

# 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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### "THE AUTOCAR" SUBSCRIPTION RATES.

British Isles, 16s.; Abroad (this paper), 22s. 9d. per annum.

## Notes.

### Wilful Obstruction.

It is hoped that the Motor Union will vigorously prosecute the appeal, of which notice has been given, against the decision of Mr. Denman at Marlborough Street Police Court last Tuesday. In a charge of obstruction against Mr. A. J. Wilson, Mr. Denman held that a motor car or any vehicle stopping for a single minute outside any house was creating a technical obstruction, and the owner was liable to be fined under the Metropolitan Police Act for wilfully obstructing the thoroughfare, even though there was no proof that anyone or anything had been obstructed. Unless such a decision is upset on appeal, every lady or gentleman using

an autocar or a horse carriage, paying a visit in Park Lane, or shopping in Regent Street, is at the mercy of any constable who chooses to summon him or her for "wilful obstruction." It is strange, however, that we do not hear of the owners of horse vehicles being summoned, unless they have made a stop of altogether unreasonable duration. Even then it is not carriage owners who are the victims, but generally small tradesmen, who have no influence with the police. It is also strange that Mr. Plowden's recent decision that a motor carriage, or any other vehicle, could be left for a reasonable period outside a house while its owner makes a call, without laying the owner open to a charge of wilful obstruction, should have been ignored. Of course, we are well aware that the decisions of one magistrate have no authority with another magistrate, but then, the presiding genius of one court is as likely to be right as he of another, and where two magistrates are found giving such apparently diametrically opposite decisions upon facts which are in every respect similar, it would be, as Mr. Denman remarked, an advantage to have a ruling from the High Court. It so happens that a conviction is the only way to get such a decision, so there is no need to say hard things about Mr. Denman, for after all he may only be making a strictly literal interpretation of the law, while Mr. Plowden took account of public convenience as well.

### The Quarterly Trials.

The club quarterly trial, which took place last week, and of which particulars are given elsewhere in this issue, affords a striking proof of the fallacy of the contention that small two-seated cars will not perform creditably with larger and much more expensive vehicles, and, further, that the running conditions which are applied to the one should not be applied to the other. It will be seen, on reference to the details of the trials, that one of the best performances was actually accomplished by a single-cylinder two-seated car—the Siddeley. It is somewhat strange, by the way, when we hear of the alleged anxiety of people to take part in unofficial trials, that only two out of several disappointed competitors in the abandoned unofficial run should have had the pluck to face the conditions of the club quarterly trial, though it is only one hundred miles, and is not of great severity, compared with the 1,000 miles, particularly as no examination of the condition of the vehicles after the event is made; but, of course, it would be absurd to make an examination after a day's run, as no car worthy the name would show any signs of deterioration. It is also worthy of note that the performance of the Pick two-seated car, as well as of the Siddeley, is no mean one, and the fact of it having been made on

the same day and over the same route that the larger vehicles were taking makes the contrast all the more valuable. It shows those particularly interested in the smaller machines exactly what they will do in the way of hill-climbing, as compared with the machines of higher power and greater seating accommodation. We are particularly anxious that the development of the small car should take place upon the right lines. That is to say, we regard it as the greatest possible mistake to set up a lower ideal for the small machines than for the larger ones, so far as excellence of workmanship and reliability upon the road are concerned. It is equally important that prospective users of small machines should know exactly what their capacities are as compared with the ordinary medium car. By medium car we mean a comfortable four-seated vehicle of moderate power and weight—not a car de luxe, still less a gigantic machine, which is really a racer masquerading under a touring body.

#### Unaffiliated Clubs.

From the time that the Reading club sent its circular dealing with the proposed federation of provincial clubs to all the extra-metropolitan motor clubs, the question raised by it has been more or less under discussion, and it will be seen from "Club Doings" this week that it is still a burning subject. We think we have said enough in previous

issues to make it clear that we are in no way antagonistic to the movement organised by the Reading club. On the other hand, in the interests of automobilism, we are most emphatically averse to the formation of any other national association appealing for the membership of motorists, in addition to the Automobile Club and the Motor Union, unless it can be proved absolutely that such association is really necessary, and, further, that it will work in co-operation with the existing bodies on all matters of vital interest. Much can be done in the next three years by way of influencing public opinion and placing convincing representation before the proper authorities in connection with the administration of the law which will come into force next year, and the easing of the conditions which will be brought up at the expiration of the three years' experimental working of the Act. At the same time, the Act is not necessarily bound to run its full course of three years, though it is highly probable in the light of the past that it will do so. However this may be, the necessity for union, undivided and complete, between the members of the whole of the automobile body is apparent, and in the event of the county and other extra-metropolitan clubs meeting, we hope, before they decide finally to establish the proposed federation, that they will make out a clear statement of their requirements, and forward it to the Automobile Club. We do not say that



• A RUN THROUGH CUMBERLAND Near the top of Honister House (1,500ft above the sea). The valley from which the car has just emerged is Borrowdale.

the club will accept it. At the same time, the position of the new body would be greatly strengthened if, after it had made reasonable proposals to the club, these proposals had been declined. We do not think they would be, as the club council is now thoroughly alive to the importance of securing the adhesion of all the smaller motor bodies, whether they be powerful county clubs or less pretentious organisations. We do not infer that the parent club has not had ample opportunity of considering the requirements of the provincial

organisations, but they have never yet been presented collectively, and the experiment at least is worth trying before a final decision is come to. In any case, the suggestion made some time back, and for which several people claim credit, seems to be a very sensible one, and that is to make the club journal optional. Many members of affiliated clubs do not want it, and as the subscription to it is, we believe, 7s. 6d. out of the half guinea capitation fee, it will be seen at once that there would be no difficulty at any rate in lowering the affiliation charge.

