THE AUTOCAR

A Journal published in the interests of the mechanically propelled road carriage.

EDITED BY H. WALTER STANER.

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THE AUTOCAR.

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CONTENTS.

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Notes.

The Club and the Provinces.

Last year there was a tendency on the part of some provincial members of the Automobile Club to feel that they were not so fully represented on the Executive Committee as they might be, but it was made abundantly plain that this was the fault of circumstances rather than of the club; in other words, the meetings of the committee occupied so much time that only the resident in town or a provincial with considerable leisure could possibly undertake to attend the meetings at all regularly. It would appear that there is still no little to be done in the consolidation of the club with the provinces. We refer particularly to the provincial clubs, amongst which there is a regrettable tendency to cut adrift from the national body. We are not going into the rights and wrongs of the question; in fact, it is questionable whether there are any wrongs. It is rather a matter of circumstances tending towards the separation of the national club from the provincial, and it appears to us the point on which discussion should be concentrated is how this tendency can be stayed. It is admitted by all that every provincial club ought by rights to be bound by the strongest ties to the national club, so that, while working separately in their own sphere, they could be in a general way absolutely united when circumstances required it. As it is, there is practically no difference of opinion between the one and the other on vital questions; but there is not that concentration of effort which would be so helpful at all critical periods of the development of the movement, and, if possible, this should be secured at all costs. We publish to-day a letter on the subject from one who has given the matter no little thought; and we leave his suggestions for the consideration of those who have the welfare of the movement at heart, contenting ourselves by saying that we are of opinion that, despite its obvious objections, the suggestion is a good one that the meetings of the provincial sections of the Automobile Club, or the separate union of provincial clubs, whichever may be eventually formed, should take place in different parts of the country. This would keep every district in touch with the parent body, and through it with the heart of the movement. If all the meetings were held in London or any other one place, there would always be a tendency for the other districts to imagine that their interests were not being so well looked after as they should be. This is possibly a foolish sentiment, but in all these matters things must be taken as they are, and there is no question whatever that sentiment plays a very strong part in any bond of union, and this can only be strengthened by being periodically renewed, and there is no better way of renewing it than the perambulatory council meeting.

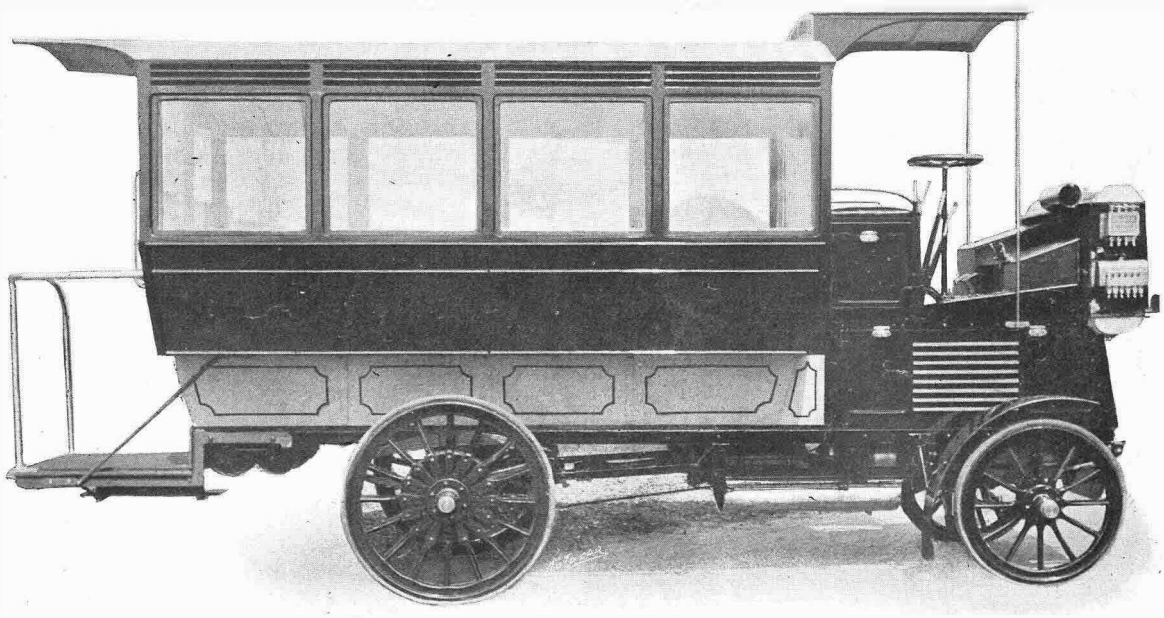
Trams and the Rule of the Road.

The practice of tramway companies in laying lines of rails in streets too narrow for their accommodation is productive of an enormous amount of inconvenience to all other users of the roadway. When there is no room on the near side of the road for a vehicle to meet or to be overtaken by a tram, it is pretty evident that the resources of the rule of the road are strained to breaking point. The tram companies have essayed to meet the difficulty by arrogating to

themselves a sort of divine right over the highway; they claim the power of requiring other vehicles to move to the off side to allow of their passage. The claim is a dangerous one, and should be jealously contested. Let us suppose that an automobilist is weak enough to yield to an impudent demand of this kind and to cross to his wrong side in deference thereto. By thus confronting the adverse stream of traffic, not only does he endanger both himself and his car, but he may cause injury to others, and, being on his wrong side, he would in a civil action for damages have a strong *prima facie* case against him. It may be remembered that in a recent case at Ramsgate the driver of a trap (being on his proper side) was run into by a tramcar coming in the opposite direction, owing to the fact that there was no space between the tram and the trap's near side kerb. In this case, Lord Justice Lawrence decided that if tramway companies chose to lay their lines in this dangerous manner it was for them to take the consequences. Certainly they had no powers over and above those of the general public, whose prior rights they must respect. In another case at Leigh, a brewer's drayman was summoned before the local magistrates for obstructing a tram. Here again the dray had no available space on its near and proper side to meet and pass the tram, and the driver of the latter waved the drayman to cross to the off side. The sturdy and valiant son of John Barleycorn stood his ground stoutly, and the *impasse* continued for no less than twenty minutes, during which we have some reason to believe that the language exchanged between the twain was "frequent and painful and free." Ultimately the tram driver, lacking the afforded staying power of malt infusion, reluctantly threw in his reverse, and retreated to a wider stretch of road. The Bench decided that in their opinion the drayman was entirely within his rights in holding to his near side, and dismissed the case. If there were a subtle question of law involved, they opined that it was one for a higher court. In view of the Ramsgate decision, we do not presume that an appeal will be made, but if it is we hope that the Roads Improvement Association will use its influence to form, if necessary, a fund for the defence. It is unfair that the brunt of a question of national importance should come out of the pockets of a single firm. We have cited the R.I.A. in this connection because as an association receiving the support of the Automobile Club, the Cyclists' Touring Club, and the cycling unions of the kingdom, it is in a position to claim the assistance of these bodies in this most important matter.

Smothering the Villagers.

At the present time a great deal of activity is being displayed by the police in different parts of the country in the setting of traps to catch motorists who exceed the present legal limit, but it is quite obvious from magisterial remarks that there is a growing feeling among the magistrates that, while the law is as it is, they will see that it is enforced, but at the same time they do not regard a moderate acceleration above the legal limit as so serious a matter as was the case a year or so ago. In one or two of the more prejudiced districts it would appear that the probable elimination of the speed limit is acting as a sort of spur, and that the authorities have made up their minds to capture as many motorists as they can before its abolition.



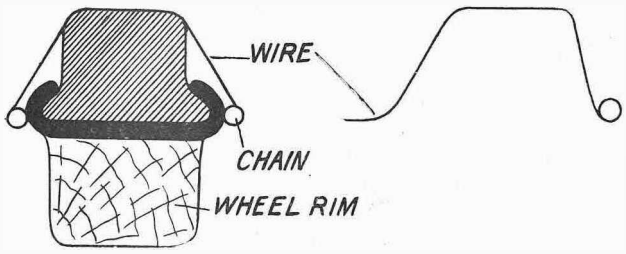
The first of the Stirling motor omnibuses for Johannesburg. A number of motor 'buses, constructed by Stirling Motor Carriages, Ltd., of Edinburgh, are being despatched to Johannesburg for a service between there and Auckland Park, an estate some three miles to the north-west of the town. The car is driven by a four-cylinder Stirling engine developing 24 h.p., and the transmission gear is on the well-tried Stirling system which has been so well proved in regular service during the last three years. It provides three changes of speed with a maximum rate of fourteen miles an hour. Natural circulation is depended on for the cooling system, as the water is carried high up in a tank in front of the dashboard, and, in fact, forms part of the dashboard itself. This holds about twelve gallons of water, and it is found quite sufficient to keep the engine, below the driver's foot board perfectly cool. It is only necessary to add a little water once a week or so. A hundred miles trial was made in the hilly country of the South of Scotland with this vehicle loaded with 30 cwt. of pig iron; the low gear was never once used, most of the hills being mounted on the top gear, the intermediate speed being employed on one occasion, while the return journey of over 100 miles was made without a stop. The seating capacity is for fifteen passengers and the driver. The tyres are solid rubber, and the weight, complete with fuel, water and accessories, is 38 cwt. We are told it runs with extreme comfort over rough ground.

At the same time we are convinced that a great deal of the prejudice against the motorists, and a constant cause of irritation to non-motorists, is the way in which so many cars are driven through villages. We are not talking now of really excessive speed, or of danger to life and limb, but merely to sheer lack of thought, for we are continually seeing cars driven through villages at speeds from eighteen miles and upward an hour—a perfectly safe speed but for the fact of the dust. Now everyone who owns a car knows all about the dust, and if he possesses any regard for the comfort of other people he will drive quite quietly through villages, as, to say the least of it, it is extremely uncomfortable for the dwellers in these places, where watercarts are unknown, to be doomed to live in an almost perpetual dust cloud on every dry day, if it so happens they are on a well frequented high road. The motorist should remember that he is not the only man on the road. It would not matter if he alone dusted a village once in a day; but there may be twenty or even one hundred cars passing through the same place on the same day, and if they are all thoughtlessly driven, it is easy to imagine the disgust which the villagers will feel, and it is well to remember that there are generally one or two influential people in every district—people who believe in fresh air and open windows, and who will not submit quietly to the inconvenience of the dust. They complain to the police, and a trap is set. What we should like to see done, however, as it would in the main be provocative of good rather than of harm, would be the entire removal of traps from open stretches to villages and populated areas. If it became recognised, as it very soon would, that any village or hamlet was likely to be a measured stretch with timekeeping policemen at hand, speed would always be properly slackened, and all the main intents of the Light Locomotives Act would be enforced, and incidentally a vast amount of prejudice would be saved. We are not advocating police traps, but we say that if they must be set they should be in populated areas, and not on deserted stretches.

USEFUL HINTS AND TIPS.

A Non-skidding Device.

Being on the road in all weathers, I have often been troubled by skidding on snow. My first preventive was copper wire tied at intervals round the felloe tyre. I then tried shackles to bolt on similarly, but they spoiled the felloe, but I now have a splendid arrangement that does not damage the wheel or tyre in any way, and had I not had it with me recently I should have had considerable difficulty in getting home, as we had four inches of freshly fallen snow to fight through on steep roads. The



arrangement is two chains (endless), each one the same length as the circumference of the steel rim of the driving wheels. On one chain are clamped through the links a series of wires bent to the shape of the tyre, the other end of wire being left nearly straight to receive the other chain, when they can easily be bent up with a key to tighten both chains. The chains are of horse stall collar size, and the wire is common galvanised fencing wire.—W. CREBER.

Petrol Supply.

When touring in remote districts, where petrol supplies are infrequent, and where the quality is of a doubtful character, one naturally wishes to carry as large a supply of satisfactory spirit as possible. The storing of this, however, in the usual two-gallon cans is inconvenient in many instances, as, no matter how neatly they are packed when starting out, they are certain sooner or later to become dislodged, either for the purpose of removing luggage or obtaining spare parts, tools, etc., and they are never repacked as neatly as they were before. Even if they retain their original position, there is always the fear of their becoming upset through the vibration of the car when travelling. In many types of motor vehicles there is ample room for the placing of a tank in which may be carried any quantity of spirit up to, say, twenty or thirty gallons. Generally these tanks could be located beneath the floor boards of the car, having a convenient filling cap on the outside of the car, or by lifting a floor board in the back seats of the car. The cap should be perfectly air tight and provided with an air valve and permanent connections to the ordinary petrol tank. When it is desired to replenish the latter it would only be necessary to turn on the tap between the spare tank and the regular supply tank. Then by means of the tyre pump sufficient pressure is raised in the spare tank to force the spirit from that into the second receptacle—an obviously easier and cleaner procedure than the unscrewing and filling up from the orthodox cans, to say nothing of less waste, as the spare tank could be filled at a quicker rate than the ordinary tank. In addition to being much safer, this arrangement gives much more space for luggage, not to mention the passengers' feet and limbs.

A Trembler Tip.

Users of Bassée and Michel coils fitted with the Carpentier trembler would do well to make a mental note, when the small copper-coloured spring plate at the end of the top of the trembler breaks, as it is bound to do sooner or later, not to throw the whole away, but to retain the black lozenge-shaped portion, as this is in reality not only part of the trembler, but the license plate as well, and is consequently a troublesome and expensive part to get renewed. The little springs, however, and the screws to fit them on can be obtained readily for a few pence. The license plate portion is very unlikely to be broken, and, for the above reasons, should be carefully preserved.

THE 60 h.p. MERCEDES.

Some Details of Mr. Harmsworth's and Mr. Higginbotham's Cars.

(Continued from page 573.)

Apart from the engine there is very little deviation from last year's 40 h.p. car. The clutch is again fitted in the boss of the flywheel, and, although in the first few 60 h.p. cars a simple form of expanding clutch was tried, it was discarded in favour of last year's pattern.

The mechanism which operates the change-speed gear was also redesigned in order to do away with the side movement of the control lever. This was effected by using a cam plate in the gear case, so arranged that it could be rotated by a simple backward and forward movement of the control lever. The forks which move the sliding sleeves are extended to carry rollers engaging with grooves in the faces of the cam plate, so that the various gears are moved in and out of engagement in turn, and there is no possibility of two sets coming into action at the same time. This type of gear is fitted to Mr. Higginbotham's car, and we understand that he has found it satisfactory in use. However, in the later cars, last year's type of control is reverted to, probably on account of some detail defects in the new design, and Mr. Harmsworth's car has control gear of the old type.

To facilitate changing the sprockets, the ends of the countershaft are fitted with bosses having a suitable flange, to which the sprockets are attached by six bolts, and this is found to be much more convenient than the old method, by which the keys were disturbed each time a change was effected. The brakes on the rear wheel are somewhat different, inasmuch as the expanding ring is in halves jointed together, and is anchored to the radius rod, which is made of girder section to stand the stress.

The axles are of girder section, which no doubt gives great strength in proportion to the weight. The steering centres of the front axle are not inside the hub, as in last year's pattern, and the joint is the reverse of the ordinary form, the jaw being on the wheel pin and the eye on the axle itself. The dimensions of this joint are quite contrary to ordinary practice, and, judging from past experience, it will give a great deal of trouble from wear, the eye or solid portion of the joint being only 40 mm. long.

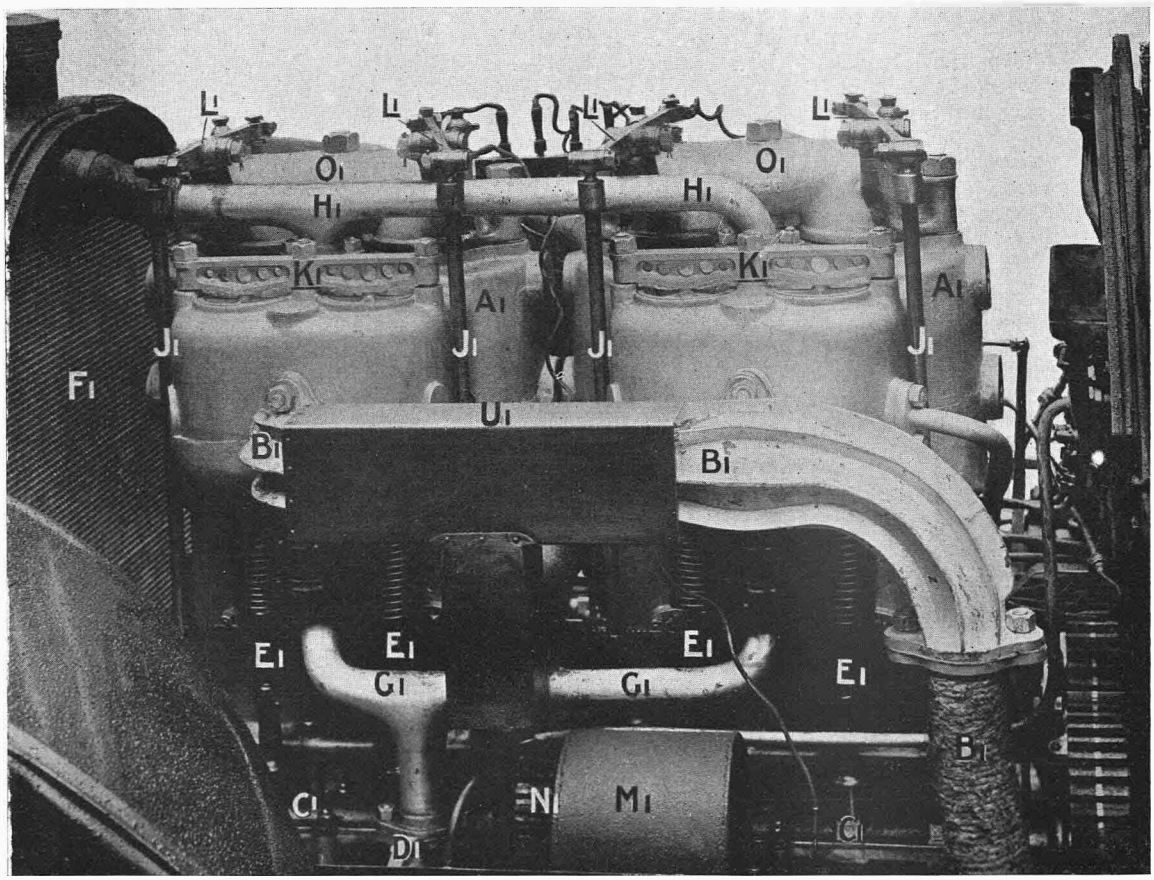


Fig. 6.—The left hand side of the engine.

