

HOW AN ARGYLL IS LANDED: THE ONLY WORK NECESSARY IS THE PLACING ON OF TYRES AND THE PREPARATION FOR RUNNING OF ENGINE.

dispensed with, all graduations of speed being obtainable by the means so succinctly suggested. In reviewing the present car it is interesting to note that the structural features peculiar to the Chenard-Walcker practice, and which have earned for those cars so excellent a reputation, are consistently adhered to, namely, double back axle, combination clutch and brake, thermo-syphon radiator, and automatic carburetter. The frame is of pressed cambered channel steel, suitably trussed and stiffened with cross members of similar section. The wheel gauge is 4 ft. 5 in. and the wheel base 9 ft. 4 in. The wheels are 810 by 90 mm. steering, and 815 by 105 mm. driving. The engine is of the four-cylinder type with cylinders cast in pairs and valve chambers on each side, each pair of valves being get-at-able by the removal of a single nut. The bore and stroke are 88 by 130 mm. Half-time gears are specially enclosed, and the high-tension magneto is gear-driven off the exhaust camshaft by worm gearing, which brings it in an accessible position in front of the engine. The cylinders and valve chambers are amply water jacketed, and the water connections are of more than generous diameter. The basic principle of the Chenard-Walcker carburetter is that the mixture is automatically controlled by the variable lift of a combination valve, consisting of a circumferentially slotted piston, the base of which covers the area of the annular air passage; whilst the centrally placed tapered needle attached to the perforated piston head regulates the volume of petrol in exact proportion to the volume of air passing to the cylinders. In the present model this piston is now formed of bronze, steel being found liable to rust in damp weather. The special improvement in the present carburetter, however, consists of the introduction of a valve in the induction pipe above the piston, whereas the lift of the piston was previously determined by a small forked arm, which in its turn depended upon the return of two spiral springs. The valve above referred to is opened by a spoon-shaped arm (the only control), the lift of the piston beneath it being effected by the suction in the cylinders and determined by the position of the spoon-shaped arm operating the valve above. It is claimed that the introduction of this valve and its combination with the piston effects an economy of 33½ per cent. in the fuel bill, and at the same time simplifies the driving. The distinctive design which has marked the radiators of the previous Chenard-Walcker cars is retained, as is the combined friction clutch and brake, operated by one pedal. Ball bearings are fitted to the gear box throughout, and ball bearings have been introduced to the now well-known double back axle. This system particularly lends itself to the fitting of ball bearings, being relieved of the double strain of load and drive. The ignition of this car is the well-known Simms-Bosch high-tension system. Exceptional brake power is provided in the shape of three absolutely independent metal to metal brakes, any one of which, it is claimed, is capable of holding the car on any gradient backwards and forwards. First, there is the clutch brake, actuated by the

pedal, and already referred to; secondly, the differential band brake, likewise operated by a pedal; and, thirdly, the compensated hand brake, taking effect on brake drums on the rear wheels. Lubrication is obtained by means of a mechanical pump with an oil tell-tale on the dashboard. The auxiliary oil tank, in connection with which is an oil pump, provided with a four-way tap on the dashboard, feeds oil to the gear box, the differential, and performs the extra duty of recharging the motor oil tank, the operation of which should be performed every 200 miles. This four-way cock in connection with a hand pump is capable of another and very useful duty, namely, by its means the used oil can be pumped from the crank chamber into the gear box or differential, thus effecting a marked economy in the oil bill. The mahogany box dash is particularly neat. This contains the lubricating tank and is provided with a convenient petrol gauge. The steering wheel and dashboard are innocent of either throttle, spark, or auxiliary air levers. In the driving of this car the accelerator pedal alone suffices for all graduations of speed. It is impossible to examine this car with any degree of attention without realising that its special features are substantially of construction and the elimination of all those unnecessary complications which are so loved by the crank designer.

From a recent number of *The Car* we learn that

the 16-20 h.p. Chenard-Walcker covered over ¼ mile running at 4½ m.p.h. on the top speed.