## USEFUL HINTS AND TIPS.

### Laying up a Car for the Winter. *(Concluded from page 595.)*

#### The Coil.

The induction coil requires but little attention. It should be put away in a dry place, and out of all danger of being subjected to high temperatures. For instance, it should not be put in a cupboard against that side of the wall where the chimney is likely to give off more than a medium temperature. It will thus be seen that the only requirements are to protect the coil from damp and from excessive heat. The reason for this is that paraffin wax is used as an insulating material, and if this substance becomes sufficiently heated to melt, in many coils the insulation would be entirely broken down, on account of there not being sufficient non-conducting material on the wires. So that if this were to happen such coils would be absolutely ruined. Obviously, therefore, cold, so long as the atmosphere is dry, does not injuriously affect the coil.

#### Lamps.

Lamps, whether of the oil or acetylene type, should be thoroughly well cleaned and polished, wrapped in cloths and stored in a dry place. Particular care should be taken to thoroughly cleanse the carbide container of acetylene lamps of all deposit, and to carefully dry the interior of the vessel before putting it away. If any carbide is allowed to remain in the container for any length of time it will form such a hard and solid mass as to endanger the container when it is removed by forcible means at a later stage. All oil and wicks should be removed from the vessels of oil lamps, and as a further precaution against the action of stale oil at a later period, they may be washed with a strong solution of hot soda and water, being carefully wiped out, or if a cloth cannot be inserted into the oil well, they should be dried by evaporation.

The horn, which should have been removed at the same time as the aforementioned parts, should be cleaned and put away with the lamps.

#### Recapitulation.

Remove cushions, lamps, horn, tools, and spare parts, accumulator, and coil from the car.

Clean down the car in as thorough a manner as possible, paying particular attention to details.

Remove the tyres, and block up the axles so as to keep the wheels off the ground.

Repair tyres and inner tubes and store them away.

Clean out the engine and transmission gear with paraffin, and lubricate if necessary.

Remove chains, if used, and attend to all joints and connections.

Repaint such metal parts as may be exposed, and grease all bright parts with pure vaseline or ranoon jelly.

Look to the clutch, cleaning it with paraffin, and packing it so as to prevent the two conical surfaces remaining in contact.

Clean out the lubricators and pipes, reconnecting the latter.

Cover the car with suitable protecting sheets.

Recharge or wash out accumulators.

Put the coil away in a dry place of medium temperature.

Put tools and spare parts in a safe place.

Thoroughly clean lamps, and put them in a dry place, together with the horn or bell.

#### A Paint for Engines.

A correspondent informs us that there is a prepared paint known as Pegamoid which is eminently suitable for use in painting motors to protect them during the winter. This, our informant tells us, is untarnishable, thoroughly waterproof, and unaffected by such heat as is generated in the motor.

#### In Conclusion.

The foregoing hints and tips on laying up a car for the winter have been written to assist those of our readers who have been, or may be, compelled by force of circumstances to lay their cars by during the winter season. The hints must not be taken by any of our new readers as any indication of the unsuitableness of a motor vehicle for winter work. We do not in the least advise automobilists to lay their cars by for the winter, nor do we wish to be understood that we have any sympathy with such a practice, because there is no more suitable vehicle for winter work than an autocar when suitably prepared for the weather. Still, as we have before remarked, absence abroad or circumstances sometimes arise which force one to relinquish automobilism for a time. If any of our new readers who intend to continue using their cars during the winter months will procure the back numbers of *The Autocar* from September onwards, they will find many useful hints and tips for the protection of a motor car while in use during the winter months. What we wish to emphasise, however, is the fact that the autocar is not a vehicle for fair weather use only, but that it will serve its owner equally well during the inclemency of winter.