A^1 A^2, cylinder heads
B^1 B^2, exhaust pipe
C^1 C^2, camshaft casing
D^1, pump
E^1 E^1 E^1 E^1, exhaust valve spindles
F^1, radiator
G^1 G^1, water pipes from pump
H^1 H^1, water pipe to radiator
J^1 J^1 J^1 J^1, admission valve rods
K^1 K^1, bridges holding caps over exhaust valves
L^1 L^1 L^1 L^1, admission tappet levers
M^1, magneto
N^1, spur wheel driving magneto
O^1 O^1 casing over the admission valves

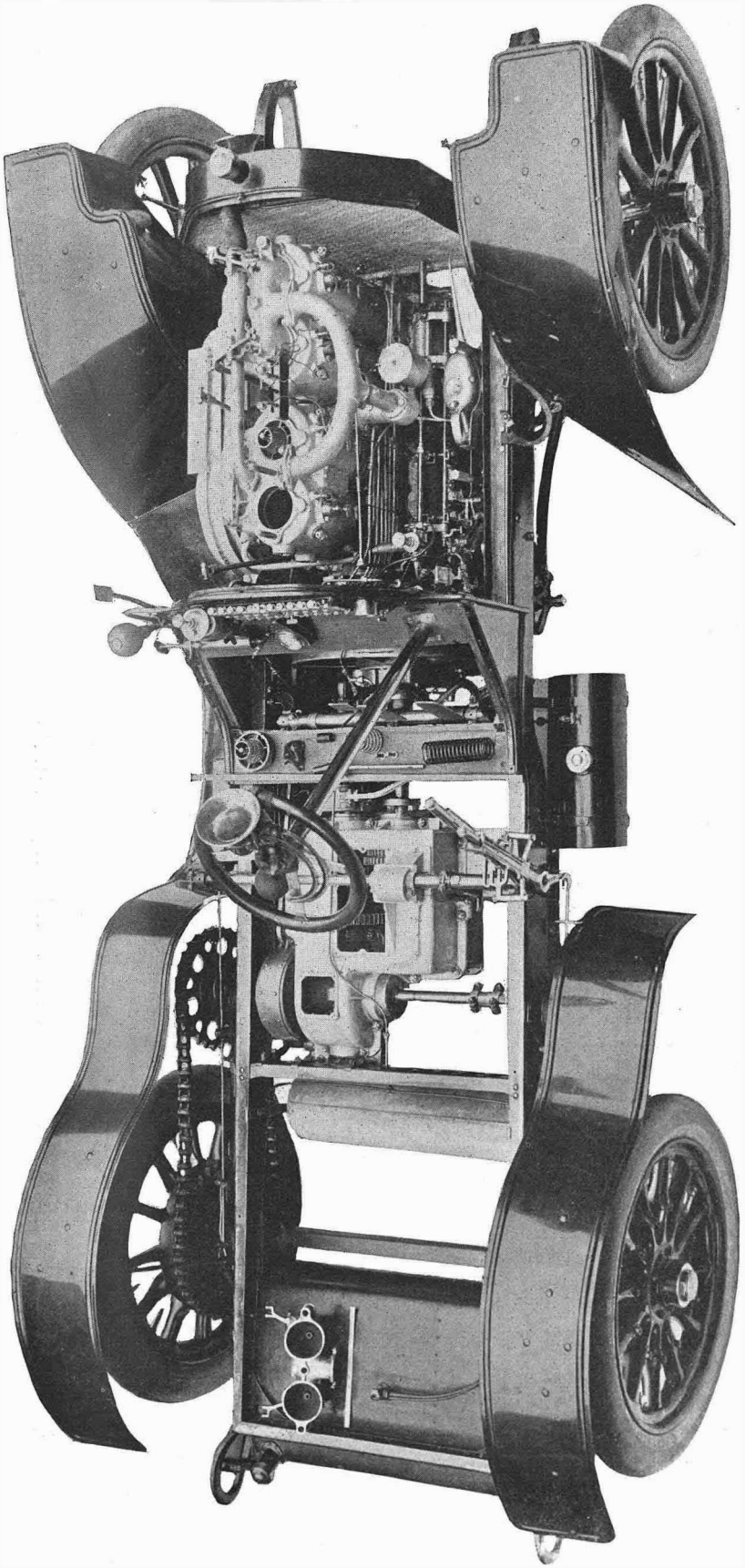


Fig. 7. Plan view of the 60 h.p. Mercedes showing some of the details.

Unadjustable ball bearings are used throughout the transmission gear and the road wheels, as in last year's car.

The cooler is of the well-known honeycomb pattern, made up of tubes 5 mm. × 5 mm., and 100 mm. long, with longitudinal corrugations. These tubes are exceedingly light, the weight of a gross of them being less than 1 lb. The space occupied by the tubes is approximately 21½in. high × 22½in. wide. The water is circulated by a powerful centrifugal pump on the same shaft as the magneto.

The front springs in the 40 h.p. car were anchored at their rear ends, and provided with links in front, so that in the case of a front wheel striking an obstacle the blow put the top plate of the springs in compression. This, of course, is the reverse of the ordinary arrangement, and it was somewhat criticised last year. In the 60 h.p. car, the springs are anchored in the front, and no doubt this is the correct arrangement.

In comparing the two designs, the most noticeable feature is the new inlet valve, which both from its position and its special construction is a departure from the ordinary practice. It is claimed for this valve that increased efficiency is obtained by placing it directly over the piston, and certainly there are grounds for believing that it is an advantage to dispense as far as possible with pockets in the side of the cylinder. However, if it is good in the case of the inlet valve, it is certainly also good in the case of the exhaust valve; but so long as the camshaft is in its present position, the operating mechanism must be somewhat complicated, if the valves are placed directly in the cylinder head. In a large Mercedes launch engine, which has been illustrated, the camshaft is carried right up at the back of the cylinders, so that a simple lever is all that is necessary to operate each valve.

The use of an admission valve with a number of concentric seats was referred to in a patent of Messrs. Napier and Edge, dated February, 1901, and has been practically applied in some of the Napier cars. The British designer, however, did not carry the idea to such extremes as the German

Daimler firm, who certainly appear to have overdone it, seeing that the area of opening of their valve is more than three times the area of the inlet pipe.

The new method of hand regulation by which the simple movement of one of the levers above the steering wheel regulates the lift of all the admission valves enables the rider to control the engine very effectively by throttling the incoming charge. It necessarily entails considerable complication, and it will be interesting to learn from those who have driven both cars whether it is more effective than the simple hand throttle on the 40 h.p. In the case of Mr. Harmsworth's car, it has not resulted in economy of petrol, as the consumption up to the present has been about one gallon per ten miles.

On the whole we were not so much impressed by the 60 h.p. car as by the 40 h.p., as the new features of the former entail increased complication and do not give promise of correspondingly increased efficiency. However, it is an exceedingly fine car, and the material and workmanship are irreproachable.

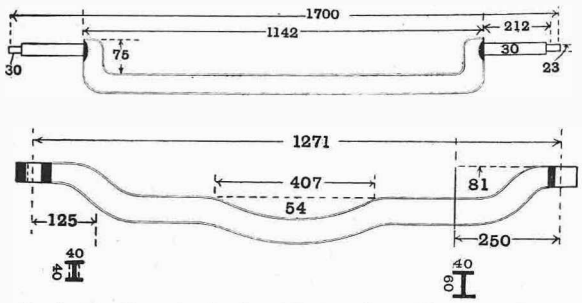


Fig. 8.—The Mercedes front and back axles. Measurements are given in millimetres.

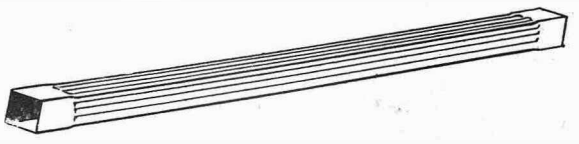
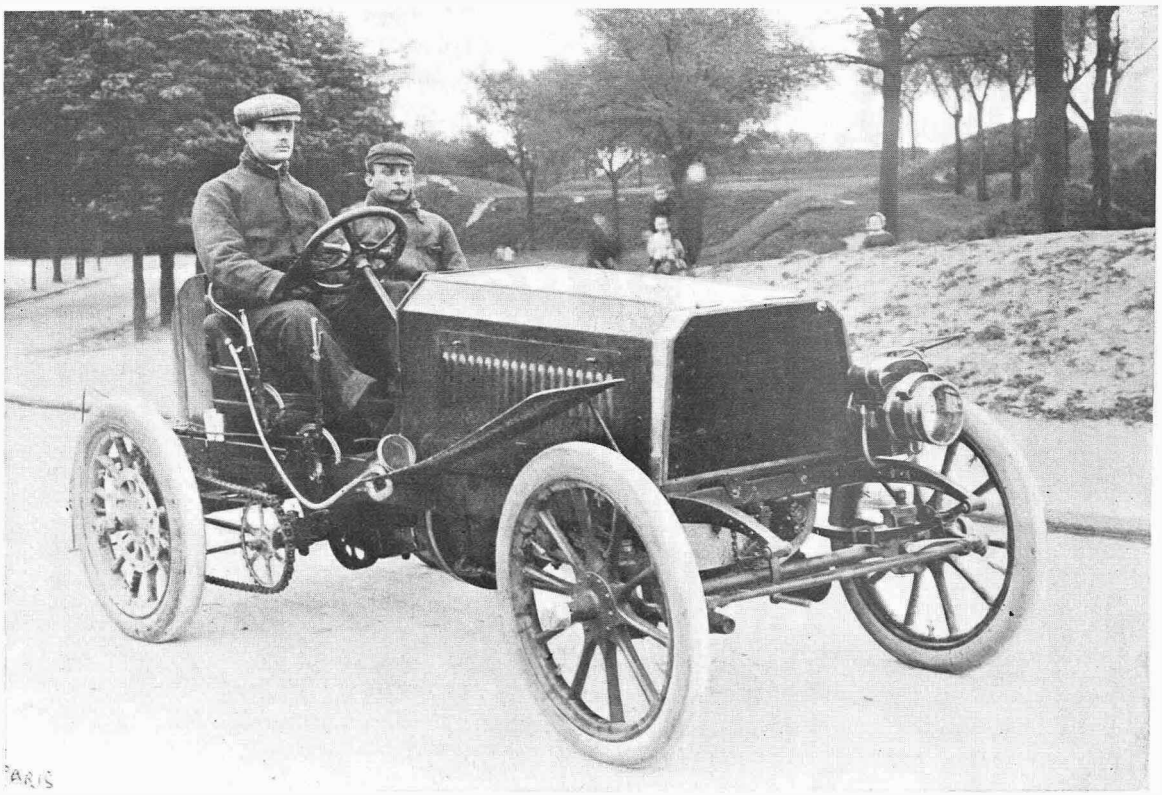


Fig. 9.—A Mercedes cooler tube

In the reference appended to fig. 1 of the Mercedes engine in *The Autocar* of the 16th inst., a mistake occurred in the description of B B. This should have read inlet pipe instead of exhaust.

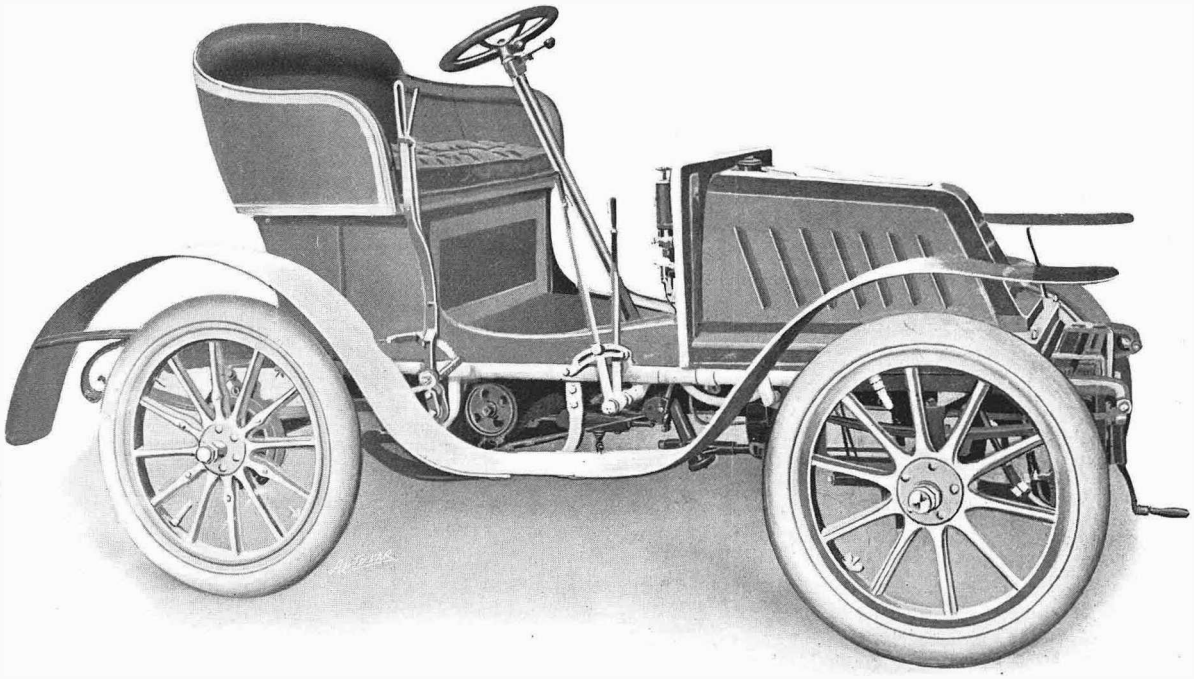


The Hon C S. Rolls on his 85 h.p Paris-Madrid Panhard. A few details of the machine are given on page 609.

Mr. Fordyce, the manager of Automobilia, points out a clerical error which occurred in *The Autocar* of the 9th inst., in reference to their vacuum spark gap. The address of the firm should have read 532, Oxford Street, W., instead of 523, which was given by a simple transposition of the last two figures.

On each vehicle in the Paris-Madrid race a sealed letter-box will be fitted. Into this at every neutralised area the control officer will place a ticket on which the time of the passage of the vehicle by his point will be recorded. These vouchers will be taken out at Madrid, and will undoubtedly serve as a most useful check.

ANOTHER LIGHT CAR.



A new and important addition has recently been made to the list of light cars obtainable in this country by Messrs. McNeil, Hutchinson, and Borthwick, of 4, St. Mary's Parsonage, Manchester, who are importing the new Cottereau Popular. From the illustration which we give herewith, it will be seen that this car is very neatly designed as to outward appearance and from detailed particulars which we have before us at the moment, there is every reason to believe that this careful design has obtained throughout its construction. The motive power is derived from a single-cylinder motor having a bore of 105 mm. and stroke of 115 mm. Running at 1,300 revolutions per minute it develops an average of 7½ h.p. on the brake test, its normal speed being 950 revolutions per minute, at which it gives 5 h.p. The flywheels are contained within the crank chamber, and there are two camshafts, one of which operates the exhaust valve and contact breaker, while the other operates the inlet valve alone, both valves being the same size and interchangeable. The usual electric ignition is employed, and the water circulation is maintained around the cylinder head and valves by means of a pump, a section of which is given in fig. 1. This pump is of the rotary positive type, having on the end of its spindle an oval-shaped plate A. This is contained within a brass casing B, which is provided with unions for the water pipes R and R^1. The water entering at R^1 falls to the bottom of the casing in front of A. Revolving from right to left A causes the water which is in front of it to be ejected through the pipe R by reason of its being checked from returning by the vane P. The latter is kept in contact with the plate A by means of a light spring contained in the casing I. When the part of the plate A in contact with the chamber B comes up against the vane P, this is lifted, and it falls into a recess, allowing the plate A to pass. The pump is held to the frame by means of bolts entering the bosses V and V^1. The ordinary system of splash lubrication is used, so far as the engine is concerned, oil being fed to the crank chamber by means of a force pump located beside an oil tank attached to the dashboard.

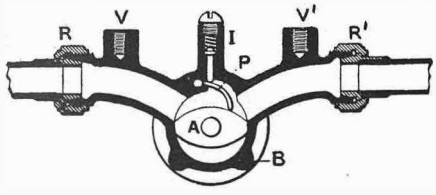


Fig. 1.—Water circulating pump.

A, rotating arm
B, pump case
P, vane of pump
I, spring compressing the vane
R and R^2, water tube unions
V, bolt holes for attaching pump to frame

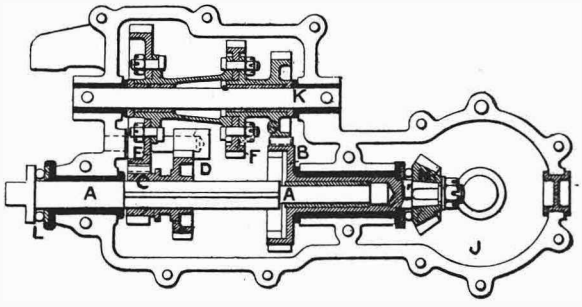


Fig. 2.—Change speed gear.

A A, mainshaft carrying sliding gears
B, gear wheel with teeth cut upon the periphery and interior
C, first speed pinion
D, second and third speed pinion
E, first speed gear wheel
F, second speed gear wheel
H, bevel pinion
J, case containing the bevel gearing
K, countershaft

From the engine, power is transmitted through an ordinary conical friction clutch to a three-speed

change-speed gear of the sliding type, which also gives a reverse. A section of this gearing is given in fig 1, in which A is a square section shaft carrying the sliding gear wheels of the mechanism, the opposite gear wheels being carried and fixed on the countershaft K. The end of the shaft A A, which is connected to the clutchshaft, takes a bearing in the long sleeve of the gear wheel B, which in turn carries a bevel pinion H engaging the bevel wheel carrying a chain wheel, which drives on to an opposite chain wheel on the live axle to the road wheels. The gear wheel B has teeth cut upon its inner face as well as upon its periphery, the gear wheel D interlocking with the inner teeth, so that the engine drives direct on the top speed. For the first speed the pinion C engages with the gear wheel E, and drives through the countershaft and gear wheel B. The second speed is obtained by engaging the wheels D and F, which also drive through the shaft K and gear wheel B: while, as previously stated, when the gear wheel D interlocks with the teeth on the inner face of B, the drive is direct. The reverse is obtained by the interposition of a third bevel wheel in the ordinary manner. The three speeds give the car eight and threequarter, eighteen and threequarter, and thirty miles per hour. The live axle is of the two-piece type, having the differential gear near its centre, around which is the single chain wheel. Ample braking power is provided for so light a car, there being a powerful band brake acting on the countershaft, while two similar brakes are on the road wheels, these being applied by a side lever. The framework is of tubular construction, and attached to the axles by means of very long semi-elliptical springs. The front axle is also of tubular construction. The machine should be particularly easy of operation. The speeds are changed by means of a lever seen at the right of the car, the reverse being put in by a second lever. One pedal operates the countershaft band brake, while the other is connected to the clutch. The accompanying reproduction of the steering-pillar (fig. 3) with its fitments shows the precise location of the levers for controlling the machine. The rod A on the left is connected with the lever advancing the ignition, while the rod A^1 on the right operates the throttle valve. C is the steering column through which the steering rod is carried, D being the bracket by means of which the column is fixed to the frame, while E and E^1 are springs connected with the rods A and A^1, which hold them in the position in which they are placed by the driver. P is the brake pedal, while P^1 is the clutch pedal.

