Progress of the Motor.

LOOKING BACKWARDS IN 1905.

A RETROSPECT OF THE YEAR'S CONSTRUCTION AND EVENTS.

A BRIEF glance at the more notable features of improvement in motor-car design during 1905 will not be without interest to many readers. There is evident a steadily growing tendency towards simplicity, and freaks of construction are rarely seen. There are, too, many improvements in detail, and, at least in large cars, more uniformity of design. For certain types of engines most makers are in accord on the efficiency of such essential points as the pressed steel frame, long wheel bases, magneto ignition, and the mechanical inlet valve. The cars now built are chiefly of four classes, which may be differentiated as follows :—(1) Light single-cylinder runabouts ; (2) medium power two-cylinder cars ; (3) four-cylinder cars of medium power, including a few three-cylinder cars ; (4) high-powered four-cylinder cars, including a few six-cylinders.

THE ENGINES.

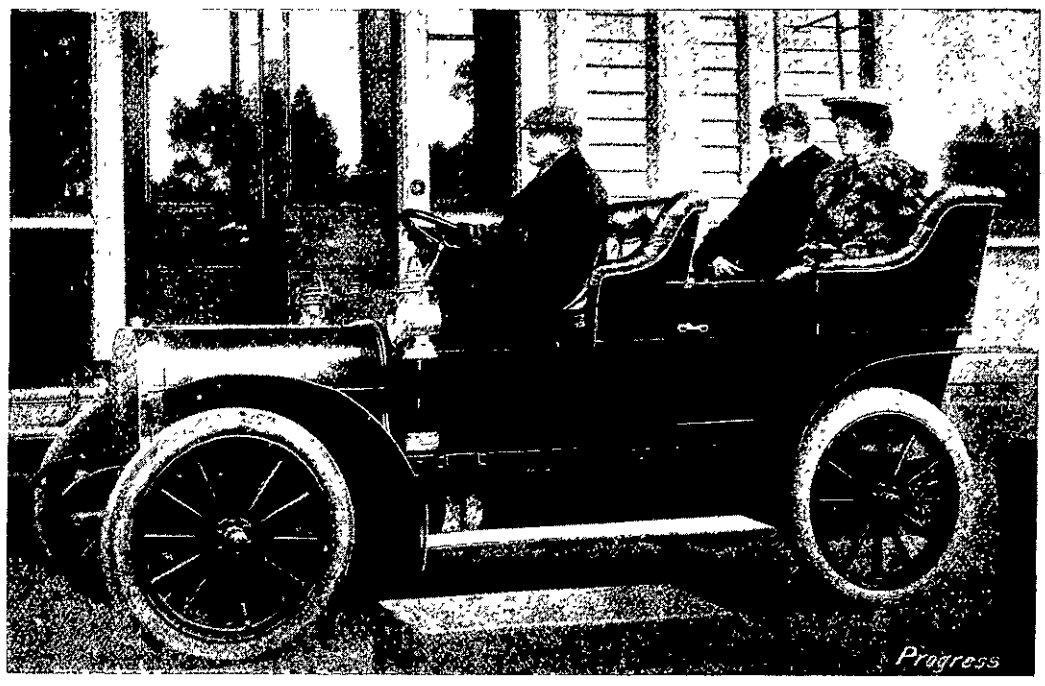
Engines of two or four cylinders are the most in vogue, except, of course, in cars of small horse power, and have been immensely improved in smoothness of working. Three-cylinder engines have found but few advocates, although their efficiency and capabilities have been amply demonstrated by several makers. They are, however, apt to be regarded as a compromise between the two and four-cylinder engines, without the economy of the first or the smoothness of running of the second. The six-cylinder engine is as yet only found in a few cars of the most expensive type, but it has decided advantages which may encourage its adoption in less luxurious cars. Separately cast cylinders are coming into favour, perhaps because they are cheaper, and permit a bearing between each crank. There is also a growing tendency to place the valve chambers on opposite sides. Mechanically secured water jackets are giving way to jackets cast round cylinders. Cam shafts and gears are not generally enclosed in a gear case. Pipework is improved, pipes are shorter, and of larger diameter. On engines with two or more cylinders, the mechanical valve is gradually being displaced by the automatic inlet valve. Another important improvement, although not as general as might be liked, is that accessibility of the crank chamber, crank shaft, and big end bearings has been studied by designs which permit the dropping of the lower half of the crank case without dismounting everything else.

IGNITION.

In the electrical accessories a marked improvement is evident, the most notable feature regarding ignition being the increasing adoption of the magneto system, with, in some cases, accumulators as a standby. Many makers have, however, entirely abandoned the latter. In multi-cylinder engines with accumulator ignition, the use of only one trembler with distribution mechanism is extending. The "make-and-break" system of commutators has been practically superseded by the "wipe" system.

CARBURISATION.

Improvements in carburisation are not much "en evidence" and the automatic carburetter is fairly generally adopted. Carburetters are now found in positions giving equal lengths of induction pipes. They are simpler, although nearly all now attempt to automatically obtain a constant mixture at all speeds of the engine. This is due to the demand for quiet running at low speeds.



HIS EXCELLENCY THE GOVERNOR, LORD PLUNKET, AND HIS 14–16-H.P. ARGYLL. [*Sarony, Photo.*

THE RT. HON. R. J. SEDDON TOURING THE WEST COAST ON A 10-H.P. PEUGEOT. [*Sarony, Photo.*

WATER CIRCULATION.

Although still very far from being obsolete the old type of flanged radiator is steadily being displaced by the tubular or honeycomb type of cooler. The appearace of the flanged radiator has in many cases been improved, and in some instances it is encased in a metal frame which also forms the water tank. In most cars some type of induced draught is adopted. The majority of cars have one fan, some two—one behind the radiator and another formed by the flywheel arms. Scant attention, however, is paid by some firms to the proper fitting of their fans ; so long as a small fan rotates somewhere about the square radiator that is, it seems, all that they seek. The attempt to break up and delay the current of air on its way through the radiator by means of spirals is a step in the right direction. Although "pump" circulation is most generally employed, the "natural" (thermo-syphon) system of cooling has several notable adherents. A satisfactory feature is that gear or chain drive is gradually superseding the old system of the friction-driven pump.

TRANSMISSION.

Although no remarkable advances have been made, or can be expected, it would appear that more care has been bestowed upon this part of the motor car mechanism than on any other. There is a continuance of the praiseworthy attempt to reduce the number of steps. The problem is becoming more involved to those who are anxious for the minimum number of gears in mesh, not only on "top-notch," but also on speeds where power waste is most to be avoided—the hill-climbing gears.

The cause of the worm drive, so firmly and successfully espoused by two English firms, has not obtained any fresh converts, but transmission by a more or less centrally placed chain is certainly on the increase for cars of moderate or low power. Finality in clutches has not yet been reached. The