## A RUN THROUGH CUMBERLAND.

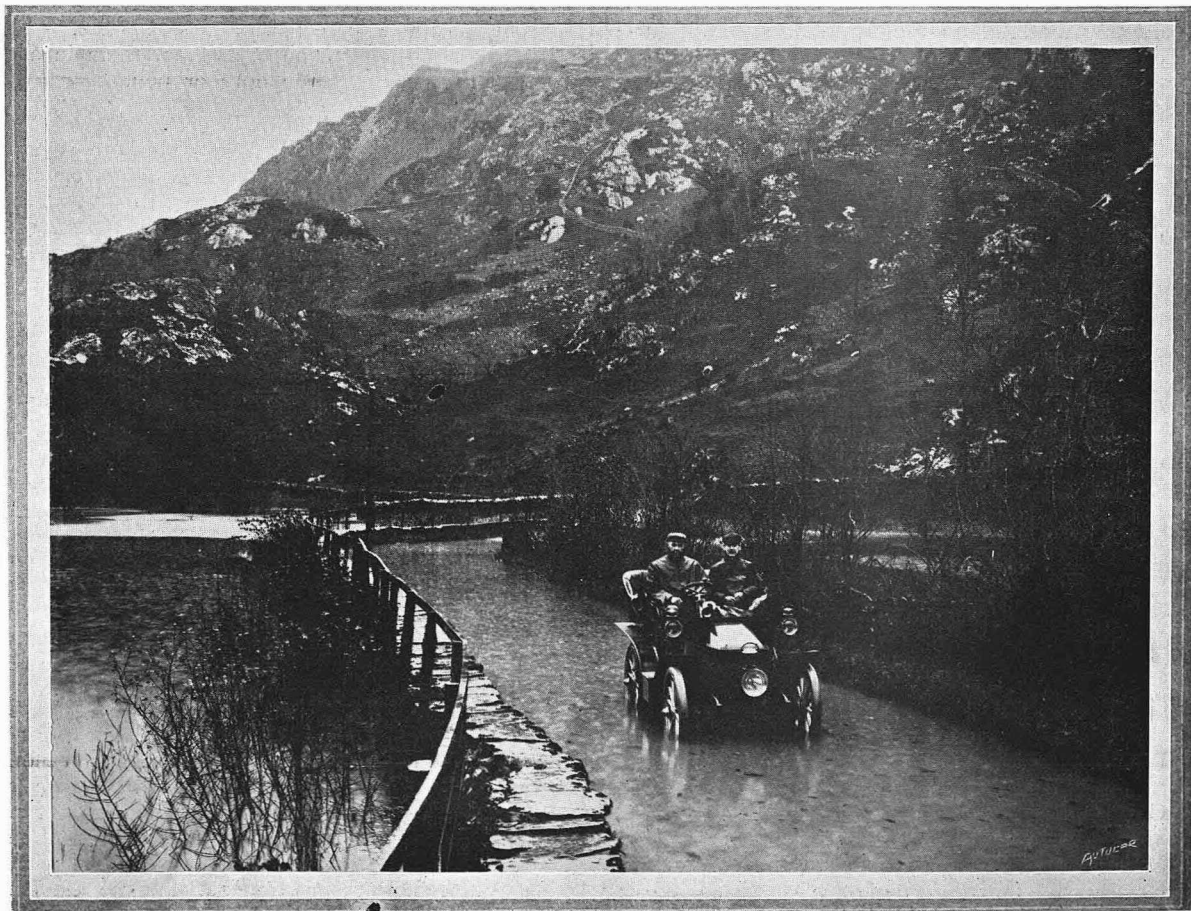
ALTHOUGH OTHER AUTOCARS HAVE SUCCEEDED IN CLIMBING OVER HONISTER PASS, THE CONDITIONS UNDER WHICH MR. J. TODD, OF BROMFIELD, CUMBERLAND, NEGOTIATED THIS PARTICULARLY TRYING TRACK—FOR IT CANNOT BE CALLED A ROAD—WERE SUCH AS TO MAKE THE PERFORMANCE BOTH OF THE MOTORISTS AND OF THE MACHINE PARTICULARLY MERITORIOUS.

ON the 12th inst. I arrived at Keswick, after a twenty-seven miles run on my 10 h.p. Wolseley in an incessant downpour of rain. My intention had been to try and climb Honister Pass, but the weather was so vile that I almost felt inclined to give it up. However, thinking that it could not rain much longer at this rate, I left with three friends for the pass, by way of Lodore and Rosthwaite. The roads were very heavy, and after passing the latter place we ran into a flood, the road being inundated for about seventy yards to a depth of eighteen inches. After getting through the deepest part, two friends got off the car on to a wall, and walking ahead took a photograph as we stood in about ten inches of water. When we had to restart the engine we found it a decided advantage to be able to do so from the step without getting into the water, the Wolseleys having the starting handle at side. After this we went on to Seatoller, where we stopped to adjust the brakes and chains, during which time a native came out, and said, "Ur ya gaan owert pass?" We said, "Yes, we are going to try," to

which the native replied, "Ya may try, bit you'll not git owert pass this day; you'll be comin' back agean this way."

We made a start, two up and two walking. From what I could see of the climb, I thought I would be quite satisfied if the car took two up without any pushing.

Soon after starting we got to a very steep bit, and here the clutch began to slip, it having been affected by the water we had come through. After tightening the clutch spring, I attempted to restart. The first attempt was a failure through not releasing the foot brake quickly enough. On a second attempt I started successfully, and all went gaily until I got to the top near a gate, where there was a bad piece. I stopped on the worst part to have a photograph taken. This being done, to my intense disgust on trying to restart, I found that my wheels simply spun round and embedded themselves in the road down to the rims. I did not care to run back and try again, so my friends had to give me a shove out of the rut, after which the car came away all right and



On the way to Honister Pass—traversing a road in Borrowdale which had been submerged by the recent heavy rains.



The last bit on the summit of Buttermere Hause, 1,700 feet high.

went to the top alone. I felt annoyed, for that one shove had spoiled my record. We slid down to Buttermere Hotel in the rain, which had never once abated. I consider it more difficult to ascend from the Buttermere side. The gradient is very bad, and the surface is loose to a depth of five or six inches.

At the hotel we found that in all four other cars had come over the pass, also that many had failed and gone back. I found that Honister was more difficult than Kirkstone Pass. Of course, the incessant rain made things worse, rivulets crossing the road at short intervals. After tea we decided to return to Keswick by Knott Rigg and Keskadale. I think this latter climb was as bad as Honister itself. We came along all right, but, like Honister, with only one up on the worst parts. This time I thought it best not to stop on a steep bit to be photographed, but in going over the worst part I got on some smooth slippery rock, and the wheels again

began to spin round, so that I had to submit to a second friendly push to get over. I am sorry I cannot give the gradients. They must have been stiff, as I think that I can stop my car on a one in five gradient and restart. Perhaps the editor can give the gradients. It has often struck me as being very singular that the inhabitants of the Lake District should try so hard to get all the visitors they can to that part, and yet, with about two exceptions, they seem to make no attempt to widen their narrow, crooked lanes, which in places are only fit for two wheelbarrows to pass each other. The turnings also are often carefully hidden by high hedges.

J. TODD.

[The gradients as given by the Contour Road Book are: Keswick to Buttermere, at 8 miles, 1 in 6;  $9\frac{1}{4}$  miles, 1 in 6; 11 miles, 1 in 11; and  $13\frac{1}{2}$  miles, 1 in 11. These are the averages for long stretches.—ED.]