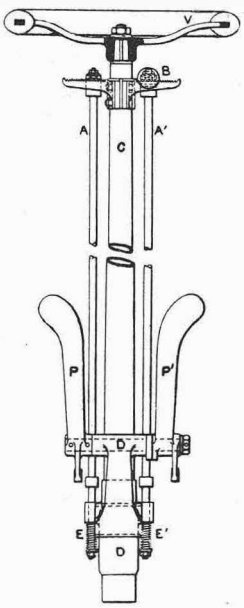


Fig. 3.

A, ignition advance lever
A^1, throttle valve lever
B, knob of lever
C, steering column
D, bracket for C
E E, springs for keeping A A^1 in place
P, brake pedal
P^1, clutch pedal
V, steering wheel

A TWO-CYCLE ENGINE.

As all who have followed the development of the internal combustion engines are aware, the two-cycle engine has long received the attention of inventors, and a number of more or less satisfactory designs have been brought out. At the same time, it must be admitted, with one exception up to the present time, such engines have not been applied to the propulsion of motor vehicles with any degree of success, and even in the case referred to, which is that of a motor bicycle, it is not yet proved that the advantages of the system overbalance the drawbacks, though it is admitted on all hands that an impulse every two strokes instead of every four strokes would be an advantage if it could be obtained; and a number of ingenious minds are now attacking the subject from the automobilist's point of view. Among them is Mr. W. B. Burchall, of Bredbury, Stockport, who has for some time been engaged on the inventing and making of an engine of the double-acting type. We are not yet at liberty to give details, but we may mention some of the advantages claimed for the engine. It gives an impulse for each stroke when built in the two-cylinder form, and, of course, to obtain this with a four-cycle engine four cylinders would be necessary. There are no stuffing boxes or packing glands, as are usually required with two-cycle engines, and this not only overcomes all the consequent trouble, but as there is no piston rod the length of the engine is not materially increased, the power being transmitted direct through the piston to the crank by connecting rod, as with the four-cycle engine, and, consequently, each stroke is of equal power, this being due to the absence of piston rod and consequent friction and cooling effect. As compared with the four-cylinder engine giving one impulse per revolution, the two-cycle engine has only two connecting rods, and, consequently, the power given off is high compared with the total weight of the engine. The engine is horizontally placed, and long connecting rods are included in the design, these being from three and a quarter to three and a half times the length of the stroke. The trial engine is a two-cylinder one, with 4¼in. bore by 4¼in. stroke, and it is claimed to give 20 b.h.p. at 800 revolutions per minute. We hope before long, when patent considerations permit it, to deal with the engine and its performances more fully.

We notice that the Lanchester Engine Co., Ltd., are exhibiting at the Bath and West and Southern Counties Agricultural Society's show at Bristol, from 27th May to 1st June. They will also be showing at the Royal Agricultural Society's Show in London from 23rd to 27th June, when their stand will be well worth a visit.

* * *

In addition to the new small car at a lower price than the 10 h.p. Lanchester, a new type of vehicle more powerful than the present 10 h.p. has been designed, and is now being tested on the road. We understand it gives excellent results, and that already a number of would-be owners have ordered vehicles of the new pattern which will be ready for the road during the summer.

HILL-CLIMBING AT BOSTON, U.S.A.

Boston is very much in earnest over automobiles, the same as all the rest of the United States is this year; and as Boston is all hills, up and down, and a good many of the hills pretty steep at that, Boston folks want to know pretty well what a car can do uphill before buying.

So a big hill-climbing meet was arranged and pulled off on Commonwealth Avenue Hill on April 20th in the presence of a big crowd (5,000 spectators, perhaps), and there were a great many automobiles there, too, besides the contestants, who numbered between 300 and 400.

Elaborate arrangements were made for timing, which was entrusted to the "Chronograph Club," whose electrician, Mr. J. P. Driver, is to be congratulated over a clock and tape arrangement which took the time automatically in fifths of seconds in a way that satisfied everybody.

Commonwealth Avenue gives a good long hill with a fair macadam surface, and 1,056 feet (one-fifth of a mile) was marked as the course. The grade had an average of fully thirteen per cent., just a good stiff climb, and all the folks who had cars to sell were anxious to complete the test; and, as will be seen by the list of contestants, a large field took part in this instructive trial, in which the Stanley steam car was first, as a matter of course, because it is the highest-powered in proportion to its total road resistance of all American cars, and made the fifth of a mile in the "grand final" in 16⅖s., which was a great deal better than anyone else could do.

The Stanley steamer with its driver on board.

This figures out at about 21½ h.p. for the little Stanley steamer, of which an illustration is given as it ran during the trials, with Mr. F. Durbin driving.

The car was the regular Stanley runabout, but it had a big boiler put in it. The standard boiler is 14in. in diameter, and has 295 fire tubes, ½in. diameter by 15in. long. The runabout Durbin drove up Commonwealth Hill had a boiler 16in. in diameter with 350 fire tubes ½in. diameter by 13in. long. Otherwise the car was the regular Stanley light car, having 29in. wheels, with 2½in. double tube tyres, the total weight of car and driver being 1,100 lbs.

The drawbar pull of the Baker electric car is the least of all cars, and Baker says it is 10 lbs. to the 1,000 lbs. car weight.

Not to make the Stanley boiler power too startlingly incredible, I will assume the Stanley drawbar pull on Commonwealth Hill to have been only 10 lbs., though it was probably not less than 15 lbs. or 18 lbs.

This gives:

Drawbar pull	10 lbs.
Air resistance for 8 sq. ft. surface, 4 lbs. per foot	32 lbs.
Thirteen per cent. of 1,100 lbs. gravity lift	143 lbs.
Total resistance	185 lbs.

Then:

$$\frac{1{,}056\text{ft.} \times 185}{16.4} \times 60 = 714{,}600 \text{ foot pounds, and}$$

$$\frac{714{,}600}{33{,}000} = 21\tfrac{16}{33} \text{ h.p.}$$

Durbin started with 450 lbs. boiler pressure, and crossed the tape less than 17s. later, with 480 lbs. steam pressure gauge reading, which shows what the Stanley fire tube boiler can do.

Shortly after two o'clock Mr. C. B. Grout opened the test, and drove his 5 h.p. Grout steamer up the hill in a manner that looked very much like victory; but shortly afterwards came Mr. J. H. Macalman, who got his 5½ h.p. Locomobile up in better time. Next came Mr. Jay driving a 10 h.p. White steam touring car with tonneau detached. Mr. Durbin came next driving a 5½ h.p. Stanley, and the spectators were treated to the fastest run of the day, the time being 16⅖s. One thing decidedly unfair in the touring class was the substituting of small boys for the ordinary passengers. The reduction of weight gained by this manœuvre was a considerable amount in the aggregate. Mr. J. L. Snow, who drove a 16 h.p. Peerless, won in the tonneau class with three small boys aboard, and these all crouched in the bottom of the tonneau, so that they did not create the least wind resistance. Another competitor tackled the hill with a full-grown man and two children. Mr. Harry Fosdick, driving a 20 h.p. Winton in the petrol class, carried no less than eight boys, so that the total load would amount to more than the average load on a touring car.

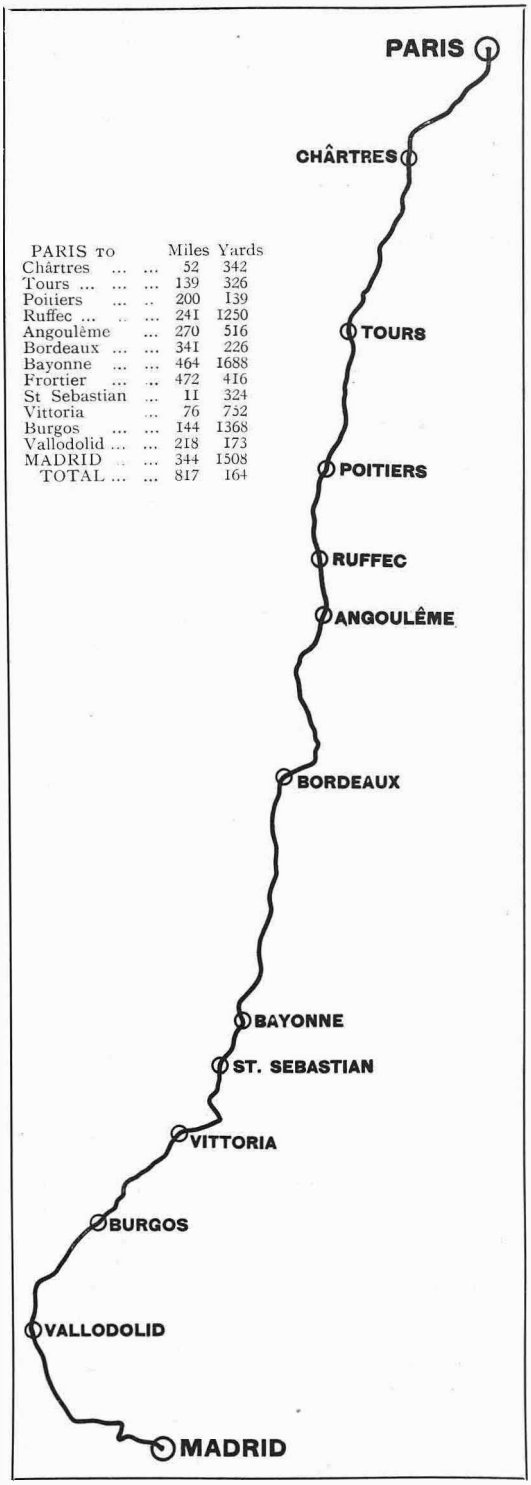
The total number of competitors was forty-four, made up as follow: Five steamers, fourteen petrol cars weighing under 2,000 lbs. and varying in horse-power from 5½ h.p. to 16 h.p., seven petrol cars weighing over 2,000 lbs. of 16 h.p. to 20 h.p., ten petrol cars fitted with tonneau bodies ranging from 12 h.p. to 26 h.p., four electric cars from 3 h.p. to 6 h.p., and four motor bicycles of 1¾ h.p.

—HUGH DOLNAR.

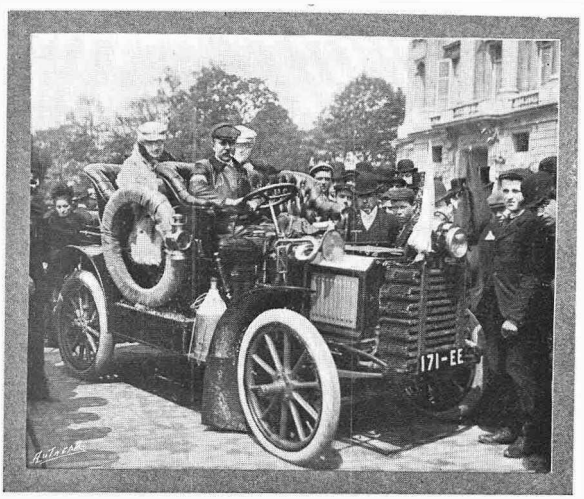
CONTINENTAL NOTES AND NEWS.

Autocar Trials.

The Commission of the Municipal Council of Paris having charge of the traffic arrangements have been engaged for some months upon the framing of a new set of automobile regulations, and, as stated last week, the members accepted an invitation from the Automobile Club of France to be present at a series of trials which were to be held for their special behoof, with a view to showing that, in appealing for more liberty as to speed, autocar owners were not asking for more than they could legitimately claim. About forty cars foregathered outside the Automobile Club premises to take the members of the Commission on their experimental drive. The owners of the cars, however, had placed too much faith in the traditional weather of the merry month of May, and as the majority of the vehicles were open tonneaus or phaetons, the unfortunate councillors learned, as the first result of the experiment, the advantages of adequate protection from rain, without which the ordinary citizen in top hat and morning coat is likely to present anything but a heroic appearance after a drive of an hour and a half in a solid downpour. If the councillors could have risen above any question of comfort in the exercise of their duty, they would have welcomed the rain as a means of increasing the severity of the trials. The cars were allowed to be driven as fast as they could be conveniently steered through the traffic. They carried distinguishing marks, so that the police should not interfere. The object of this test was to show that even at the highest speeds the cars could be driven all over the city without the slightest danger. They all went over a route, taking in the busiest streets and most dangerous crossings, of a length of about twenty-five miles in an hour and a half, though, of course, a good deal of time was lost through stoppages on account of the traffic. There was not a single accident during the whole run. One of the councillors who had noticed the way in which the car slipped through the lines of vehicles travelling at all sorts of speeds, remarked that the high speed of an automobile was an actual element of safety. In the afternoon the councillors were driven to the Bois de Boulogne, where the experiments were continued. First, Baron Henri de Rothschild on his 60 h.p. Mercedes showed how a high-powered car could be stopped. He approached on the third speed, which means something like fifty miles an hour, and at a signal put down the brakes, when the car skidded on the wet road for a distance of thirty-five yards. In view of the speed and the weight of the car, as well as the state of the road, this was very satisfactory. M. Journu then drove his De Dion Popular by the side of a horse-drawn cab at well within the legal limit of speed, and at a signal both stopped instantly, so that neither had an advantage at very low speeds. The cabby looked very well satisfied with himself, but the gleam of pleasure passed out of his countenance at a second attempt, when they were ordered to travel at a faster pace, for while M. Journu stopped in two yards, the horse was only pulled up in five or six. Then a brougham with a thoroughbred horse was tried with the car, the former going at a brisk trot and the car keeping pace, and at the signal the autocar was stopped in three or four yards, while the horse was not pulled up in less than ten yards. Both the cab and the brougham were then timed over a hundred metres by the Mors electrical timing apparatus, when it was proved that the cab travelled at thirteen miles an hour and the brougham at fifteen, the latter being just twice the speed allowed for autocars in the city. This was a revelation to the councillors, as well as to a good many other people, who are so accustomed to the trot of a horse that they do not think it goes so fast as it really does. The trials wound up with



PARIS TO	Miles	Yards
Châtres	52	342
Tours	139	326
Poitiers	200	139
Ruffec	241	1250
Angoulême ...	270	516
Bordeaux	341	226
Bayonne	464	1688
Frortier	472	416
St Sebastian ...	11	324
Vittoria ...	76	752
Burgos	144	1368
Vallodolid	218	173
MADRID	344	1508
TOTAL	817	164



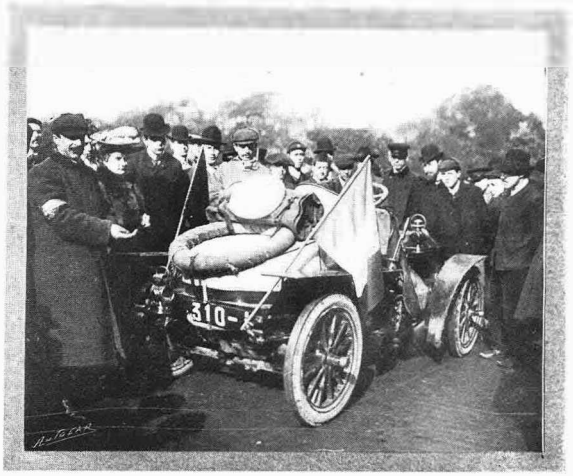
M Vendel's 20 h p Darracq tonneau starting for Madrid in the tourists' section.

the throwing of dummies and all sorts of obstacles in the way of cars travelling at different speeds, but they all avoided them by steering round the dummies, and this apparently impressed the councillors more than anything else. The trials were of the greatest importance, because they may be expected to leave a considerable impression upon the councillors, who seem really desirous of giving automobilists every reasonable liberty; and it is to be hoped that the experiment will have the effect of raising the limit of speed or suppressing it altogether.

The Tourists' Caravan.

The Paris-Madrid automobile demonstration opened on Wednesday of last week with the start of the tourists, of whom about fifty left the Place de la Concorde, each adorned with French and Spanish flags and carrying a good deal of impedimenta for the journey. A large number of the passengers were ladies, mostly attired in light dust jackets and hoods, with the face protected by an ordinary veil. The French lady automobilist is evidently beginning to think that it is not necessary to conceal her charms behind goggles and other contrivances, or, if she uses them, she keeps them for the country roads. The route is divided into eleven stages, as follow: Paris, Pougues, Royat, Agen, San Sebastian, Bilbao, Vittoria, Burgos, Valladolid, Salamanca, and Madrid.

Madam Clarke's double phaeton Renault.



M. Marcel Werner's 15 h.p. Meran and Gervais.

The tourists are merely required to pass through these towns, and can cut up some of the longer stages into two, if desired. No account is taken of the times, as experience in previous years has shown that this merely encourages the drivers to race, and the event, therefore, is regarded simply as a tour, when all the owners taking part in it will receive certificates in the event of their reaching Madrid in a reasonable time. So far as they have gone, the tourists do not appear to have been too well favoured as regards the roads, which have suffered a good deal from the heavy rains; but, nevertheless, they have had plenty of compensation in the fêtes and receptions organised on their behalf in the different towns, while the country they are passing through offers plenty of chances of pleasant excursions.

Paris-Madrid.

Excitement concerning the great race grows daily. The entries exceed three hundred, and when certain eliminations have been made the total will still be 277 cars and cycles, some seventy of the entries being in the cycle class. Last year the total entries for the Paris-Vienna were 205. The official list is not yet finally verified, but among the Englishmen driving are Mr. Jarrott, who is drawn No. 1, and will drive an 80 h.p. De Dietrich, Mr. Mayhew his Clipstone Napier of 35 nominal h.p., Lieut. Cummings a

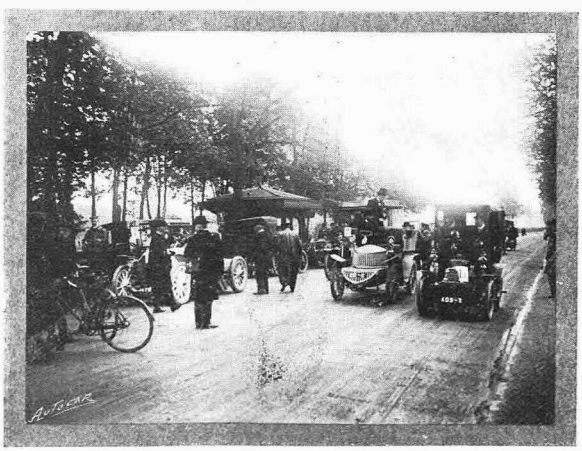
Comte de Pinha Longa on his 20 h.p. Charron, Girardot, and Voig car.