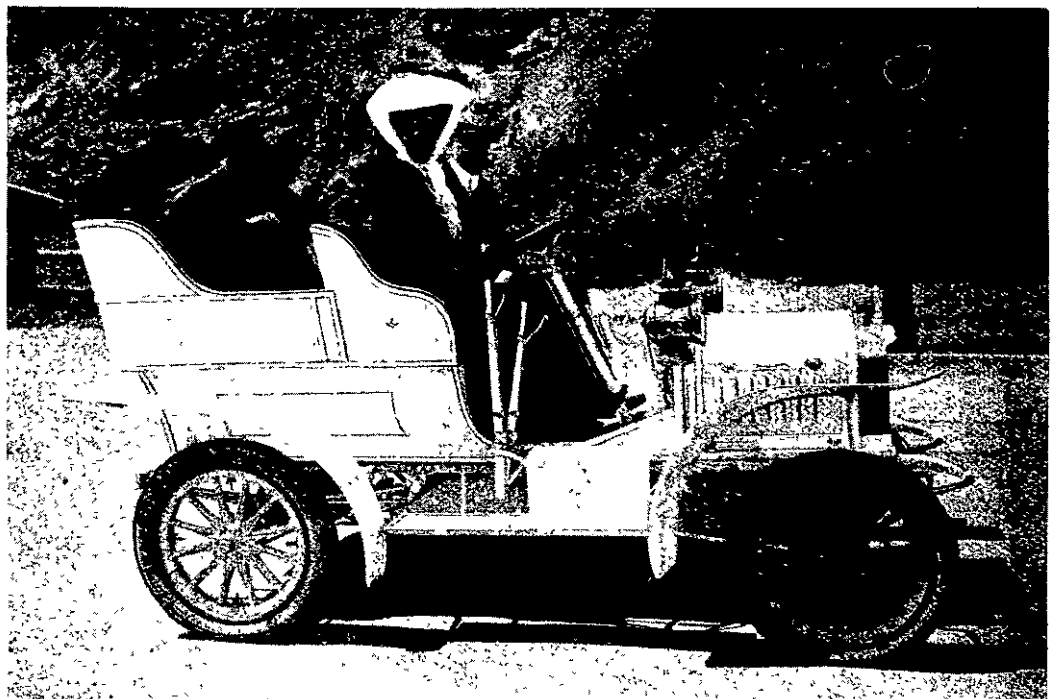
By slightly applying the side brakes so as to offer a little resistance to the pull of the motor, the speed was reduced to 4.1 m.p.h., still on top speed, and without any manipulation whatever. This was a truly marvellous performance and tends to show what can be obtained with a properly balanced 4-cylinder engine and a really efficient carburetter.

The Charging of Accumulators.

Our correspondent "Chauffeur" having put a question asking for information about the charging of accumulators, we have much pleasure in placing the following at his disposal and that of others who may want this useful information.

The successful running of the motor will depend to a large extent upon the condition of the accumulator; an imperfectly charged one will not produce a good spark. Most accumulators supplied for motor-cycles may be relied to run 800 miles before they require charging again. The best test to apply to an accumulator to see if it retains a charge is to place either a small four-volt incandescent lamp across the terminals, or connect the battery up to a voltmeter. If the accumulator is charged, the lamp will glow brightly and remain so as long as it is connected; if the accumulator is nearly exhausted, the lamp will only appear a dull red. A fully charged battery will show 4.2 volts, or just over two volts for each cell. Most riders have not got the necessary appliances for charging, and the usual method is to send the cells to an electrician and get it done; the cost is very small. If the electric light is fitted in the house or shop—and providing it is continuous current—the accumulator can be readily charged. But it is only necessary to take the cover off one of the switches controlling a group of two or three lights, put the handle *in the off position* and find out which is the positive terminal. To do this, connect two lengths of insulated wire (bell-wire will serve), one to each connection of the switch. Clean the other ends of the wire bright and hold them apart in a glass of slightly acid water. The wire connected with the *negative pole* of the switch will give off bubbles of gas. It is only necessary to join this wire to the black terminal, and the other wire to the red terminal of the accumulator, and leave on for about eight hours. The lamps will remain alight and with no appreciable loss of brilliancy. It is important to note that the handle of the switch *remains off* during the charging. When fully charged the accumulator will give off gas freely, and the liquid becomes a grey colour. The voltage will also rise to nearly 4.5.

Charging from a lamp holder.—Instead of tapping the current at the switch it is often more convenient to connect the accumulator up to a lamp holder and charge it while the light is on. The method is simple. It is only necessary to purchase from an electrical fittings depot a simple holder, a fitting known as an "adapter," and a couple of yards of flexible conductor. The adapter and lamp holder require to be wired. The adapter is fitted into the



10-12 H.P. 2-CYLINDER ALLPAYS CAR.