Some few weeks ago we stated in "Continental Notes" that there was a distinct tendency on the part of Continental makers to abandon the honeycomb type of radiator. It is not always realised that the average type of honeycomb radiator contains no less than 4,000 tubes, and these of the hexagonal ended type, it means that the number of soldered joints is six times 4,000, or, in plain figures, 24,000 joints. The return to the gilled radiator is no doubt due to the fact that the amount of water space in a

honeycomb radiator is so restricted that the water circulation is not rapid enough to ensure efficient cooling. We believe that this trouble could be overcome by increasing the depth of the radiator, reducing the number of tubes and with it the number of joints, allowing more ample water space around the tubes. Roughly, we should say there would be no loss of cooling area; in fact, possibly, if the matter were reduced to figures, there would be a small gain by using a radiator of this type.

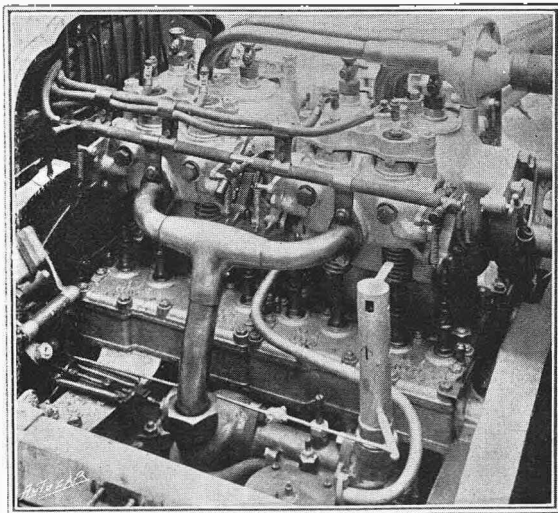
## THE LEON BOLLEE CARBURETTER.

Five Carburetters in One.

The excellent running exhibited by the four-cylinder Léon Bollée car to which we referred lately, and which may be seen on the premises of the Speedwell Motor and Engineering Co., 151, Knightsbridge, London, W., has excited considerable interest amongst automobilists since its arrival, and as the remarkable qualities it displays are said to be largely due to the governor employed, we shall endeavour to convey an idea of the design and action of this apparatus to our readers by means of the sectional diagram which has been prepared from the patent specification and the photographed view of the right side of the engine which accompanies this description.

Mons. Bollée, in his complete specification, sets out very clearly the considerations which have led him to design the combined carburetter and governor under notice. By it he seeks to obtain perfect carburetting whatever be the quantity of explosive mixture drawn into the engine in a given time. With explosion engines the power developed when running light slowly, or fast under full load often varies as much as one to twenty, or even more, and the quantity of explosive should vary as nearly as possible in the same proportion.

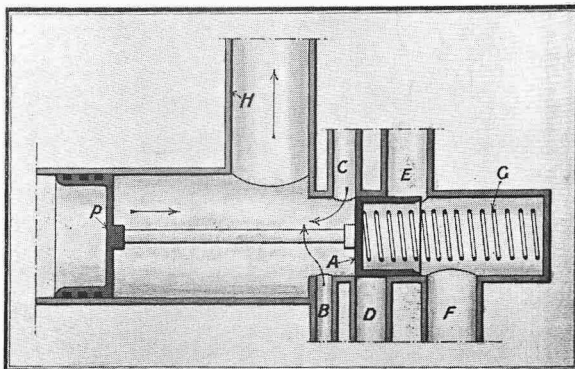
Assuming that the carburetter is made with orifices of unvarying size, this would mean that the suction at the point of the discharge of the spirit must vary as the square of the quantities handled, *i.e.*, 1 to 400. Consequently, says Mons. Bollée, the suction for small outputs is too weak for reliable working, and for large outputs too large to give a full cylinder charge.



The Bollée engine, showing the carburetter and air chimney with the necessary connections. The plunger rod end to the slide valve is seen to the left and beneath the union nut to the induction pipe.

With ordinary carburetters with small suction, it is known that the mixture is much poorer than when the suction is great, due to the resistance met with by the issuing spray from several causes. In order to amend this shortcoming, Mons. Bollée mounts a

number of carburetters (in the case of the car now in this country, two, but the new carburetters will, we believe, have no less than six jets) set upon the same induction pipe, but from which they can be shut off, or let in, by the governor, or the accelerator lever set like the Mercedes on the steering pillar.



A, piston valve uncovering carburetters.  
B, C, D, E, F, carburetters.  
G, spring returning piston valve A.  
H, induction pipe.  
P, piston operated by suction.

The diagram herewith shows, somewhat roughly it is true, the method by which Mons. Bollée effects this. In the diagram the suction in the induction pipe has already uncovered the carburetters B and C. As this suction increases P moves farther to the right in the direction of the arrow against the compression of the spring G, uncovering successively the carburetters D, E, and F. In this way, says Mons. Bollée, the pressure is maintained very nearly constant if the sectional area of the carburetter is sufficient. As we have said, the position of the piston valve A can be controlled either by the hand from the steering wheel, or by a suitable set of governors, so that the speed of the engine can be retarded or augmented at will, and the governor arranged to cut out the carburetters to any desired degree.

The reproduction of the photograph of the right hand side of the engine, given herewith, shows the carburetter as fitted thereto with two jets only. The two carburetters are seen attached to the inside face of the float feed chamber, one being a small carburetter, and the other of larger dimensions. At the forward end of the latter is seen a perpendicular tube or air tower, which communicates only with the larger carburetter. The air ports at the top thereof are set permanently to any desired degree, but there are others below, which are covered by a rotating sleeve, connected up to the hand and governor control by the projecting arm and coupling rods seen in the illustration. Hot air is delivered by the S shaped pipe and is alone fed to the small carburetter, and the mixture passes therefrom to the induction pipe by means of the small tube seen making junction just below the union.