A stopping test between an autocar and a horse-drawn landau at the recent demonstrations in the Bois de Boulogne. (See page 602)

50 h.p. Wolseley, Mr. Arthur Ducros a Panhard, Mr. Weigel a new 40 h.p. Clément racer, Mr. L. Delaney a De Dietrich, Mr. J. A. Holder a 20 h.p. Panhard, Mr. Austin will have another 50 h.p. Wolseley, while we believe two other Wolseleys will be driven by Messrs. Giring and Leslie Porter respectively. Last, but by no means least, the Hon. C. S. Rolls on one of the big 85 h.p. Panhards. There are other Englishmen in the race, but up to the time of writing we have not yet come across them. It is stated that the starters will be at least 250—half of them large cars, half in the light and voiturette classes, while the balance of fifty will be motor bicycles, but this is more or less of a guess. In any case, the start at Versailles will be a long function. Mr. Jarrott will be sent away at 3.30 a.m. Next to him will be the Chevalier De Knyff, and so on, at minute intervals, right through the two hundred; but the fifty motor bicycles will be sent off in pairs. This means approximately that the last starter will not leave until about 7.15 a.m.

The Belgian National Circuit.

The Belgian National Circuit finished up last week with a series of trials at Namur, including a kilometre speed test over the kilometre and a climb up the Citadel Hill, over a distance of 2,800 metres. Baron Pierre de Crawhez won the flying kilometre on a Panhard car in 1m. 16⅘s., beating Criquelin on a C.G.V. car by ⅗s. The motor cycles did remarkably well, two Minervas, ridden by Elskamp and Flamand, covering the kilometre in 1m. 3s. and 1m. 8s. respectively. A Minerva motor cycle, ridden by Flamand, also did the best time in the hill-climbing contest, this machine being driven up in 4m. 9s., while Langlois, on a Vivinus car, was second in 4m. 36s. The time of Baron Pierre de Crawhez was 5m. 1s., and Hombach, on a Vivinus, and Criquelin both took less than 6m. The results for the whole circuit were calculated by points, 1,500 being the maximum for the five days' running, fifty points for each part of the vehicle, twenty-five points for the tyres, one point per kilometre in excess of thirty kilometres an hour in the kilometre test, and two points per kilometre above thirty kilometres an hour during the entire run. Baron Pierre de Crawhez (Panhard) secured the highest total with 1,902 points, and then came Van Lengendonck (De Dion-Bouton), 1,872 points; Francotte and De Raczinski (De Dion-Bouton), both with 1,849 points; Hombach (Vivinus), 1,817 points; Opperman (Malevez), 1,776 points; Criquelin (C.G.V.), 1,752 points; and De Lunden (De Dion-Bouton), 1,413 points.



Some of the cars at the demonstrating before the Municipal Council of Paris.

Stopping Baron Henri de Rothschild's Mercedes at fifty miles per hour in the stopping tests, before the Municipal Council of Paris.

MOTOR VOLUNTEER CORPS.

The duty for General Oliphant commanding the Home District between the War Office and the Agricultural Hall last week was carried out by Mr. Henry Edmunds.

Amongst other items worthy of note, Captain Skeffington Smith, D.S.O., adjutant of the corps, conducted General Oliphant and his staff to Caterham on the occasion of the inspection of the barracks there; while Lieutenant-Colonel Mayhew, commanding officer of the corps, drove General Lord Grenfell, G.C.B., etc., and staff to Gravesend for the inspection of the forts. On the 8th inst. the first enrolment of members took place, when a large number of gentlemen officially entered His Majesty's service.

Correspondence.

The Editor is not responsible for the opinions of his correspondents.

A TYRE QUESTION.

[2972.]—This question of tyres and the danger to the occupants of a car in case of a burst is not solely one of manufacture, and it would be unfair to the manufacturers to publish any such a list as that suggested. Too high a speed, especially upon curves, imposing enormous strains upon the material of which the tyre is composed, is a very frequent cause of the trouble, and I fear few of those who favour speed ever give a thought to the strains imposed and the risks run. Then, again, the specious argument for equal wheels, viz., that when a back tyre is nearly wore out it may be changed over with that on one of the front wheels, is one of the most insane propositions ever put forward in cold blood. If a tyre is nearly worn out it will burst much more readily than if otherwise. A burst tyre on a back wheel, even at speed, does not necessarily mean an accident, but, unless the pace be quite moderate, a burst of a front tyre means almost certain loss of control, and *that* may mean anything according to local surroundings.

HENRY STURMEY. F.R.P.S., Hon. M.C.E.I.

THE CONTROL OF MOTORS.

[2973.]—There appears to be no doubt that the three-cylinder engine has come to stay, also that the engine control will be through mechanically-operated valves; as in steam engine practice, the old throttle governing gave way to "automatic cut-off." I also think that before long we shall see a great increase in the use of epicyclic gear.

We have latterly read reports of the performances of various cars whose engines are so elastic that they can crawl through traffic on their high speeds—of course, a novice would say, "Why have the lower speeds?"

From reading reports of the Chenard and Walcker two-cylinder car it is evident that the "variable cut-off" control gives a great range of speed, etc., and I understand that the crank pins of this engine are set in line, cylinders firing alternately, thus giving a more even drive.

Another similar example is the Wolseley, where a great amount of flexibility of drive is obtained with the ordinary throttle.

Therefore my contention is, with an elastic engine, why keep all the gearing which we should like to do without? I believe, therefore, that for good-class medium-powered cars (10 to 12 h.p.) we shall have three-cylinder engines, with hand-controlled variable cut-off gear, and fitted with two speeds only (and reverse), and I am inclined to think that the epicyclic gear will be the "gear box," the gear being controlled by standard pedal release between engine and car.

While on the subject of standard control, an article on which recently appeared, I fully agree with your remarks *re* same, but when one make differs in its various sized cars as follows—change speed lever working opposite ways, clutch and brake pedals in opposite positions, throttle and sparking levers ditto in addition to working opposite ways—what are we to do?

I believe if the Duryea car were fitted with "standard control" we should have heard much more of it than we have at present. AGRAT.

A TRIAL OF A NEW CAR.

[2974.]—There is no greater pleasure than that of trying a new car, and I never lose an opportunity of availing myself of a chance when it presents itself. I lately had a ride on a 15 h.p. Charron-Girardot four-cylindered car, and was much struck by its quietude in running and general absence of vibration. The engines are admirably balanced, and their flexibility is a distinctive feature. A butterfly valve is fitted to the inlet pipe, which throttles the supply of mixture. It allows the car to be driven on the third or fourth speed at the rate of a few miles an hour if desired, and by pressing the foot on the small pedal connected with the valve it picks up at once. This pedal can also take the place of brakes on some occasions, as by raising the foot the gas mixture is throttled, thus causing the car to slow up immediately. The utility of such an arrangement is enormous in traffic, and renders the Charron peculiarly easy to handle. Ball bearings are employed throughout, the balls being of a large size to ensure smoothness and ease. The car is particularly well sprung, and, in addition to the customary elliptic springs, a transverse one is affixed to the back of the chassis, which absorbs road shocks, and ensures extreme comfort to the passengers. Four speeds and reverse are fitted, all actuated by a single lever, and the hand-brake is of the expanding type and very powerful. The car impressed me most favourably, and it is one which has leapt into public favour at a bound.

MARY E. KENNARD.

LIFE OF TYRES.

[2975.]—I shall be glad if any of your readers who are users of Goodyear tyres will inform me as to their record. Mine has been—

1	cover		1,400 miles
1	,,	under	1,400 ,,
1	..	under	3,000 ,,
1	,,		3,000 ,,

all of which were rendered useless by bursting, which the makers say they cannot remedy. E. H. HEPPER.

LEGISLATION.

[2976.]—Mr. F. Strickland does not object to numbering because he is not proposing to break the law. I object to it for the same reason. I object to the possibility of my number—say 1,171—being "booked" by a constable who sees car No. 1,111 pass in a cloud of dust, and to the probability that some day I may receive a summons for "furious driving" at a time and place I have forgotten the incidents of and have no means of proving my innocence. I object, also, to have my private carriage disfigured and labelled like a hired conveyance. If we *must* have identification, I do not object to names. We put names on our boats and yachts. *That* is not objectionable. Moreover, a name will be read quite as accurately—more accurately—than a number when going fast. But why require this at all? Earl Russell's suggestion of a certificate, or rather of a *license*, will be a greater preventive of excessive speed than all the numbering. A certificate of proficiency is of no use. *It is the man who presumes on his proficiency who is the cause of the trouble to-day.* The *license* should be issued upon application, and should be to *use*—not necessarily to *drive*—a car. Then abolish the speed limit or give us a reasonable one—say twenty-five to thirty miles an hour—administer it with common sense, endorse the license of anyone offending, and cancel it altogether upon a second or third offence. The habitual and intentional defiers of all the amenities of the road are, after all, a limited few, and a few selected men on motor bicycles could be relied on to track them down if they refused to stop, without labelling all the law-abiding lieges in the land. The present prospect of numbering is undoubtedly checking purchases of cars to an enormous extent.

HENRY STURMEY. F.R.P.S., Hon. M.C.E.I.

[2977.]—I notice that your correspondent, Mr. F. Strickland, in *The Autocar* for May 16th, objects very strongly to Earl Russell providing in his proposed bill a clause for the proper identification of motorists. He says: "He (Earl Russell) provides in his bill what he professes to consider very objectionable in Mr. Montagu's." Now, I am quite sure Earl Russell did nothing of the sort. It is not the actual *numbering* of the cars—I am convinced of it—to which both he and the majority of motorists object. It is that, according to the terms of Mr. Montagu's bill, which leaves the size of the number or name-plate to the discretion of the Local Government Board. The cars might have been obliged to bear a number of such dimensions as would entail the serious disfigurement of the vehicles. No motorist, except a few fanatics on the subject, really objects to a small number plate placed inconspicuously on his car, provided only he be allowed to do his thirty miles an hour average, but he certainly does object to his car being made a perambulating advertisement of his identity. Earl Russell opposed not the actual *numbering*, but the chance of the *disfigurement* of the vehicle, which disfigurement his own bill provides against.

Again, Mr. Strickland appears to have very strong objections to the clause in Earl Russell's bill with regard to the "certification" of motorists. He says that this would "place the position of chauffeur (?) in the hands of a closed profession, with, of course, a great increase of wages." In the name of all that's wonderful, may I ask why? Cannot the car owner himself drive the car

competently enough to merit a certificate? Of course, he can. I know myself many car owners who always take the wheel themselves when out for a spin, and I do not think it is at all presumable, as he says, that one would have to go to London for the certificate. Could there not be competent and appointed judges on the private track to see to the granting of the required permission to drive?

He says that "no accident that I know of would have been prevented by their use." There is only one kind of accident that the law can provide for, and that is one that occurs through the carelessness of the persons concerned; and Earl Russell's bill, in proposing that certificates should be refused for *reckless driving*, does provide for this. As regards what he says about it being awkward to have to stop and turn out one's pockets when required by a policeman to show one's certificate, I do not consider this as having any weight as an argument at all, as the certificate might be easily placed on the dashboard in a little frame, where it could be easily seen by the policeman, and one need not turn out one's pockets at all. Besides which, policemen would be no more fond of standing in pelting rain on the off-chance of catching a motorist without a certificate than they are at present of hiding in a damp ditch to catch a motorist going a little faster than twelve miles an hour. Policemen stop cars now on the pretext of exceeding the legal limit quite as often as they would on the pretext of examining the certificate.

G. A. ARNOLD.

COMPARATIVE COST OF FUEL.

[2979.]—Just before I left South Africa I saw in *The Autocar* that you were offering a prize for a satisfactory paraffin carburetter. To show what a saving this would be in running a motor car with paraffin in the colonies I am enclosing details showing the cost of petrol in South Africa. I suppose makers are too busy catering for the home trade to trouble about the colonies.

COST OF PETROL.

	£	s.	d.
500 gallons at 9d. in England	18	15	0
100 drums at 4s. 6d.	22	10	0
Freight and dock dues	29	1	8
Insurance	7	17	10
	£78	4	6

This works out at a little over 3s. 1d. per gallon. The drums are practically valueless in South Africa. Paraffin costs 1s. 1d. per gallon in South Africa.

H. DRYBURGH.

SIDE SLIP AND SKIDDING.

[2980.]—In view of the many lamentable accidents to motor cars and their users, in all of which side slip, skidding, or swerving appears to play an important part, would it not be well if the whole question of car construction were reconsidered, as it is quite evident that some constitutional alteration must be made if skidding is to be effectively prevented?

Up to now attempts have been made to overcome it by the use of corrugations upon or the application of various devices to the tyres, but no marked success seems to have attended their use.

I have long considered the matter and can arrive at no other conclusion than that a car to be safe must not only be steered by the front wheels, as is at present customary, but should also be driven by these wheels instead of the back wheels, so that the weight of the car is pulled by the motor wheels instead of being pushed by them. If two vehicles were employed, one to propel the other, no one would dream of putting the idle vehicle in front of the tractor vehicle, as road resistance and other retarding influences would soon swerve the idle vehicle round if it were free, and place it behind the active one, which would then pull it in a natural manner. In a similar way the same thing is always trying to happen in a motor car when driven, as is at present usual, by the back wheels, the greater part of the bulk or weight having a tendency to place itself behind the tractor wheels. In other words, there is always a tendency for the car to swing round and reverse itself. With the greater part of the weight in front of the driving wheels no one need be surprised at car turning round on greasy roads or under other adverse circumstances. In the photograph in your last issue illustrating the scene of the recent Norbiton accident, such a reversed car is shown.

With a car driven as I have suggested, as well as steered from the front wheels, the bulk of the weight and the length of the vehicle are in their proper position, that is, behind the driving wheels, and there is absolutely no tendency for the car to swerve.

A serious result of the disinclination of the front of the car to keep in front when it is driven from the rear is that the steering wheels often leave the ground, with the result that steering control is lost while the rear driving wheels continue to urge the car forward. With a front driven and steered car the wheels could not leave the ground, but even if they could the driving would at once cease.

The rear wheels, or the trailing part of the vehicle, should be fitted with brakes when the driving wheels are in front.

Probably various mechanical difficulties would have to be overcome to enable front wheels to be used for both steering and driving, but nothing that would present insuperable difficulties to our engineers and car builders.

J.B.

SUMMARY OF SOME OTHER CORRESPONDENCE.

THE QUARTERLY 100 MILES TRIAL.—The Weston Motor Syndicate, in reply to Mr. de Wilton's letter, point out that the Automobile Club have decided that it is perfectly legitimate for the engines to be stopped downhill, and that a non-stop trial is one in which the wheels do not cease to revolve. To remove any misconception they add that when the engine was stopped they pointed it out to the observer, as it was a practice usual in all the French consumption trials. In conclusion they challenge Mr. de Wilton's statement that the engine was stopped for twenty-five per cent. of the run, as they maintain that the club 100 miles route would not permit this to be done if the legal average was to be maintained, as there is nothing like twenty-five miles downhill on the road.

THE KREBS CARBURETTER.—The Duryea Company state that Mr. C. E. Duryea patented a suction-operated air valve (spring controlled) in 1900, and fitted it to a number of cars built in that year. It was relinquished because they found it was no advantage for their engines.

A LONG SINGLE-HANDED DRIVE.—The Motor Car Co., in referring to Captain Deasy's drive recorded last week, point out that the record of their 10 h.p. Decauville, Edinburgh to London, recorded in *The Autocar* of June 28th, 1902, was an absolute non-stop. That is to say, the engine was never stopped once, and there were no tyre stops, and, therefore, the Decauville still holds the world's record of the longest non-stop run ever made. They also ask why the Rochet-Schneider engine was stopped for the reverse gear to be put into action.

BURSTING OF TYRES.—Referring to Mr. T. L. Plunkett's letter published last week, the Collier Twin Tyre Co. point out that the Collier tyres are attached in such a way that in case of punctures or other bursts it is impossible for the tyre to leave the rim. Thus the danger referred to by Mr. Plunkett is entirely overcome.

The Sirdar Rubber Co., referring to the Kingston Hill accident, mention that their Buffer solid rubber tyres are suitable for speeds up to forty miles an hour, as they have a specially constructed high-speed section, which is perfectly safe at that speed, and which, of course, there is no possibility of bursting. Not only so, but they can easily be fitted to any existing wheels in a few hours.

On the same subject Mr. Bengough, whose sheet steel tyre band we referred to recently, maintains that if these bands had been fitted to the tyres of the car in which Lord Alan Percy and his friends were driving at the time of the Kingston Hill accident, the back tyres would not have burst, as the hoop would have caused the strain to be distributed throughout the tyre, and would not have concentrated at the point of contact with the ground.

MOTOR CARS.—Referring to Mr. O'Gorman's lecture in which he gave a rough table showing that broadly speaking the higher the price the higher the speed and the greater the hill-climbing power of the car, the Utile Motor Manufacturing Co. draw attention to their car, known as the Utile Simplex, which they claim will do all that the £300 car mentioned by the lecturer will accomplish at half the price, the great feature of the vehicle, which is driven by an 8 h.p. De Dion engine, being a system of transmission which gives a direct drive on all speeds.

Flashes.

Yet another Englishman will drive in the Paris-Madrid race. Mr. Louis Delaney, the chief engineer of the Burlington Carriage Co., Oxford Street, W. (who are the authorised agents of Messrs. De Dietrich in this country), will drive one of their splendid cars in this race. He will be accompanied on the car by that popular member of the Automobile Club, Mr. Jocelyn Grant.

* * *

As the result of a "special effort" on the part of the police, several motorists were summoned at King's Heath recently. It was stated that an inspector was armed with a "fly-back centre second stop watch, specially tested for the purpose." There is a distinct suggestion of humour with regard to the official's timing apparatus having been specially tested for the "purpose."

* * *

Messrs. Thos. Haigh and Co., of West Street, Sheffield, write us that Mr. Harvey Foster, whose 50 h.p. Wolseley we illustrated last week, bought the machine through them, they being the Sheffield agents for the Wolseley make.

* * *

The new garage which has been opened by Messrs. Grose, Ltd., at Pike Lane, Northampton, will prove a boon to motorists driving from the North to the Metropolis. Repairs, petrol, and accessories are alike obtainable on the premises.

* * *

A correspondent writes from Mold, N.W., recommending the Hop Pole Hotel, Chester, as a good halting place for automobilists. The proprietor has just had an excellent inspection pit constructed and his garage lit with electric light. Petrol and lubricating oil are held in stock.

* * *

It has been decided, in connection with the club quarterly trials, that there is no objection to the engine of a car running in the trials being stopped downhill, *i.e.*, so long as the car itself does not stop the driver is perfectly entitled to take advantage of gravity when he can. This is the same rule as at present obtains in the French trials.

