-cooled engines, magneto ignition, direct shaft drive, etc. Moreover, the record of the past year shows that, because of their light weight, they are remarkably economical in fuel and particularly in repairs to tires.

One of the finest sections of the Grand Central Palace exhibition was that devoted to heavy commercial vehicles, such as trucks and drays, delivery vans and waggons, buses and sight-seeing cars. The character of the work, both in the chassis, driving mechanism, and bodies was fully up to that of the high-class automobiles. The comprehensive character of this section is shown by the fact that one western firm alone had eight separate exhibits, including a 1½ ton chassis, a 1½ ton truck, a 12-passenger Pullman, a 1 ton wire-work delivery truck, a 16-passenger sight-seeing car, a 5-ton chassis, an ambulance car, and a delivery van which covered 2000 miles in the Glidden tour without making any adjustment.

The best manufacturers of to-day make a point of accurately duplicating parts. The utmost precision is observed in casting, forging, boring, grinding, and threading to exact standards, so that a gear will operate as well in one set as in another, and valves