By a suitable orifice in the piston valve A (see diagram), sufficient mixture can always pass from the small carburetter to the cylinders to allow the engine to be started. It is claimed that the soft

quiet, and successful running of the Leon Bollée engine is due to this design of carburetter, the special feature of which is its delivery of the exactly proportionate mixture required for the perfect running of the engine at any speed. Mons. Bollée is, however, not the only French motor engineer who has been working successfully on this basis. In the

new carburetter already referred to we believe the delivery of spirit from the jets of the larger carburetters will also be automatically or otherwise controlled. We hope shortly to be in a position to publish details of another carburetter, in which it is sought to obtain the same results but in rather a different manner.

## A PRIVATE RELIABILITY TRIAL.

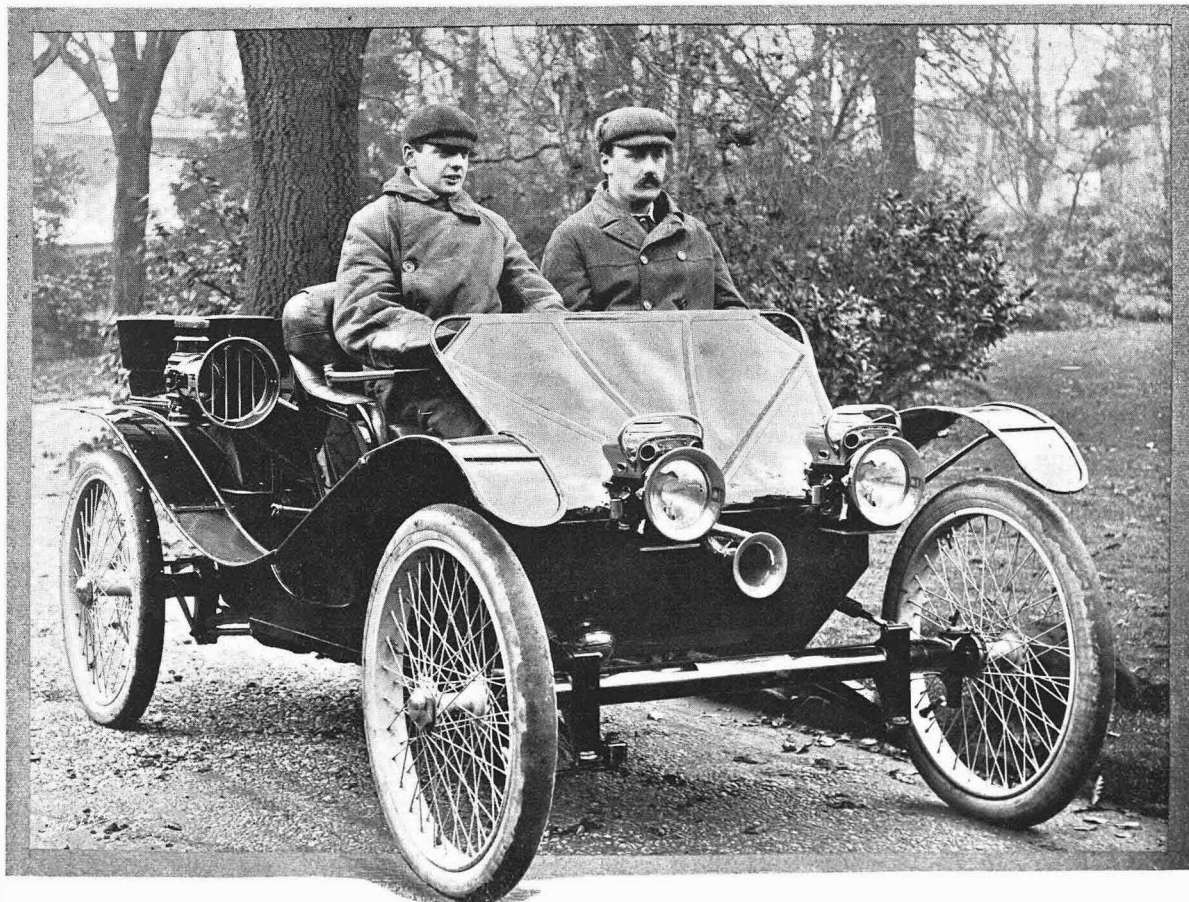
IT IS VERY SELDOM INDEED THAT WE HEAR OF A LONG DISTANCE PRIVATE RELIABILITY TRIAL BEING HELD BY THE OWNER OF A NEW CAR, AND FOR THIS REASON THE FOLLOWING ACCOUNT OF A 505 MILES RUN BY MR. C. W. DIXON, OF EDGBASTON, BIRMINGHAM, IS PARTICULARLY INTERESTING. MR. DIXON IS TO BE CONGRATULATED ON HIS DRIVE, UNDERTAKEN AS IT WAS AT A VERY BAD PERIOD OF THE YEAR.

**T**HERE are probably not many private owners who have attempted a continuous run of five hundred miles for the purpose of a test, so that I expect my experiences on such a run will be of interest to many automobilists. I have driven a 10 h.p. Lanchester car for eighteen months, and when my new 16 h.p. air-cooled car of the same make was delivered to me, I decided to make a test of its capabilities, especially as it was one of the first turned out of that power.

For the run I obtained the assistance of Mr. Millership—a friend of mine and one of the staff of the Lanchester Co.—and as good a driver as can be found.

Starting from Birmingham, our route lay through Coventry, along the London road as far as Barnet, back to Stonebridge (eleven miles from Birmingham), then through Castle Bromwich, Brownhills, Oakengates, Shrewsbury, Llangollen, Bangor, back to Shrewsbury, Hereford, Worcester, and to Birmingham; total five hundred and five miles.