* * *

The tactics of the police in and around Garstang, in Lancashire, are no less peculiar than those of their brethren in other parts of the kingdom. Recently, as the result of traps set by them, eight motorists were brought before the local magistrates and fined. The production of plans showing that in one instance a deserted stretch of a mile and a quarter was selected for a trap, and that in another instance a policeman hid behind a brick wall, through which, of course, he was unable to see, did not weigh with the presiding justices, and it will be well for motorists in the neighbourhood to bear these facts in mind.

A garage, with accommodation for two hundred cars, has been opened at Birkenhead by Mr. William Lea, of Berry Street, Liverpool. The new place is immediately facing Birkenhead Park.

* * *

At a meeting of the East Sussex County Council, the Chief Constable asked that a motor car be purchased for his use instead of a horse and cart. The Council appointed a committee to consider the matter.

* * *

At Southport, on July 24th, a series of speed trials will be held on the asphalt track along the front. The meeting is being promoted by the Liverpool Self-propelled Traffic Association, in conjunction with the Southport Entertainments Committee. The Mayor of Southport, Mr. T. T. L. Scarisbrick, is an enthusiastic automobilist, and as far as can be stated so early, the meeting bids fair to be a great success.

* * *

Mr. J. Holder, the well-known Birmingham automobilist, will drive a 20 h.p. Panhard in the 650 kilogs. class of the Paris-Madrid race. He will be accompanied by Mr. T. C. Aveling, the hon. secretary of the Midland Automobile Club.

* * *

Maurice Bushill, of the South Deal Motor Works, informs us that he has just added a garage to his premises, at which the charges for caretaking, washing, etc., are moderate.

* * *

What should prove a very useful booklet is being compiled by "The Electrical Times, Ltd." It takes the form of a map directory of England and Wales, in which places where there are facilities for charging accumulators are indicated and the addresses given. The address of the compilers is 6, Bream's Buildings, E.C., and they ask the assistance of motorists generally.

* * *

The automobilists of New York State are in a bad way at the moment, and deserve the sympathy of their brethren throughout the world. A Bill has passed the Legislature which enacts that no foot passenger or vehicle shall be passed at a greater speed than eight miles an hour, and, further than that, the speed must be reduced to the same limit within half a mile of a post-office. On a signal from the driver of a horse they must not only stop the car but also the engine. As they may not pass another vehicle at more than eight miles an hour, it is difficult to see how they can pass some at all. Not only so, but they are restricted to five miles an hour when passing schools or churches during the hours of lessons or services. There is naturally a great outcry about it, and we expect the matter will soon be rectified. Rightly or wrongly—we are unable to say which—there is a very general tendency to blame Mr. Shattuck, the president of the Automobile Club of America, who is stated to have pledged the club to support the Bill.

"THE AUTOCAR" DIARY.

May 23.—Scottish A.C. Hill-climbing Competition, Lanark.
,, 23.—Wolverhampton and District and Midland A.C.'s Inter-club Meet.
,, 23.—Southampton County M.C. Drive to Swaythling.
,, 24.—Paris-Madrid Race starts from Paris
,, 25 30.—Hanover Alcohol Van Trials.
,, 27.—Paris-Madrid Race finishes.
,, 28.—Automobile Demonstration at Hertford.
,, 30.—Wolverhampton and District A.C. Drive to Ludlow.
,, 30.—Sheffield A.C. Week-end Drive to Bridlington.
June 1.—A.C. de Dorelogne Hill-climbing Contest.
,, 13.—Scottish A.C. Western Section. Drive to Tarbet.
,, 13.—Manchester A.C. Run to Nantwich.
,, 13.—A.C.G.B. & I. Gymkhana at Ranelagh Club.
,, 13.—Sheffield A.C. Drive to Wentworth Castle.
,, 15.—Entries close for Circuit de l'Argonne.
,, 15-20.—International Congress on Automobilism at Paris.
,, 18.—Mont Ventoux Hill-climb & Water Consumption Trial.
,, 18-20.—A. C. de France. Three Days' Fête.
,, 20.—Manchester A.C. Hill-climbing Competition.
,, 20-21.—Circuit des Ardennes.

It will interest motorists passing through York to know that a well-equipped garage has been opened at Davygate by Mr. H. J. Lloyd.

* * *

The 80 h.p. Star which has been bought by Mr. Cordingley has been entered by its owner for the Ardennes Circuit next month. It will be driven by Mr. Joe Lisle, and there is no doubt that its performance will be watched with the greatest interest by followers of automobile sport.

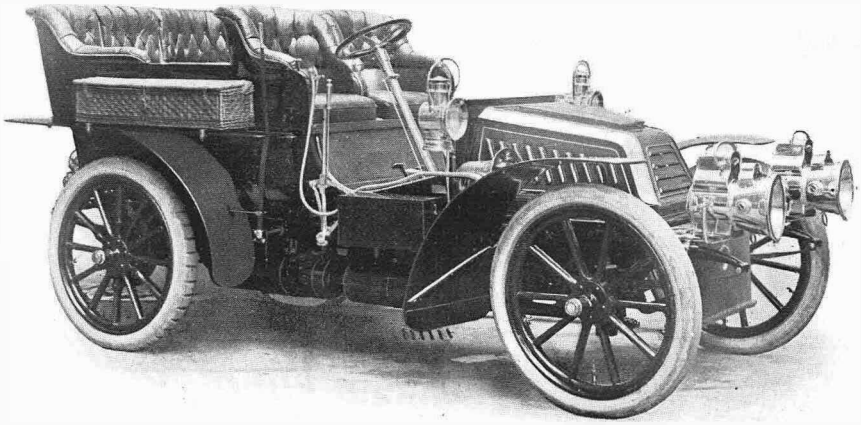
* * *

A scheme is afoot to *goudronne* (Anglice, tar) the entire length of the winding coast road between Cannes and Mentone, in order that the awful dust nuisance caused by the rapid and frequent passage of automobiles along this road may cease. It is certainly time something was done, as the dust at this part in dry weather, when motors are plentiful, as they always are during the season, is simply abominable—not only for pedestrians and horse drivers, but for the more sheltered automobilists themselves.

* * *

The President of the Local Government Board, speaking at Trowbridge on motor car law and suggesting reforms, described the twelve miles an hour limit as a farce.

After the successful drive to London from Glasgow in the trial last week, the 12 h.p. four-cylinder Argyll, which was the first of its class ever built, and which was driven by Mr. Govan, was sold at a high premium to Mr. C. D. Rose, M.P. for Newmarket.



One of the vehicles of which we spoke very highly at the last Crystal Palace show was the 16 h.p. Ariel, but we did not illustrate it at the time, so that the photograph we now reproduce of one of the latest pattern 16 h.p. cars will not be without interest, this particular vehicle being built for Mr. Thomas Pocklington, of Acton Vale. The special features of the Ariel design are the remarkable flexibility of the four-cylinder engine (which, while governed at 600 a minute, runs up to over 2,000), the particularly strong construction of the transmission gear throughout, and the ease of control, coupled with remarkably fine workmanship.

Owing to the softness of the macadam roads in the neighbourhood of Rufford Woods, the through service of motor lorries beween Liverpool and Blackburn, *via* Ormskirk, has, we understand, been stopped.

* * *

For striking two officers with a whip as they were proceeding along the Bath Road in a motor car, Joseph Flexman, of Gunnersbury, was fined £2, and also ordered to pay £3 in addition to costs. The Brentford Bench came to the conclusion that it was a very bad case, and required a severe penalty.

* * *

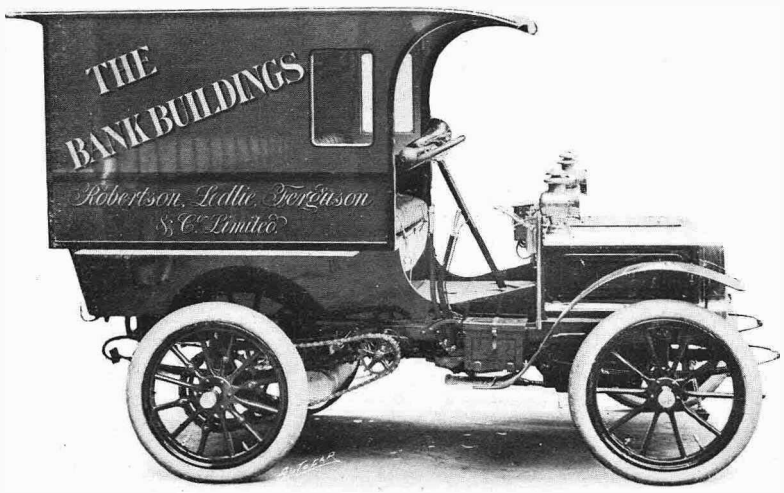
Messrs. Edge, Jarrott, and Stocks go to Ireland on the 7th prox., and save that the two last-named will hurry to the Continent for the Circuit des Ardennes, wherein Stocks will act as Jarrott's mechanician, the trio will remain in Ireland until the great race is lost or won.

* * *

Next week the Paris-Madrid race will be dealt with in *The Autocar* very fully. Special arrangements have been made for following the event throughout, and a fully illustrated account will be given in our next issue. The behaviour of the motor cycles will be separately watched and recorded in *The Motor Cycle*. This latter also will be an illustrated narrative.

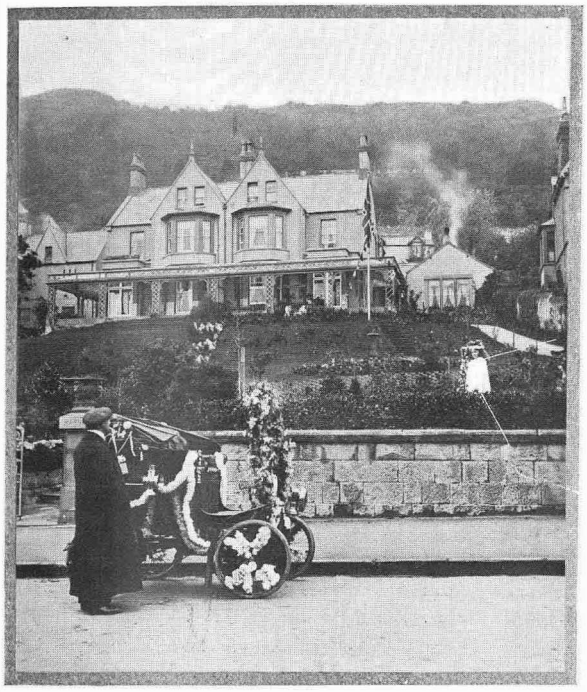
* * *

The Liverpool Road Carrying Co. have decided to make Blackburn their headquarters, the roads around this town being more suitable for heavy traffic.



A 10 h.p. Gladiator light delivery van. This is not a mere pleasure carriage with a box top put upon it, but all parts requiring it are specially made to stand the heavy work. With the good reserve of power provided a rapid pace can be maintained, so that the vehicle should prove of very great service to the enterprising Belfast firm, who have two more on order. The cars are painted in Post Office red, and are most effective in appearance. It is only a question of time, we are convinced, before all important business houses necessitating a rapid delivery of a number of parcels will avail themselves of motor vehicles.

In a short description of the 40 h.p. Chainless racing car given in the last issue of *The Autocar*, page 581, we stated that Mr. O. C. Selbach was the agent for the car in this country. This Mr. Selbach informs us is not correct, as he is the actual manufacturer.



The Llandudno May Day festivities are of very considerable importance locally. This year the May Queen selected was Miss Jeannie Burrow, Mr. Alfred Slater's daughter. Now Mr. Slater is an enthusiastic automobilist, and the owner of a trim little Locomobile, and it struck him there was no better way of conveying the May Queen from her home to the Grand Pavilion for the crowning ceremonies than by motor car, so he decorated it appropriately, and our illustration shows him awaiting the approach of the May Queen elect. We may add that the most enthusiastic ovation greeted the May Queen as she motored to and from the Grand Pavilion. It may be interesting to mention that the Locomobile in question has been driven well over 18,000 miles.

* * *

The Parsons Non-skid Co., Ltd., of 2, Queen Anne's Gate, Westminster, S.W., who have now turned out a very large number of non-skids both for cars and cycles under the Parsons patents, inform us that their rights for France and her colonies have been taken over by the Société Française de l'Antiderapant Parsons, 9, Rue de Rocroy, Paris, for a cash and share consideration, after very exhaustive and gratifying tests of the device. All orders for France and her colonies, therefore, hitherto supplied from London should now be sent to the French company as above, who are prepared to supply promptly, having commenced manufacturing these well-known non-skids on a large scale.

* * *

"Black Cat II.," Mr. Oliver Stanton's well-known 22 h.p. Daimler, has been sold to Mr. C. A. Pearson. Its place is being taken in Mr. Stanton's affections by an entirely new vehicle, to be christened "Sunny Jim," also a 22 h.p. Daimler, but embodying numerous improvements, conspicuous among which are its remarkable silence both when running and standing. Like Mr. Stanton's previous cars it has several special features introduced at his suggestion with which we shall deal at some later period. While speaking of Mr. Stanton it will be interesting to mention that he is no longer an American, having at the request of His Majesty become naturalised. Mr. Stanton is about to join the Motor Volunteers, and, of course, for enrolment in this corps a man must be an Englishman.

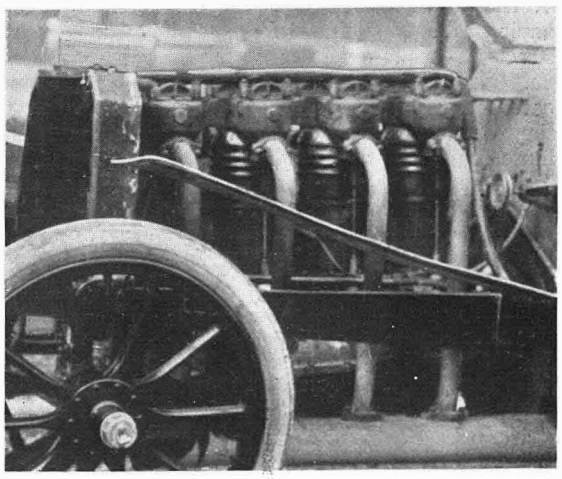
It is proposed that the Motor Volunteer Corps shall include in its scope the working of free and of captive balloons, as well as airships, and all the details of wireless telegraphy, and the supporters hope to obtain the co-operation of the Aero Club.

* * *

Alfred Herbert, Ltd., whose machine tools are used in so many motor works, are one of the firms in which all patriotic engineers are interested, as it was the first to demonstrate that labour-saving tools could be manufactured in England. Their exhibits of machine tools at various exhibitions have entranced many besides engineers, so that it will not be without interest to mention that they are still adding to their works at Coventry, which now employ nearly one thousand men. This firm, although not building motors, plays a very much more important part in the industry than is recognised by those not intimately connected with it.

* * *

The catalogue of the United Motor Industries still grows. The last edition covers new forms of jump spark devices, funnels, lubricators and tanks generally, test lamps, water-circulating pumps, and box spanners suitable for several of the best-known English and French cars. This type, which is known as "L'Auto Clé," is an improvement on the ordinary box spanner, as the handle is fitted with an universal joint, so that it can be worked easily round awkward corners; and, not only so, it contains a ratchet, so that when the spanner is once fitted to a nut it need not be taken off till it is screwed up or unscrewed, as the case may be. In fact, it is the most useful spanner that has ever been made, and its possession would save a great deal of time in performing many simple adjustments, particularly those in which any nuts which are at all accessible in the ordinary way have to be touched.



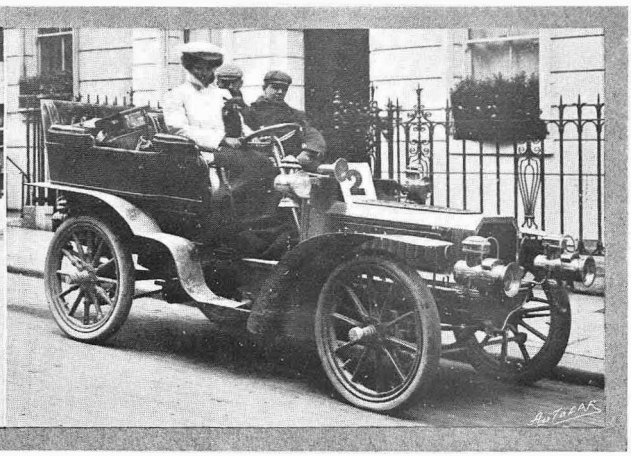
The engine of one of the new 85 h.p. Panhards. The inlet valves are mechanically operated. Although not shown in the illustration owing to the position of the camera, it is interesting to know that the engine is inclined, i.e., the forward end is lower than the back. This is to enable the flywheel, which is of very large dimensions, to be kept well clear of the road, and with the same end in view the whole car is somewhat down by the head. That is to say, the front end of the frame is rather lower than the back end. Three speeds are provided. The cooler is now the cellular type, the flanged radiator having been dispensed with on the racing cars. It will also be seen on reference to the other view of the car on page 598, that the frame is now of the pressed steel variety, and that the transverse front spring has been replaced by the old dumb irons and semi-elliptical springs.

THE GLASGOW-LONDON NON-STOP TRIAL.

SECOND DAY.

Photos.

No. 6. The 10 h.p. Wolseley, Mr. Prosser driving.



Argent Archer.

No. 2. The 12 h.p. Gladiator, driven by Miss Dorothy Levitt.

There is no necessity to add anything to our wired summary of the run from Glasgow to Leeds which appeared in our last issue. The start of the twenty-two cars which reached Leeds on Wednesday last week was made from that town on Thursday morning at a somewhat more civilised hour than had been the case on the previous day. In lieu of 3.30 a.m., the signal to go was 6 a.m., which nevertheless necessitated earlier rising than the majority of those who drove and rode in the cars were accustomed to. In place of 212 miles the task which lay before us was but three furlongs short of 191 miles, or, roughly, twenty-one miles less than on the previous day. At the hour of starting, matters overhead did not wear the rosiest of aspects, rain having fallen heavily during the night, making the streets in Leeds about as greasy as they well could be. Car drivers were obliged to exercise the greatest care, but even then we noticed more than one of the vehicles sideslip on the tramlines a good deal more than was at all comfortable to the passengers. Early as was the hour, the start nevertheless was witnessed by a large crowd, who, by the way, cheered Miss Levitt to the echo, as that plucky young lady moved off on her 12 h.p. Gladiator. We were accommodated with a seat in the tonneau of the Lanchester driven by Mr. Hartenfeld, and noted with considerable admiration the certain and easy way in which the slightest tendency to sideslip was counteracted by this skilful driver. Greatly to the relief of all concerned, the roads outside Leeds—at least, by the time Oundle was reached—were only damp enough to prevent the dust from rising, while the weather overhead grew lighter and clearer every moment. As a matter of fact, a better day could hardly have been for a long run; indeed, the roads farther south—at least, on the London side of Buckden—would have been the more pleasant for a good deal more rain. The motor cycle riders took things very gently coming out of Leeds; but as soon as they had dry soil beneath their tyres, they blazed away to the front, and for the rest of the day we saw but little of them. Thursday's run was child's play in the matters of surfaces and gradients compared with those of the day before; and when the Great North Road was struck at Doncaster, it was felt that the hardest part of our task was done.