We started at four p.m., loaded up with eight tins of petrol and oil, a supply of water and carbide for the head lights (which we lighted at dusk without stopping), a carefully arranged basket of food, a box containing bottles of coffee, cocoa, milk, claret, whiskey, and water, a spirit stove to heat up the coffee and cocoa. The spirit lamp worked



Mr. C. W. Dixon's 16 h.p. air-cooled Lanchester. The owner and Mr. A. Millership aboard, the latter at the tiller.

most successfully in the tonneau, the result being very comforting in the small and early hours, the outfit being completed by rugs, mackintoshes with indiarubber necks, high boots, etc., all of which were necessary, as we had sixteen hours of continuous rain during the latter part of the trip.

All went well for one hundred and seventy miles, when a sparking plug had to be replaced; at the same time the head lights were recharged. At Shrewsbury (two hundred and thirty-eight miles), we filled up the petrol tank, and the main lubricator with oil. It was misty and raining hard, so the moon, which we had thoughtfully provided, did not appear. However, we were for some unexplained reason, cheerful, and chased many a rabbit and occasional hare along the roads. The dawn was not impressive. Mr. Millership was lying curled up in the tonneau trying to keep himself and our chattels dry, and to get some sleep. I gathered from his murmurings that he was not altogether successful. I was hoping for a sunrise over the Welsh mountains, but there was no more of sun than there had been of moon; in fact, our early morning impressions of Wales were not pleasant.

At Bangor we telegraphed home that we were still going, but wet. At Bettws-y-Coed, we took in more petrol, and oiled up all round. Mr. Millership then said that we must get along a bit, but the car was sulky for the first time, and we spent half an hour adjusting the feed valves with such good result that he drove over a *dos-d'ane* somewhat rapidly, and our bottles of drink rose into the air, and on the way down three of them broke. My own impressions were that the cushion I was sitting on returned to the tonneau after me, and was discovered on my lap. I thought that the springs must be done for, but they were not in the least affected.

We were going well, and apart from a number of stoppages for cattle, etc., all round about Llangollen and Shrewsbury (it is always market day when I am out motoring), we finished the run in good style without further incident.

One point which struck me particularly was the amount of driving necessary to maintain a good average speed. I think most drivers exaggerate their speed largely. I know now that I did before this run. Our total time was twenty-four hours twenty minutes, out of which must be deducted one hour thirty-six minutes for stoppages, the average speed for running time working out at a little over twenty-two miles per hour, in spite of much fast running on clear roads. The petrol used was twenty-six gallons, giving 19.4 miles per gallon, our weight being about twenty-five hundredweight loaded. The car ran beautifully, and showed no signs of distress or heating, and the tyres gave no trouble.

I give an analysis of lost time:

Charging lamps, filling petrol and oil tanks	47m.
Traffic stops, telegrams, etc....	14m.
Changing sparking plug, adjusting valves...	35m.

Mr. Millership and I took turns in driving—roughly in six hour shifts, and I must say that had I been driving during the last portion, when the roads were very greasy and anything but straight, our time would not have been so good. The way Mr. Millership drove under these circumstances was at once a lesson and a pleasure to see.

[The foregoing narrative conclusively proves that an air-cooled engine of even so high a power as 16 h.p. on the brake may be successfully run for very long distances without the aid of water-cooled jackets to the cylinders. It will be particularly interesting to South African motorists, who often find it more difficult to procure water than petrol.—ED.]



THE 12 H.P. KORTE CAR. In "The Autocar" of October 24th, we described the engine and chief mechanical features of this car. The illustration we now publish gives an excellent idea of the outward appearance of one of the vehicles. This particular car is the property of Mr. Lawrence Clayton, of Oak Hill, Leeds. It is in all respects similar to the one we recently described, but has a removable top, so that from the very comfortable six-seated tonneau which we show, it can be transformed into a covered bus with complete covering to all the seats and a glass screen above the dashboard. This car did good service in the recent municipal elections, and during the day carried some 150 electors to the polling station.



## CONTINENTAL NOTES AND NEWS.

### A New Motor Classification.

The method adopted by the *Chambre Syndicale de l'Automobile* of classifying motors according to their cylinder capacity does not seem to be giving satisfaction to some of the makers, who claim that the system is likely to have misleading results. It was based upon the idea that by limiting the cubical capacity all the engines in each category would develop something like the same power, and the trials would therefore necessarily become a test of transmissions. Had the system been carried out to its logical conclusion there is no doubt that it would have given valuable results by encouraging makers to pay particular attention to the economy of their transmission gears. The motor has been so far perfected that it would certainly be a good thing for the automobile if the same care and ingenuity were diverted to the existing methods of transmitting power, which ought to be capable of being improved upon to a far greater extent than is possible with the motor. Unfortunately, the classification by cylinder capacity has not altogether had the result anticipated. The promoters of the system failed to take into account the various other factors in the running of engines, and more especially the piston speed which they regarded as fairly constant in the majority of motors, and when makers found themselves limited to cubical capacity they endeavoured to get more power out of the engines by running them at the highest speed possible. Some of the little engines are even being run at the phenomenal speed of 3,600 revolutions a minute. So far as this tends to reduce the weight of motors the experience is highly interesting, but it also raises other issues that are certainly not calculated to favour engine efficiency. The question of piston speed received a good deal of attention at the late *Automobile Congress* in Paris, when most of the members gave it as their experience that the motor torque rose up to a certain point and then declined, whence it was concluded that the running of engines at high speeds was not desirable, unless presumably the compressions can be correspondingly increased and the gases fired with much hotter sparks. Much higher compressions than those at which motors are now generally run are not, however, without certain inconveniences. These conclusions have been borne out by the practice of makers who, for two years past, have been adopting the principle of the relatively slow running engine. It is, therefore, not a little singular that the cubical capacity classification should have encouraged makers of small motors to go back to what has hitherto been considered as something like a fallacy, and run their engines at unheard-of speeds for the sake of getting an advantage in trials. M. Emile Mors thinks that the tendency of this classification should be guarded against. He has consequently proposed a modification of the system, which he calls the "cylinder-cube minute." He takes into account the lineal piston speed, which he estimates at a maximum of six metres a second, and with this he multiplies the area of the piston to get the limit for each category of motor. The system is logical in the sense that it gives approximately the power of the motor, but it

is being strongly criticised by some makers, who say that the lineal speed is not constant, while others affirm that it is; and, again, it is urged that the method will favour the long stroke and heavier motors at the expense of the lighter and more rapidly running engines. On the whole, the solution does not seem to give so much satisfaction as the simple classification by cubical capacity, each maker apparently approving of one or the other according to whether it favours his own engine. The matter is now being discussed by the *Chambre Syndicale*, who will doubtless very soon come to a decision as to the system of classification to be adopted in the future.