En Route.

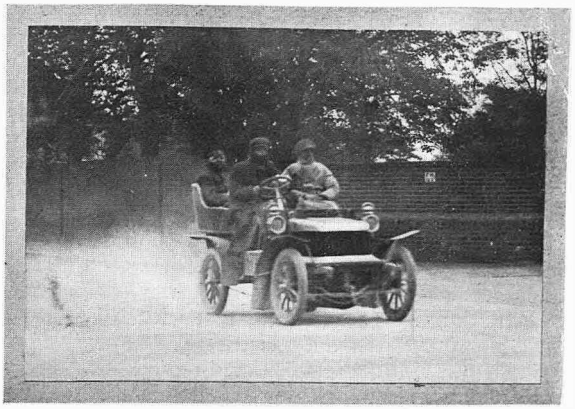
The itinerary was divided into five stages, viz., Doncaster, Newark, Stamford, Biggleswade, and London, and some remarkably fine examples of slow driving were in evidence in order that some of the cars driven somewhat carelessly in the early parts of each stage might not exceed the minimum time limits allotted for the passage of each division. Happy is the run that has no history, and, indeed, save for most delightful running, we have little or nothing to record. The cars passed and repassed each other to the accompaniment of the genial chipping of drivers and passengers, and all went merry as a marriage bell. The police, at least so far as

Miss Levitt's 12 h.p. Gladiator ascending Digswell Hill, followed by a Lanchester.

the counties of Yorks, Lincoln, and Rutland were concerned, were conspicuous by their absence; but as soon as Huntingdon was entered, it was felt trouble might be expected. Just south of Stamford, Mr. S. F. Edge was found with his 16 h.p. Napier, warning all and sundry that the road between the seventy-seventh and fifty-fifth milestones fairly bristled with police traps, and so everyone was on his guard. Jarrott led the *cortège*, for most of the cars had now closed up, and were running in close company; and to us who sat in the car behind him, it was most amusing to watch the manner in which this wily road veteran drove and prospected the road for police. A mile or so north of Norman's Cross he led us by some little distance, and we dropped slowly down a hill, and rounded a sharp bend by a house to find his car at rest by the roadside, and the road crack engaged in heated argument with blue-uniformed officers.

In a Police Trap.

It transpired that he had been held up by these officers on the count that he had driven over a certain space of road at twenty-two miles per hour; but upon being requested to verify their statement, they finally agreed that they might have made mistakes, and allowed the Ardennes winner to proceed scot-free. This confabulation permitted the unassailed passage of quite a number of the cars, although we believe that the officials, in order that they might not go hungry away, held up one or two of the vehicles subsequently. At Norman's Cross two more uniformed men stood vacantly grinning as we swirled by, but we did not learn that they became vicious. Between Biggleswade and Welwyn quite half the cars took the wrong road, proceeding *via* Baldock and Stevenage, in lieu of Henlow Crossing and Hitchin; but as the former route is somewhat longer and hillier, we do not think that those who travelled by the book have much to complain of. Upon arriving in London, the cars were checked off by Messrs. Smith and Joy, as they drove up to the door of the Automobile Club; and were, so soon as their particulars were taken and their observers taken in charge, sent on their way. Piccadilly was almost blocked by a large crowd, who watched the arrival of each begrimed and bespattered car with its load of equally begrimed and bespattered passengers with



No. 10. The 10 h.p. Argyll, driven by Mr. Douglas H. Whiteside

great interest, and remained expectant for quite a long time after the last competing car had run in.

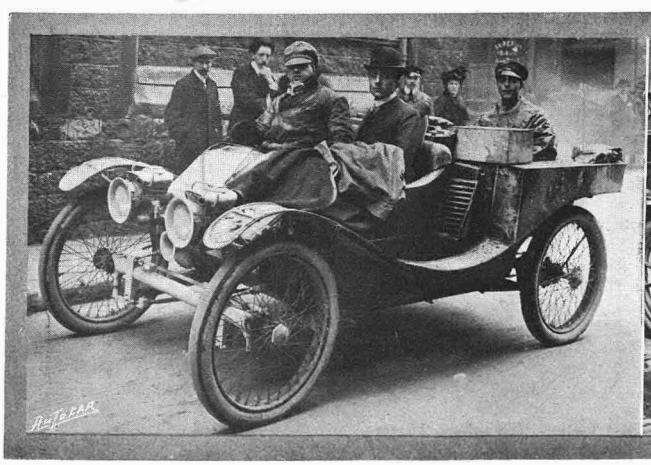
No one, we think, will deny that the Scottish Automobile Club generally and its active officials particularly, as well as the firms entering the vehicles, may be heartily congratulated upon this the second non-stop run promoted by them. Taking a line only through the event of last year, it speaks volumes for the advance made in the reliability of automobiles during the past twelve months.

Within the Time Limit.

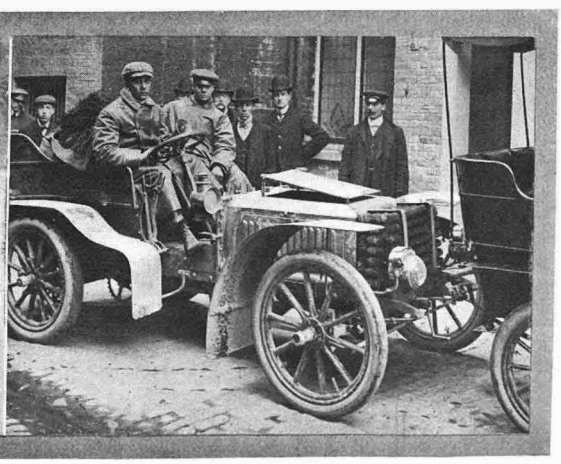
To speak by the hard and fast rule, it is more than gratifying to be able to say that out of the twenty-one cars which actually left Glasgow on the Wednesday morning, no less than nineteen reported themselves at the London club, all well within the maximum running time, on the following Thursday night. Of these, seven came right through without an instant's delay of any sort or description, these seven being as follow:

No. 5	10 h.p. Lanchester.
No. 8	10-12 h.p. Sunbeam.
No. 9	10-12 h.p. Sunbeam.
No. 19	12 h.p. Arrol-Johnston dogcart.
No. 21	12 h.p. Arrol-Johnston dogcart.
No. 22	10 h.p. Wolseley tonneau.
No. 23	12 h.p. Argyll.

To these seven may very fairly be added the 14 h.p. Chenard-Walcker and the 22 h.p. Rochet



No 4. The 10 h.p. Lanchester, driven by Mr. Hartenfeld



No. 3. Mr. Chas. Jarrott's 24 h.p. De Dietrich

and Schneider, which are robbed of an absolutely clean sheet by momentary driving stops only. It is hard lines, too, upon the entrants of the Gardner-Serpollet steam car that they should be penalised six minutes, the time taken in getting up steam before leaving Leeds; for had the run from Glasgow to London been made continuously, or had the car been garaged in a place where they would have been permitted to keep their fire going all night, they might not have lost these marks for steam raising. Tyre troubles, too, were few and far between, and much sympathy was felt for Miss Levitt that she should have met with this form of trouble so early in the second day. Indeed, of the nineteen cars, only four suffered any delay from tyre troubles on the entire journey.

The Official Report.

The following interim report has through the united energies of Messrs. Robert J. Smith and Basil Joy been already issued with regard to the performances of the cars in the above trial:

No. 1. Weston Motor Syndicate, 14 h.p. Chenard and Walcker tonneau, weighing 17½ cwts., with Dunlop tyres.—Driver, Walter G. Guttman; observer, Hugh Kennedy. Four passengers. The engine was accidentally stopped once, and for this one mark has been deducted. For all practical purposes, this vehicle may be considered to have made a non-stop run.

No. 2. Miss Dorothy E. Levitt, 12 h.p. Gladiator, weighing 15¼ cwts., with Dunlop tyres.—The fair entrant also drove; observer, S. Warwick. Three passengers. Stop for puncture, twenty minutes; stop to replace exhausted accumulator, one and a half minutes. This car, too, may be regarded as having made a non-stop run, for while the puncture cannot count against the mechanism, a run down or probably shorted accumulator might happen to anyone.

No. 3. Chas. Jarrott, 24 h.p. De Dietrich, weighing 19½ cwts.—Driven by entrant; observer, J. B. Talbot Crosbie. Three passengers. Jarrott suffered a seven minutes' stop owing to an air lock between spare and running petrol tanks, a one minute stop for accidentally arresting engine, and another stop for recurrence of petrol trouble two minutes.

No. 4. Lanchester Engine Co., Ltd., 10 h.p. Lanchester, weighing 19 cwts., with Michelin tyres.—Driver, Geo. Woolveridge; observer, J. Hunter Steen. Four passengers. Trial abandoned between Skipton and Leeds owing to breaking of reversing gear.

No. 5. Lanchester Engine Co., Ltd., 10 h.p. Lanchester, weighing 19 cwts., with Michelin tyres.—Driver, E. J. Hartenfeld; observer, A. F. Sinclair. Four passengers. Absolute non-stop run.

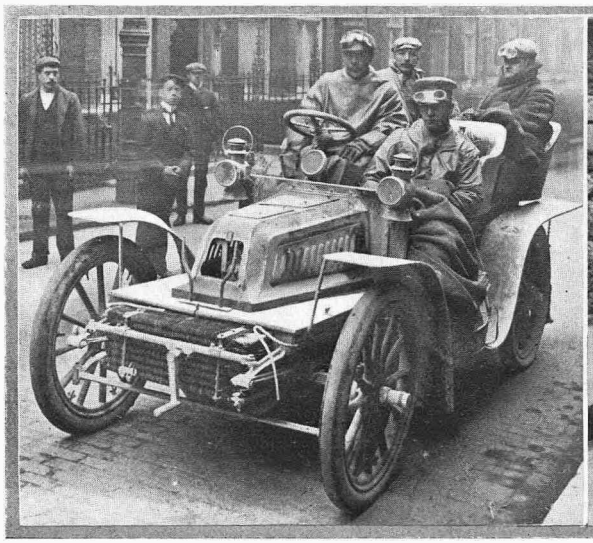
No. 6. Rennie and Prosser, Ltd., 10 h.p. Wolseley tonneau, weighing 19 cwts., with Continental pneumatic tyres.—Driver, H. Prosser; observer, Malcolm Black. Glasgow to Leeds three passengers. Leeds to London four passengers. Ignition stop four minutes.

No. 8. John Marston, Ltd., 10-12 h.p. Sunbeam car, weighing 16 cwts.—Driver, Thos. C. Pullinger; observer, Professor Hugh Galt. Four marks. Absolute non-stop run. Full marks.

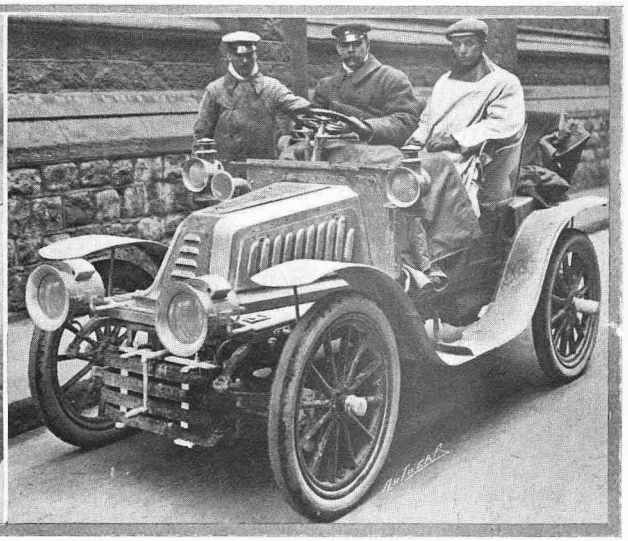
No. 9. John Marston, Ltd., 10-12 h.p. Sunbeam car, weighing 16 cwts., with Dunlop tyres. Driver, Jas. Reid; observer, T. A. Millar Brounfee. Absolute non-stop run. Full marks.

No. 10. Hozier Engineering Co., Ltd., 10 h.p. Argyll, weighing 13 cwts.—Driver, Douglas H. Whiteside; observer, Paul Brodtmann (Continental Tyre Co.) Three passengers. Puncture stop fifteen minutes; delay restarting engine at Leeds three minutes.

No. 11. Middleton and Townsend, 12 h.p. double phaeton (Gardner-Serpollet steam), weighing 32 cwts., with Falcounet compound tyres.—Driver, W. E. Townsend; observer, Jno. Reikie. Three passengers. Practical non-stop run, but car will lose six marks for getting up steam at Leeds.



No. 18. The 24 h.p. Georges-Richard.



No. 20. Mr. J. W. Stocks on the 10 h.p. De Dion.

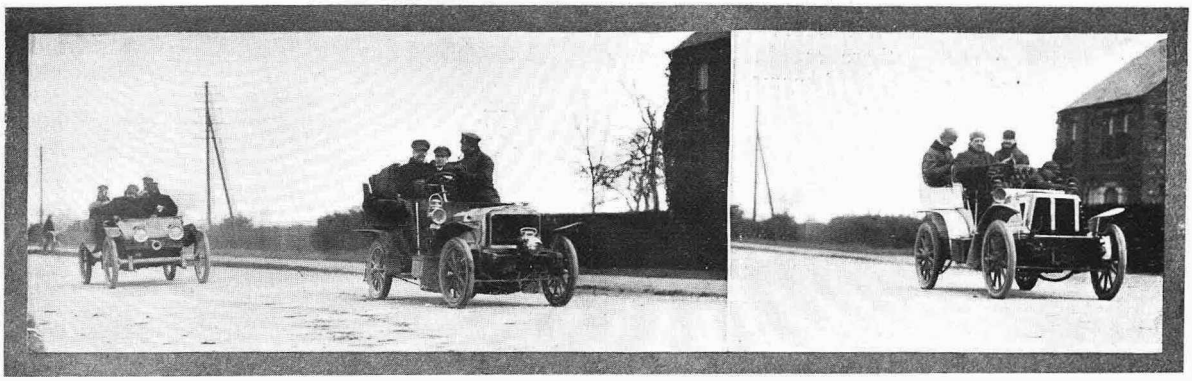
No. 13. Frank F. Wellington, Ltd., 14 h.p. Brooke tonneau, weighing 20 cwts.—Driver, Frank F. Wellington; observer, Lieutenant B. F. Taylor. Three passengers. Stopped for fractured speed lever fork forty-five minutes, and for two and a half hours to replace pump. Car withdrawn from competition at Kendal. Observer's report not yet to hand.

No. 14. Henry B. Hennuons, 9 h.p. Argyll, weighing 12 cwts.—Driven by entrant; observer, Harold R. S. Walford. Four passengers. Car withdrawn during trial. No report to hand.

No. 15. Captain H. H. P. Deasy, 22 h.p. Rochet and Schneider, weighing 20 cwts.—Driven by entrant; observer, F. A. Macquisten. Four passengers. Driving stop owing to leaving gear change too late on hill (half a minute). One mark deducted. Otherwise a non-stop run.

No. 17. Mann and Overton's, Ltd., 12 h.p. Georges Richard light car, weighing 13 cwts., with Clipper Continental tyres.—Driver, M. Ross Browne; observer, J. F. Muir. Three passengers. Tyre stop, twenty minutes; tyre pumped at Leeds two minutes; two punctures, twelve minutes each. Barring tyre troubles, a non-stop run.

No. 18. Mann and Overton's, Ltd., 24 h.p. Georges Richard light car, weighing 16½ cwts., with Clipper Continental tyres. Driver, D. Edwards; observer, J. M. Ross. A petrol tin containing water prepared for carriage on



Photos. *Argent Archer.*

Nos. 5 and 23. The 10 h.p. Lanchester and the 12 h.p. Argyll leaving Newark. No. 25. The 24 h.p. F.A.C., driven by Mr. Warren Smith.

the Serpollet steam car No. 11 was accidentally taken on board at Leeds; and not being previously discovered, was unwittingly turned into the running tank, causing a stoppage of three hours and twelve minutes. This was sheer bad luck, otherwise the car made a non-stop run.

No. 19. Mo-car Syndicate, Ltd., 12 h.p. Arrol-Johnston dogcart, weighing 24 cwts., with solid tyres.—Driver, Peter Mitchell; observer, Rev. D. Millar. Three passengers. Absolute non-stop. Full marks.

No. 20. J. W. Stocks, 10 h.p. De Dion-Bouton, weighing 15 cwts., with Dunlop tyres.—Driven by entrant; observer, Jas. Taylor. Four passengers. Stoppage of two minutes to refill tank; one minute to replace sparking plug.

No. 21. Mo-car Syndicate, Ltd., 12 h.p. six-seated Arrol-Johnston carriage, weighing 26 cwts., with solid tyres.—Driver, Thos. Wardell; observer, Will McWhirter, jun. Four passengers. Absolute non-stop run. Full marks.

No. 22. Thomas Shaw, 10 h.p. Wolseley tonneau, weighing 18½ cwts., with Continental pneumatic tyres.—Driven by entrant; observer, W. Campbell Houston. Four passengers. Absolute non-stop run. Full marks.

No. 23. Hozier Engineering Co., Ltd., 12 h.p. Argyll, weighing 17 cwts.—Driver, Alec. Govan; observer, Geo. Benson. Four passengers. Absolute non-stop run. Full marks.

No. 24. Glasgow Motor Co., 6½ h.p. Peugeot, two-seated, weighing 6½ cwts., with Continental pneumatic tyres.—Driver, J. A. Peacock; observer, R. Hunter. Two passengers. Ignition stop three minutes, two minutes, three minutes, and one minute. Puncture, fifteen minutes. Replaced trembler.

No. 25. Farman Automobile Co., Ltd., 24 h.p. F.A.C. tonneau, weighing 20 cwts.—Driver, W. P. Warren Smith; observer, C. J. Campbell Steen. This car has been disqualified.

More than one of the competitors in the trial have written to us expressing their high appreciation of the attention and courtesy shown them in Glasgow by Messrs. Rennie and Prosser, Ltd., of Mitchell Street, and in Leeds by Mr. Rowland Winn. We have pleasure in referring to the matter, as it will no doubt be of service to automobilists generally who may be touring near either city.

* * * *

We must admit to particular pleasure at the success achieved by the two 12 h.p. Sunbeam cars in the Scottish Automobile Club's Glasgow-London non-stop run, if only by reason of the very favourable opinion we formed of this machine when we reported upon its construction at length in our report of the last National Show at the Crystal Palace. Both Sunbeams ran through without any stop whatever, necessity or otherwise, and this, we fancy, cannot be said of any other carriage in the competition.