### The Gordon Bennett Cup.

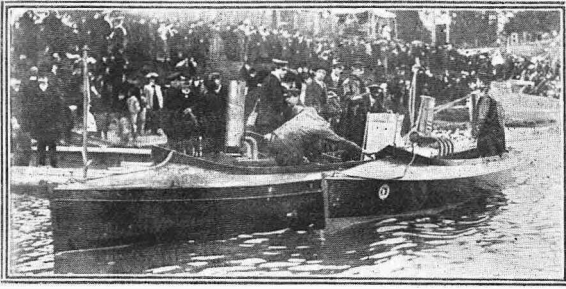
The attacks being made in Germany upon the Taunus route, near Homburg, have induced the German A.C. to send Count von Sierstorff to Paris to confer with the sporting commission of the A.C.F., and as the result of his visit Chevalier René de Knyff has undertaken to prospect the course with his Panhard, and give his opinion as to whether or not it is suitable for racing. If the French representative thinks that the course is not satisfactory, another will be chosen, for the A.C. of Germany is determined not to select a course unless it offers every guarantee of safety. The German Emperor is reported to be taking a keen interest in the race, and to have suggested to the Mayor of Homburg the advisability of organising a series of alcohol races immediately after the international event, in the hope that the foreign competitors may be induced to take part in them.

### Classification of Records.

It is perhaps advisable that there should be some distinction between records at trial meetings and those made privately, for it is obviously hardly fair to place the two on an equal footing. At a trial meeting, as at Dourdan, an absolutely level course is selected. A day is also fixed some weeks, and perhaps months, beforehand, and the competitors have to take their chance as to the state of the road and the weather, and very often they may actually find the wind against them. Moreover, they



H.R.H. Prince Henry of Prussia starting out for a speed trial on a Benz-Parsifal. His Royal Highness is taking a great interest in the forthcoming Gordon-Bennett race.



**MARINE MOTORING.** A steam and petrol launch side by side. The silencer of the latter is arranged to give the appearance of a funnel. The cylinders exhaust through the usual pipes to a cylindrical chamber placed longitudinally across the cylinder heads, and on to this is fixed a vertical discharge, which is given a slight rake aft.

can only have one trial, and if they fail to have everything in perfect order their chance is gone. With the private trial, the case is different. The course must be selected to give satisfaction to the official timekeepers, but the would-be record-breaker can go which way he pleases, according to the wind, and if a gale should be blowing behind him so much the better. He may keep trying until he gets his car up to concert pitch, and if under these conditions he does not break the record he is very unlucky indeed. Apart from this comparison, there is nothing to detract from records made under such conditions, for, after all, the sole object of the sible time, and there is no reason why he should be driver is to cover the kilometre in the shortest possible time, and there is no reason why he should be records have a decidedly artificial character, and are not likely to appeal to the sporting instincts of the public so strongly as records made in open competition, where all the makers have exactly the same chances. It is in the former category that the record made this week by Baras on his Darracq four-cylinder light car has to be classed. Between Montgeron and Lieusaint, on the road from Paris to Melun, he covered the flying kilometre in  $29\frac{2}{5}$ s., which beats the old record, by Théry on a Decauville, for this class of vehicle by  $\frac{3}{5}$ s., the time representing an average of seventy-six miles an hour.

#### **Trials of Paraffin Carburetters.**

On the occasion of the forthcoming Salon there will be held in the Grand Palais a trial of carburetters employing ordinary paraffin with a density of 800 to 810 at  $15^{\circ}$  C. The trials will begin on December 15th, and will be carried out by a jury appointed by the Executive Commission. The results will be published on the last day of the show. Medals and certificates will be awarded, and a prize of a thousand francs will be given for the best carburetter which will work equally well with paraffin, petrol, and carburetted alcohol.

#### **Mechanical Inlet Valves.**

A good deal of diverse opinion has been expressed concerning the merits or drawbacks of the mechanically operated induction valve, and everyone has been able to theorise on the matter with little fear of contradiction, for it is certain that the vast majority of makers adopted them without having any definite opinions of their own as to the advantages of these valves, beyond the vague idea that as they had been successfully used by the leading