The Gardner-Serpollet Chief Depot point out that the Gardner-Serpollet which made a non-stop run was a standard pattern 12 h.p. car, built entirely at the English works, every part being standardised to English threads and gauges. Further, not a bolt or nut was loose at the finish of the 402 miles, and they consider, rightly, that this is a high test of the reliability of the English cars as now made, particularly when it is borne in mind that all four wheels were solid-tyred, and that the car with its full load weighed over two tons.

* * * *

The non-stop record of the 12 h.p. Argyll derives additional interest from the fact that the car was fitted with one of the Argyll thermo-syphon cooling bonnets. Not a drop of water was added during the whole journey, and when the vehicle reached London it was found that the bonnet would not take another pint of water. This is worthy of record, as it shows that the forced circulation by pump is not essential. The general idea seems to be that the water will get too hot, though how this can possibly be in light of the fact that only one pint was evaporated in four hundred miles we do not know. The forced and natural systems are entirely different. The forced depends on a rapid circulation, while

Photo. *Argent Archer.*

No. 19. The 12 h.p. Arrol-Johnston dogcart.

the efficiency of the natural or thermo-syphon depends on slow circulation. That is to say, the greater number of tubes there are in an Argyll bonnet the slower the circulation becomes, but as it gets slower it becomes more efficient. As soon as there is a difference in temperature in the water contained in the top and the bottom of the bonnet the circulation starts, and is maintained so long as that difference exists, which, of course, it must do as long as the engine is running owing to the fact that the heated water naturally ascends.

No. 24 The 6½ h.p. Baby Peugeot which ran through the trials.

A correspondent, Mr. E. F. Glynn, writes us that he found considerable difficulty when at Brighton the other day in obtaining petrol in less quantities than two gallons, but after some search was cheerfully supplied with the single gallon he desired at the Regent Motor Works, of Messrs. Reed and Sons, at 1s. 3d. Our correspondent speaks in the highest terms of the courteous treatment he received at the hands of this firm, but, unfortunately, fails to give us their exact address.

* * *

The actions of the owner of Clipstone Park and its celebrated speed road are always of interest to automobilists; in fact, motor sportsmen throughout the land owe him a very large debt of gratitude, as it is difficult to see what could have been done in the way of speed trials after the Bexhill track was barred to motors had not the Duke of Portland granted the use of the Clipstone road. His Grace is thoroughly cognisant of the advantages of the autocar, and only last week he telephoned to Nottingham to Messrs. Evart Hall for a car to be sent over to Welbeck Abbey at once to bring him into Nottingham in time to catch a special train to London to meet the King. Mr. Binks at once went over on a 20 h.p. Darracq and drove the Duke, Sir Frederick Milner, and Mr. Warner Turner, the Duke's agent, straight through to Nottingham. The Duke was so pleased with the running of the vehicle that he at once gave an order for a 24 h.p. As he already owns a 20 h.p. Mercedes and other good cars, it is a proof that the running of the latest Darracqs is remarkably smooth.

THE IDENTIFICATION OF CARS.

Both in the Lords and in the Commons, the impending legislation affecting motor cars has been the subject of enquiry, though it must be confessed that up to the present the total volume of information elicited concerning the subject does not amount to very much. At the same time, some notable remarks were made, particularly in the House of Lords, in which the Earl of Wemyss expressed a hope that the new regulation would not be grandmotherly. He could not see the use of a number in front, but advocated carrying one at the back. Incidentally, he expressed his objection to goggles and masks, and considered that such should be prohibited. Possibly it did not strike him that this suggestion was in itself somewhat of the grand maternal order. However, we forgive him this, as he objected to the word chauffeur, and wanted to know why the men could not be called drivers. The Marquis of Granby expressed his strong opinion that practically an unlimited speed should be allowed, provided proper precautions were taken to ensure the safety of the public. He looked forward to the time when the great main roads would be doubled in width, and considered that every driver should be licensed, and also that after the first offence, where damage was done to life or property, he should be sent to prison without the option of a fine. Lord Balfour of Burleigh expressed his belief in distinguishing marks on cars, but considered if these were used liberal allowance in the way of speed should be made, though there must always be a limit in populous places and narrow roads. He attached great importance to distinguishing marks, but did not think the whole fraternity of automobilists should be penalised for the small minority of their number. So far as Scotland was concerned, a considerable amount of prejudice had been created by the action of persons who hired cars in the tourist season. It was suggested by the Earl of Camperdown that it might be possible to introduce the bill into the House of Lords, where there was no pressure of business, and Lord Balfour regarded the matter as one for serious consideration, and said he would confer with Mr. Long, and give an answer at an early date.

In the House of Commons, Mr. Cathcart Wason has given notice to ask Mr. Long when the bill will be introduced.

It is interesting to remark that Mr. W. H. Long, the President of the Local Government Board, in the course of a speech at Trowbridge last Saturday, stated that the present law was a farce. Everyone broke it. He added that the practice of putting policemen about the roads in all sorts of disguises in order that they may catch motor cars going above the regulation speed ought not to be adopted unless in the interests of safety.

Particulars have been furnished of the inauguration shortly of an extensive service in the Eastern Counties of steam motor waggons with trailers attached to convey goods between London, Colchester, Ipswich, Bury St. Edmunds, Yarmouth, Peterborough, Norwich, and King's Lynn. A dozen steam cars, each carrying six tons, and sixteen smaller vehicles will be employed.

THE CLUB MOTOR TRACK AT PURLEY.

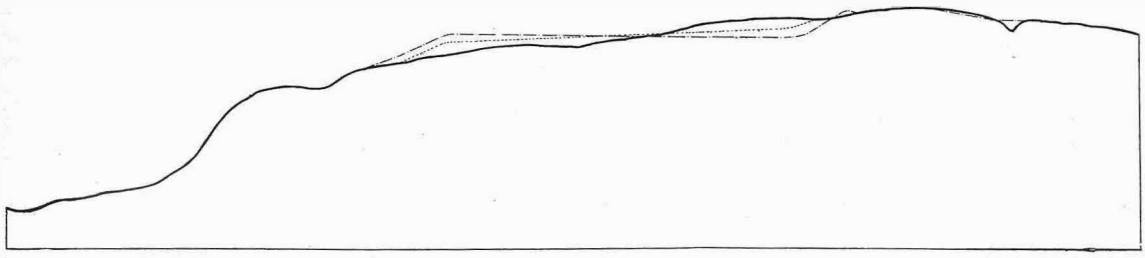
The accompanying illustrations give a very fair idea of the form and contour of what promises to be the first specially constructed motordrome in the world. It will be situated on the London side of the Purley-Godstone road, twelve miles by road from Westminster Bridge, and within one and a half miles of Purley, Purley-Oaks, and Upper Warlingham stations on the London, Brighton, and South Coast Railway, or Kenley, Warlingham, and Purley stations of the South-Eastern and Chatham Railway. The site at the present moment is arable land situated in a very pretty district, but the whole of the racing course will have to be formed, no roadway on the estate serving for any part. A good deal of earthwork cutting and banking will have to be carried out to make the straight mile dead level. The accompanying plan shows the track as it will be formed, with a small almost circular loop at one end, and a larger loop at the other. The small loop will be at the Purley end of the track.

The hill which is encountered soon after leaving the Purley loop outward, and upon which it is intended to carry out hill-climbing tests of automobiles, will be 666 yards long, and will have gradients varying from one in fifteen to one in seven.

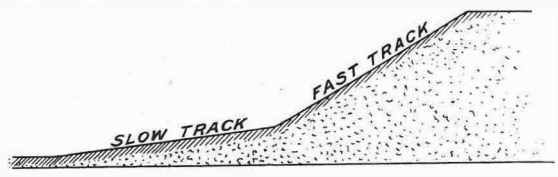
The level dead straight mile will have a starting straight for flying miles of 300 yards, and it is intended to erect stands at the finish of the mile itself. By this arrangement the flying kilometre, of course, will have a still longer flying start.

The total length of the course when completed will be six and threequarter miles, with a width of fifty feet, except over the flying mile where it will be expanded to seventy feet. The character of the surface is not yet decided, but it will probably be formed of graveline.

The outer half of the curves will be properly super-elevated for high speed cars, the inner half being sufficiently super-elevated for medium speeds only. Thus a cross section of the track on one of these curves would look like this.



Section of Purley track. The solid line shows the present contour of the track. The dot and dash line shows the proposed alteration in the contour, while the dotted lines depict an alternative and less expensive scheme.

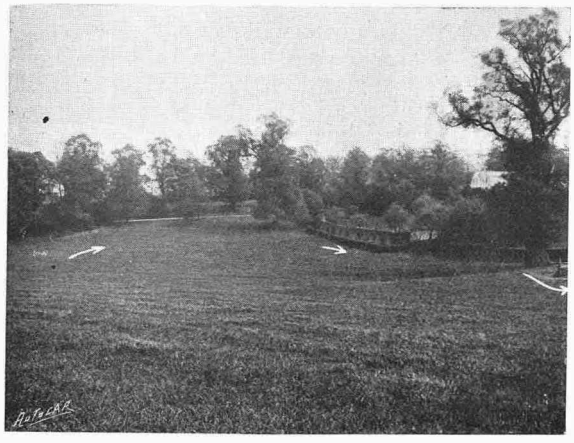


Section of the Banking.

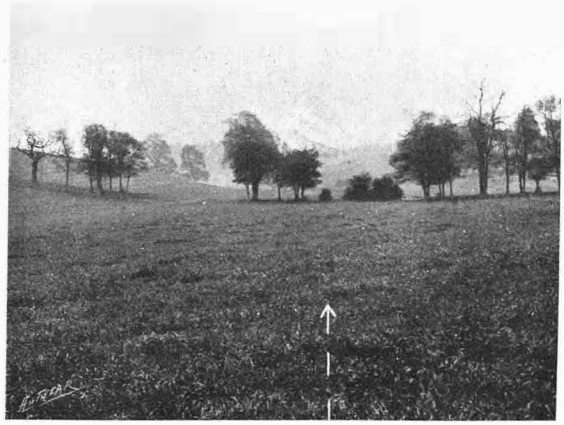
The sharpest curve will be struck to an inside radius of ten chains, equals 220 yards, but the briskest sweep on the pear-shaped loop has a radius of not less than 12.438 chains, equalling 273.6 yards.

The whole of the site will be kept rigidly private and enclosed by a ring fence.

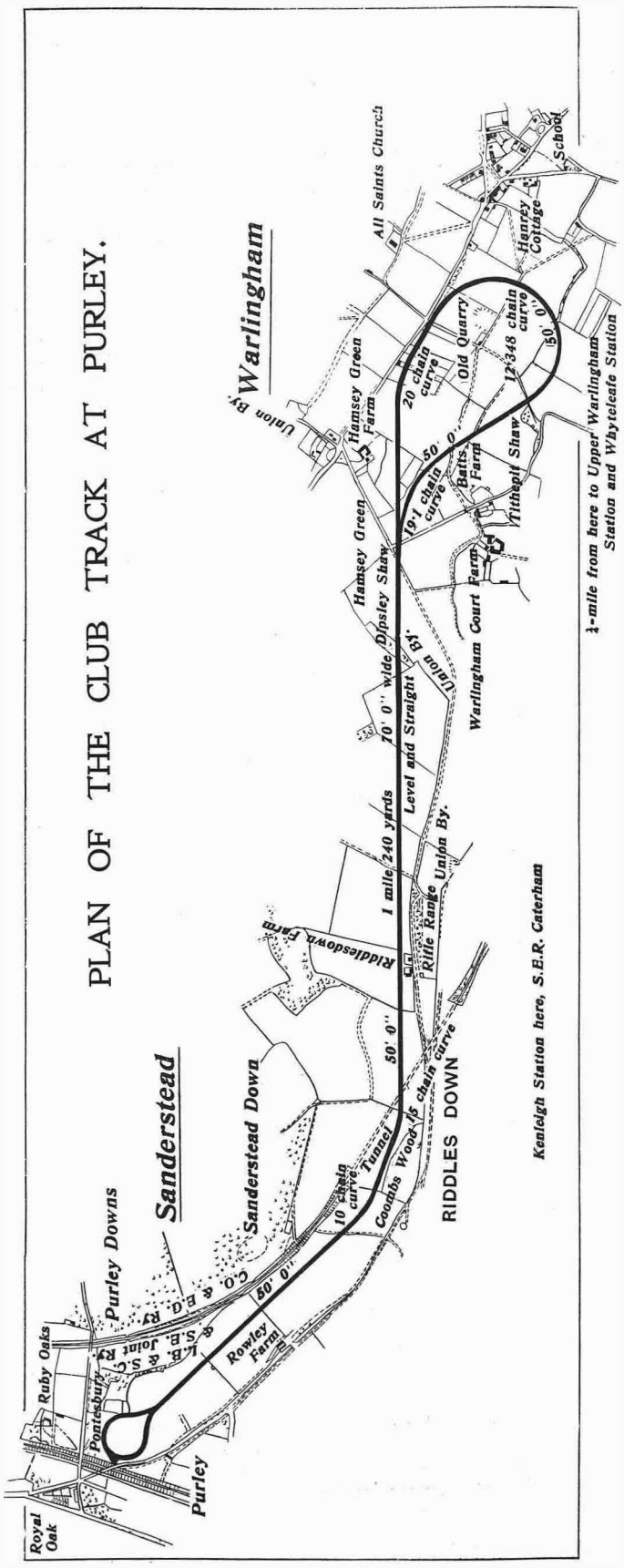
Personally conducted by Mr. A. J. Wilson, the engineer and surveyor, we last week made a pleasant pilgrimage over the site of the track. A fifty minutes' run from Victoria brought us to Purley Station, whence a five minutes' uphill walk found us looking down into the valley in which the small circle at the starting end of the track will be constructed. This will skirt the gardens of old



A portion of the small starting loop near Purley Bury. The track runs in the direction of the arrows. The commencement of the straight is just to the right of this view.



Looking along the valley after leaving the starting loop. The straight, approaching the test hill, runs along here. Coombe Woods at the top of the test hill are seen in the distance.

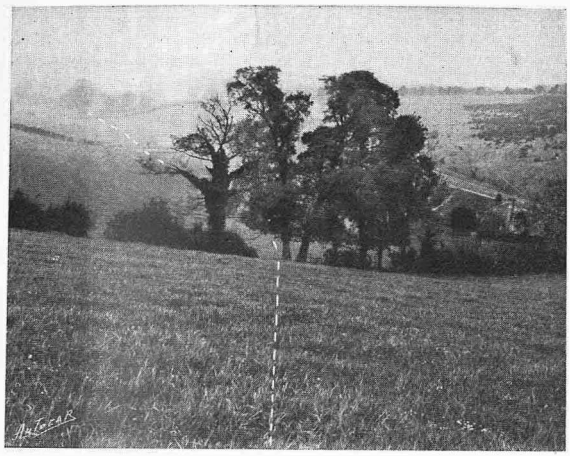


Purley Bury, a mansion which at some future date may form an excellent club-house. Descending into the valley we turn to the right, walking with a very slight up grade in a straight line across several meadows all in the hollow, after crossing which we are faced by the test hill, the summit of which is crowned on the right by Coombe Wood. From the crest of the hill looking back we see Croydon in the distance, and the Crystal Palace further away to the right. On passing the wood, we cross the meadow between the two air shafts communicating with the railway tunnel, which penetrates the hill beneath us, the two banks of chalk nearly giving a clue as to the nature of the substratum beneath the turf. Bearing slightly to the left, we enter on the level mile, Riddlesdown Farm being forty yards away to our right. We now cross a rough footpath, the signboard to which bears the useful legend, "This is closed a few days in each year." The mile stretches straight in front of us over arable land, running close by a small wood in the distance. Soon after passing this, the big loop will bear away to the left, at the commencement running close by the high road at Warlingham. After passing Court Farm and one or two cottages, dotted about in no sort of order, we arrive at a small brickfield which will be encircled by the big loop, and from which Old Warlingham Church is but one meadow distant. Our tour now being complete, a sharp walk down Standerstead Hill, which is decorated with a danger-board, more from its winding nature than from its steepness, brought us to the station of that name, thus putting us within easy distance of Charing Cross and the City. We cannot imagine another site so near London which could be found more suitable than this for this purpose, providing, as it will, a varied course through beautiful country, and wonderfully free from interferences with the rights of the general public.

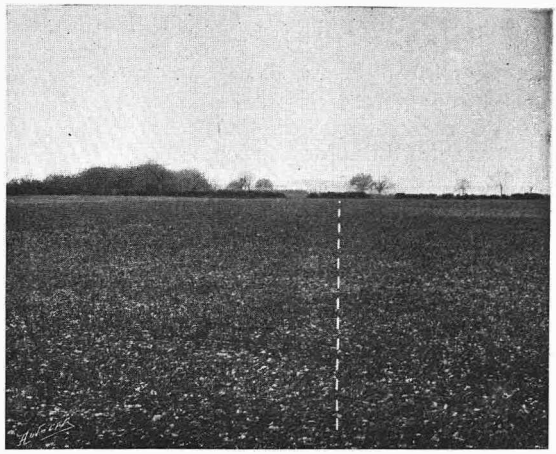
A woman's automobile club is now being organised at New York. Over a hundred fair "chauffeuses" have already signified their willingness to become members. Every lady joining the club must have a car of her own.

* * *

Mr. C. Lock, of Messrs. King and Baird, Mansfield, sends us particulars of an interesting run which he made on a new 14 h.p. Chenard-Walcker. He drove from London, *viâ* St. Albans, with four passengers besides himself. At St. Albans, two were put down, and then the journey was continued, *viâ* Northampton, Melton Mowbray, Leicester, Loughborough, and Nottingham, to Mansfield. He tells us that the ninety-nine miles between London and Leicester were covered on two gallons of spirit.



The Purley track. Looking back down the test hill The starting loop is to be at the extreme left in the distance. The 1 in 7 portion of the hill occurs where the tall trees stand.



The Purley track. Looking back along the straight mile. Riddlesdown Farm in the distance.

MECHANICAL ROAD VEHICLES.*

In commencing this lecture attention was directed to the great field which the subject now covers as compared with only five years ago, and it was remarked that the industry now established everywhere represented the thoughts and labours of, it might be said, thousands of men to one in the year of the Light Locomotives Act—a fact which was well illustrated by the immense sums now being paid by this country for foreign motor vehicles and parts, representing something like £500,000 in the first half of this year.

The lecture was, like those which preceded it, illustrated by numerous lantern slides and some wall diagrams. The influence of the design of the voiturette upon that of the larger vehicles was traced from the Bollée belt-driven tricycle, the Baby Renault, the little De Dion, and the chain-driven Gladiators.

The illustrations were then given with descriptions of the recent De Dion gear, the Brooke chain gear, the Wolseley gearing as used in the 10 h.p. car, the Humber car and gear, and others.

Special reference was made to the 22 h.p. Daimler cars and to the Bradley and Pidgeon clutch and reversing gear, as fitted to the 22 h.p. Daimler of Mr. Henry Edmunds.

Separate descriptions were given of the most recent Panhard and Levassor cars, the Decauville car (with buckled plate motor and gear seating), to the Velox car, the Argyll car, the Maudslay car, the Clement car, and the recent New Orleans car, with strong, fixed, tubular axle for the driving wheels to run upon, driven by bevel gear and internal live axle.

Heavy Vehicles.

A large number of different heavy vehicles were illustrated, including different forms of the Thornycroft lorries and waggons, the Coulthard lorry and tipping waggon, and those of the Yorkshire Steam Waggon Co., Messrs. Mann and Co., and Straker and Co. Reference was made to some of the accidents which have attended the attempts to drive cars at too high a speed round corners, and an interesting curve was exhibited showing the different speeds at which cars must slide on the ground and refuse to be steered on curves of different radii.

A corresponding curve was also shown indicating the higher speed at which the same car would begin to overturn on curves of different radii.

Motor omnibuses were referred to, and the 16 h.p. Milnes Daimler omnibuses running at Hastings and in Cornwall were illustrated, and some results of its working given. The lecturer again dwelt on the necessity for moderate speeds and moderate size of omnibuses, the objections to the double-deck form, and to the importance to motor omnibuses as well as to every other kind of vehicle of the best possible attention to road construction and surface maintenance.

Electric Vehicles.

In referring to electrical vehicles, the lecturer said that though the cost of propulsion might not be very soon reduced to any material extent, the vehicles would grow in favour particularly for town and suburban use, as the improvements in battery and vehicle construction already in sight became general.

Favourable mention was made of the electrically-propelled omnibus supplied with current from overhead wires, and with respect to future probabilities it was remarked that the further development of the internal combustion motor, whether vertical or horizontal, would probably cause it to retain the position it occupies as the propeller of a very large proportion of the whole of the vehicles made.

The lecturer repeated his conviction of years ago that the great trade in the future would be in vehicles for trade purposes carrying from five to twenty hundredweights, the main requirements at present being a further simplification and employment of the results of the experience which will lead to that great quality—viz., trustworthiness.

With some reference to the probable construction of plateways or other forms of tramway upon which heavy vehicles from docks and railway stations to mills round great manufacturing centres could be run, the fourth lecture was brought to a close.

The Purley track. The big loop starts about here. The cottage on the right fronts the high road at Warlingham.

* The fourth and last of a series of Cantor Lectures delivered by Professor Worby Beaumont at the Society of Arts on Monday, May 18th.

GORDON-BENNETT ITEMS.

The 100 h.p. Napiers of Edge and Jarrott.

The two powerful racing cars which will be driven in the Gordon-Bennett race by Messrs. Edge and Jarrott are still the subject of considerable speculation amongst automobilists, who hitherto have been under the impression that the three English cars which would run for the big prize in Ireland were sister machines to those which competed against the Star in the eliminating trials at Welbeck. Chatting with Mr. S. F. Edge on this subject a day or two ago, we asked that gentleman point blank the horse-power of the two cars which he and his friend would drive on July 2nd, and, though he did not actually state the potentiality of the engines, he replied that if the engines of the Mercedes cars were of 90 h.p., then, dimensions for dimensions, the Napier engines were at least twenty per cent. more powerful. Notwithstanding this, the system of propeller-shaft propulsion is adhered to with the two cars, as with the three that have already been run in public. Of course, the extra size of the motors means extra weight, but in order that as much tractive force as possible shall be exerted by the drive upon the driving wheels, the engine is so set upon the chassis that its forepart is not advanced beyond the rear shackle of the front spring. The bonnet measures no less than 4ft. 2in. from the dashboard to the radiator. The wheelbase of these two cars is just over 9ft., and the gauge the same as the smaller vehicles, viz., 4ft. 7in. Like them, too, the gear fitted gives three changes of speed, the ratio with the engine running at 1,200 revolutions being arranged to give, for the purposes of the Irish race, a top speed of eighty-five miles per hour; but for Continental work the gear would be proportioned to afford one hundred miles per hour, so long as the slip of the driving wheels is no more than at present. It is to attain this desideratum that the engine is placed so far back on the frame. The particular car which Mr. Edge will drive will be shod with 34in. × 90 mm. non-slipping Dunlop tyres, while the wheels of Mr. Jarrott's chariot will boast 34in. × 90 mm. on the front and 36in. × 120 mm. Dunlops on the back. Mr. Edge considers that the segmental depressions of the Dunlop non-slipping covers make for a considerable increase of speed, particularly over wet roads. Beyond the points referred to, these two cars are on exactly the same lines as those that ran at Welbeck; but it is worthy of note that, although the engines are of larger dimensions than those of the old 50 h.p. Napiers, out of which, by the way, it is stated 103 b.h.p. was obtained, they are only half the weight of the motor, which, despite its weight, still holds the speed record of 4m. 44⅖s. for five miles on the road.

Mr. Foxhall Keene, the well-known sportsman whose name has been mentioned as a possible driver of one of the German cars in the Gordon Bennett race.

Skill on the Course.

Mr. Chas. Jarrott, in an interview with the *Glasgow Evening Citizen* representative, referring to the Gordon-Bennett race, remarked that, "The successful driver must go cautiously, but not too cautiously," adding, "The over-cautious man never wins, while the over-reckless man never finishes." While the course is not an ideal one for speed purposes, we doubt if a better one could be found for a real test of the cars' stability and the driver's skill. In our opinion it is a course that will bring out all the good points of both driver and car.

The Grand Stand Enclosure.

The Automobile Club has not relinquished its idea of a grand stand at the club enclosure. It will extend on both sides of the road opposite the point at which the race starts and finishes, and a sort of connecting bridge or stand will be built right over the road itself, which will give accommodation for five hundred people, with a view up and down the course. Admission to the club enclosure will be by ticket, for which a charge of one guinea will be made, while there will be a further charge of one guinea for a place in the grand stand.

An American Map.

An American contemporary, *The Automobile*, publishes in its issue of May 2nd a map of the Gordon-Bennett course, compiled, as it states, from official sources. The map contains one extremely interesting feature, and that is that every blacksmith's shop on or adjoining the course is indicated. On looking some of these up on the Ordnance Survey map, we find that several of these smithies are at least three-quarters of a mile off the main road. It does not show much faith in the American productions when their own automobile press publishes information of this description.

Edinburgh to Ireland.

Sir,—I notice a letter in your issue of the 16th under the above heading in reply to Mr. R. M. Baird's enquiry.

I think I can suggest a much better way than the one you propose, viz., to drive from Edinburgh to Stranraer in Wigtownshire, cross to Larne, co. Antrim, short sea passage (two hours), cost of conveying motor only 19s. 6d., and steamer leaves Stranraer about 7.30 p.m. Stay night in Larne, at Olderfleet Hotel, and drive thence through Belfast and on to Dublin.

Messrs. Burns charge the exorbitant sum of over £4 for conveying cars from Glasgow to Belfast. I don't know what Messrs. Laird's charge would be, but Glasgow to Dublin is nearly twice as far.

I shall be very pleased to give Mr. Baird any further information he may wish. ALPHA.

The Eliminating Trials.

Sir,—It appears decidedly unfair that a national race, which is or should be designed to stimulate public interest and to develop the building of motor cars, a national industry, should, by inadequate and unregulated preliminary trials, allow the entrance of several cars built by one company while the cars of other firms possessing unquestioned merit are entirely excluded. If any fair comparison is to be made the competing cars should be as representative as possible, and no particular make should be unduly favoured at the expense of others. The eliminating trials should have been conducted under the proviso that the cars competing in the trials should be in structure and gearing essentially the same as it was intended they should run in the race, and to ignore the necessity of these restrictions subsequently made is to reduce the preliminary tests to a farce. A. J. SLANEY.

Sir,—As a reader of *The Autocar*, and, moreover, one not interested in the Napier or the Star, I am constrained to offer my opinion on the letters from Mr. Lisle and Mr. Edge.

With reference to the former, it is very unusual, having taken part in the eliminating trials with his eyes open, and with a full knowledge of the conditions, to afterwards make suggestions reflecting on the capabilities of his opponent's car. But notwithstanding this Mr. Edge has expressed his willingness to meet Mr. Lisle in a long-distance contest, thereby showing his sportsmanlike temper and, even, generosity once more.

As an owner of a Wolseley car I hope Mr. Cumming will be able to accept Mr. Edge's offer, and if so we may expect a very exciting contest.

I know nothing of the Star, but admire the courage of the owner in entering the trial. At the same time it seems to me to be a pity to detract from the good opinion thus formed by any tendency to quibble, especially after the trial. T. SCOTT FOSTER, J.P., etc.

The First Reserve Car.

It is now announced that the first reserve car will be Mr. Mark Mayhew's Napier. This car was the third fastest in the trials, but as the Hon. C. S. Rolls had to keep the starter waiting while he was seeing to his induction valves, he was penalised 2m. 40s.—the length of the wait—so that, although while moving he made the best speed, if the time the car stood before starting after being called upon to do so is calculated, his time comes out behind both that of Mr. Mayhew's Napier and Mr. Lisle's Star. This is a pity, as on public form the Hon. C. S. Rolls is by far the better driver of a racing vehicle, and has had considerable experience in Continental races besides. In fact, it is only a question of time before he wins some great event, as he has gone on steadily with all luck against him; but, as Mr. Jarrott pointed out in his racing experiences, which were published in *The Autocar* some time ago, this experience is never lost on a man, and eventually, when the luck turns in his favour, he has the satisfaction of winning some great race. So much bad luck has Rolls suffered that in the ordinary course of things he ought soon to have his day of good fortune, particularly as he has driven so many plucky stern chases with circumstances dead against him. The penalisation puts the Hon. C. S. Rolls behind both Mr. Mayhew and Mr. Lisle.

Sir,—I am rather surprised to see the supplemental illustration in your issue last week entitled "The First Reserve for the Gordon-Bennett Race," *i.e.*, a 50 h.p. Wolseley, "appointed by the Automobile Club." I would most respectfully ask you to withdraw this statement at once, as the only car appointed "first reserve and pilot" by the A.C. is the Napier car driven by myself in the eliminating test in which no Wolseley car appeared. After me the order of reserves is, second, the Star car, and, third, Mr. Rolls's Napier. MARK MAYHEW.

[The announcement was made by the Wolseley Co. a few weeks ago and was not contradicted. We had no reason to doubt it till after the last issue of *The Autocar* had gone to press. There has evidently been some misunderstanding between Lieut. Cummings and the club officials, as we are informed on enquiry by the Wolseley Co. that their statement was based on information given them by Lieut. Cummings. While on the subject of the first reserve car, we may say that we think it is in every way desirable that this honour should be competed for before the race, and that the first reserve car should be the fastest vehicle in the country at the date, say ten days before the race itself, and as there are admittedly some racing cars which have not yet been proved, a race of this kind is desirable so that everyone may be sure that the reserve car is the very fastest available.—ED.]

Sir,—We have seen the letter from Mr. S. F. Edge in your issue of May 16th, and we beg to state that our challenge, which Mr. Edge sarcastically calls a "sort of challenge," was naturally to be accepted before the Gordon-Bennett race was run. It is but little use for us to prove that our car is a better one than the Napier after the event. We are convinced that we have a car that will beat the best of the three Napiers at Welbeck, and we wish to run a distance of fifty odd miles to prove our statement. A little while back Mr. Edge stated in the press that should he win the eliminating test he would be pleased to meet Mr. Mansfield Cummings and his Wolseley car, and in the event of the Wolseley proving victorious he would withdraw. We think Mr. Edge's letter needs no further answer, but his actions require explanation.

Replying to the statement which Mr. Stocks makes in your last issue of *The Autocar* we beg to state that we did not specify any particular Napier car, but we would ask Mr. Stocks the following questions. On the second run down, standing start, did his engine fail to start at the required time for upwards of ten minutes, and the run was consequently kept back? On the second run up, standing start, did his engine stop after he had broken the timing wire? When Mr. Stocks has replied to these questions, we will leave it to the public to say whether this car and driver are suitable for an international contest like the Gordon-Bennett, for surely a car that cannot be started off the starting point without stopping the engine is an entirely unsuitable car. We had no intention of belittling the car as he suggests; we simply have stated what happened at the eliminating trials, and Mr. Stocks has taken the wrong view of it.

THE STAR ENGINEERING CO.,
J. LISLE.

A useful map of the Gordon-Bennett course is being issued by Messrs. Hutton, Sons, and Co., of Summerhill, Dublin.

A presentation is being got up by the officials of the Motor Manufacturing Co., Ltd., as a token of regard to Mr. W. H. Thomas, who has just resigned his connection with the company. He has been Mr. Iden's lieutenant for five years, so that he has served right through the period of the great development of the movement. As an instance of the growth of the company and of the automobile industry generally, it is interesting to note that at the beginning of Mr. Thomas's reign the total weekly amount for wages and material averaged about £150, while now the average is not far short of £2,000 per week. There is probably no harder worker than Mr. Thomas in connection with the motor car trade, and, consequently, we are glad to note that he has not relinquished his participation in the industry.

SOME REPLIES TO QUERIES.

We are always pleased to reply to queries, even if they be of an elementary and untechnical description, under this heading. Only a selection of those which are of general interest will be published, though all will be answered direct through the post, for which purpose a stamped and addressed envelope should be enclosed.

When advice concerning different makes of cars is sought, each vehicle should be given an identifying number.

Letters should be addressed The Editor, "The Autocar," Coventry.

Charging Accumulators from a House-lighting Circuit.

My house is lit by electricity, the plant consisting of an oil engine, 9 h.p. dynamo, and batteries. How ought I to charge the accumulators for my car? They are Van Raden accumulators, connected up as one cell. I shall be very glad to have full instructions. Must I get a special instrument, or can I do it through an ordinary electric lamp? I know nothing about electricity, so please give me simple instructions.—E.G.H.

The voltage or pressure from an ordinary dynamo may be either 55 or 110 volts, which is too high to be directly coupled up to an accumulator for ignition purposes. It is therefore necessary to introduce a resistance in the circuit to keep the charging current at the correct amount, which in the case of a four-volt accumulator should not be higher than four ampères, and should be preferably as low as two ampères. A fifty-volt lamp will use about one ampère of current, whilst a hundred-volt lamp will use a little

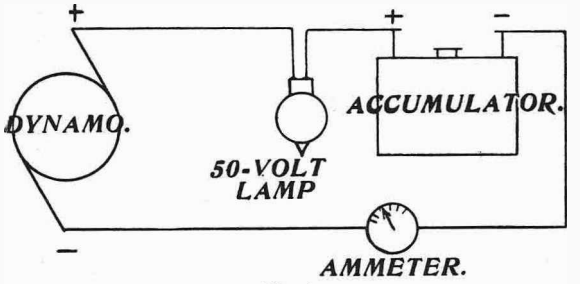


Fig. 1.

over half an ampère. If a fifty-volt lamp is connected as shown in fig. 1 the accumulator will be slowly charged. If two lamps are used with connections as in fig. 2 then the charging will take place in half the time. If three are used then the charging only occupies one-third the time, and so on. An ammeter should be connected up as shown to indicate the amount of current passing through the circuit. The accumulators to be charged must be connected up *after* the dynamo is well started and has

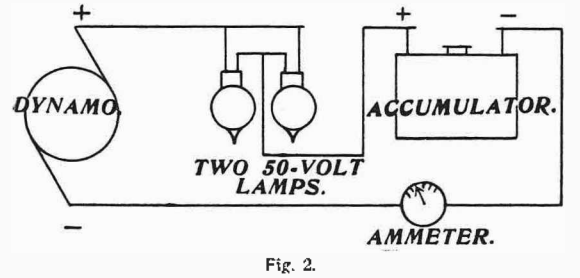


Fig. 2.

reached its correct voltage, and they must be disconnected *before* the dynamo is stopped, or damage will be caused to them. Care must be taken to connect up the positive pole of accumulator to the positive pole of the dynamo. This may be found as follows: Take a wire connected to each brush of the dynamo and place the ends about half an inch apart in a tumbler of water acidulated with a few drops of vinegar or sulphuric acid, such as is used in the accumulators. Whilst the current is passing bubbles of gas will be shown at one of the wires. This is the negative pole, the other one the positive. Where the electric light outfit has its own batteries, then charging can be done from these, whether the dynamo is running or not, provided they have a sufficient charge in them. Any three of the cells in series will give a pressure of over six volts, and if an iron wire or German silver wire resistance is connected in the circuit as shown in fig. 3 the amount of current used for charging may be varied by varying the length of the resistance, this being done by connecting one terminal of the accumulator to one end of the wire and the

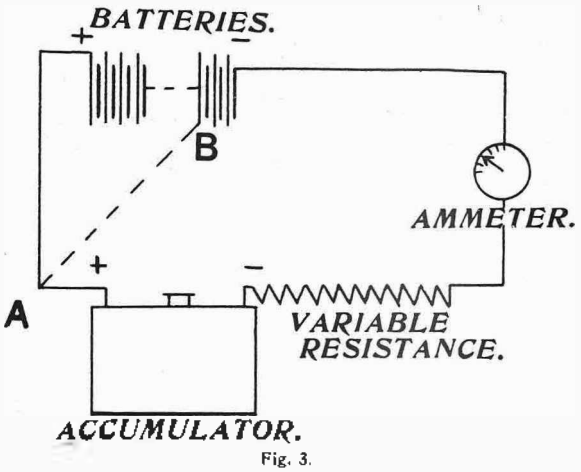


Fig. 3.

other terminal to some part of its length obtained by trial with the ammeter in the circuit. The dotted line A to B shows the connection when only three cells are used for charging, the full lines show connections when all the cells are in circuit. Fig. 4 shows connections for charging

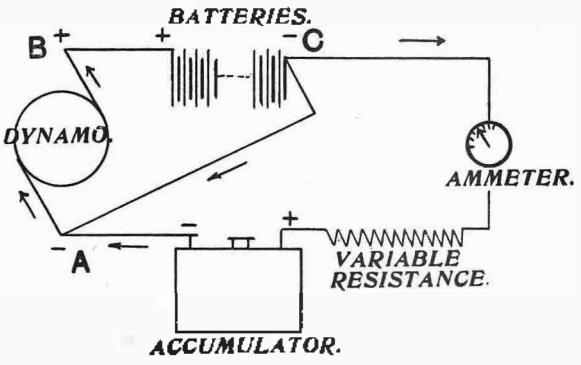


Fig. 4.

whilst the dynamo is charging the batteries, the accumulator then being connected at A and C, the arrows showing direction of current. The current from dynamo after passing through the batteries splits up into two parts, the amount passing through the accumulator depending on the variable resistance employed.

[Owing to excessive pressure upon our space several interesting queries and replies have been held over.—ED.]

NOTICES.

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