firms the principle must necessarily be the correct one. Originally the mechanical induction valve was employed because it permitted the motor to be slowed down much more than had previously been possible, and until the compensating carburetter was introduced the mechanical working of valves seemed to alone ensure silent running and a relatively high efficiency at low speeds. For this reason it was presumed that the utility of the mechanical valve had passed by the introduction of the compensating carburetter, or, at least, that it only held an advantage for big engines. Experiments carried out by Messrs. Peugeot appear to show that the efficiency of the motor with mechanically operated induction valves is not only relatively greater at low speeds, but also at high speeds. Messrs. Peugeot, we believe, were the first to employ mechanically-operated induction valves. These were on their vehicles exhibited at the Paris Show of 1901. It was, in fact, at the beginning of that year that they began to experiment with mechanically-operated inlet valves, with such good results that in May, 1901, the first car was turned out propelled by the new motor. The superiority of the mechanical valve has been proved by tests carried out with two double cylinder motors of six horsepower, one with automatic valves and the other with mechanically operated induction valves, both engines having cylinders of 80 mm. by 90 mm. Starting at a thousand revolutions, the engine with automatic valves developed  $4\frac{1}{2}$  h.p., which rose to 5.6 h.p. at 1,250 revolutions, but apart from this point, there was a sudden drop to 4.9 h.p. at 1,400 revolutions. This is obviously due to the fact that at the higher rate of running the automatic valve did not open and close at the precise moments, and probably also jumped on its seat, so that the cylinder did not obtain a full and regular charge. In the motor with mechanically operated valves, the efficiency is relatively high at all speeds. Starting at 1,050 revolutions, the engine gave 4.9 h.p., and rose to 6.2 h.p. at 1,250 revolutions, but from this point, instead of suddenly falling as in the motor with automatic valves, the power continued to increase, though with a diminishing rate of progression, until the maximum power of 6.8 h.p. was reached at 1,400 revolutions. These results are the average of scores of tests carried out during the past two years, so that, with the Peugeot motor, the advantages of the mechanically operated inlet valve are too manifest to admit of the slightest doubt of their superior efficiency. It would be interesting if other makers would give the results of their experiments, for if the mechanically operated inlet valve increases the efficiency at all speeds to such an extent in all types of engines, it is impossible not to admit its immense superiority.



**MARINE MOTORING.** A side view of the launch, showing the superimposed silencer.

## Correspondence.

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

### THE IDENTIFICATION MARK

[3295.]—It seems to me to be very doubtful whether the proposed Local Government Board regulations requiring every car to carry two identification plates—one in front and the other behind—is not *ultra vires*.

Section 2 (Sub-secs. 2 and 4) of the new Act speaks of "a mark" and "the mark," and the same section deals with the assignment of "a general identification mark" to manufacturers and dealers.

In Section 7 the word "marks" is used for the first time, but as this section only authorises the Local Government Board to make regulations as to the marks "to be fixed under the Act" (i.e., under Section 2, which provides for "a mark"), it is difficult to see where the Board gets its power from to require two plates.

No doubt this view has been pressed upon the Local Government Board by the Automobile Club and others, and it is to be hoped that when the new regulations are laid before Parliament (as they have to be) they will be thoroughly discussed and the unnecessary harshness of some of them pointed out.

JOHN URQUHART.

[We have received a number of letters to the same effect as the above. The matter has been, as mentioned last week, prominently brought before the Local Government Board by the Automobile Club and other representative bodies.—Ed.]

[3296.]—Having read the draft proposals of the Local Government Board re the Motor Car Act to become law on Jan. 1st next, a point has occurred to me in regard to the number plaque that automobiles will be required to carry fore and aft, which is a rather serious one. It appears to me that the size of plaque and its shape render it almost impossible to be placed elsewhere than in front of the radiators. With cars employing honeycomb pattern coolers, this impediment to the air would be most detrimental.

Could not representations be made by some influential body to the President of the Local Government Board to endeavour to get the shape of the plaque altered so that the letters and figures would read in one straight line, making the plaque long and narrow, so that it could be attached below the coolers and above the starting handle.

In America the numbers are in skeleton form of white metal, and are suspended or fixed separately side by side, and while being clearly visible and distinct, are not nearly so hideous as a nearly square plaque.

PERCY S. CRADOCK.

[The matter referred to in the above letter has also been brought before the Local Government Board, and we have every hope that the representations which have been made will result in the numbers being so arranged that no interference will be made with the efficiency of the radiator.—Ed.]

### THE OLDSMOBILE.

[3297.]—I bought my Oldsmobile in March last, not quite new, it having run nearly 200 miles. During the first month it was in my possession I took short, frequent runs, contenting myself to learn the machine thoroughly. At this time I was not exactly a novice, having owned cars for three years—first a Benz Ideal and afterwards a 4½ h.p. De Dion. From March last to the present time I have driven my Oldsmobile some 6,000 miles. Quoting from my log, I find that from July 4th last to September 31st I averaged a daily distance of forty miles, using the car for transit between the S.W. of London and a cottage in Surrey, where I lived for the period named. Since that date to the present time, I have used the car at least three times a week. A month ago—to be exact, on Tuesday, October 6th—I started for a week's run, partly on business and partly on pleasure bent, in a pouring rain with hood up. As our friends the police are interested in record runs, I will not say what roads I used, but I found at the end of my day's journey I had averaged fourteen miles per hour. The following four days were very wet, though not so bad as the first one. I was able at intervals to let down the hood, and my speed was considerably

increased. The last day, Sunday, was a horrible day, a gale more or less severe blowing with much rain until my arrival in London. This day I started at 10.30 a.m., reached home at 10.50 p.m., distance travelled 147 miles, hood up the whole day, roads bad, and for many miles under water. I do not suggest that this was fair treatment for any small car, but I had to return that day, hence my reason for driving in such bad weather. On overhauling the car afterwards, I found I had water in the cylinder, and thinking this was caused by defective packing, I had the cylinder head bolts screwed up very tightly indeed after putting in a new washer. This was a mistake, as the cylinder was cracked in three places at each end here, and the extra strain caused the cracks to open more, necessitating fitting a new cylinder. This has been done, and the car is even better now than when I had it first. It may be that the finer adjustments and the more perfect cleanliness have something to do with this. With regard to petrol consumption, I carefully tested this for a month and found I could get thirty-seven miles per gallon. My experience of cost of upkeep is, perhaps, the least favourable part of the performance. In addition to the new cylinder above mentioned, I have worn out two sets of single tube tyres, the third set now being in use, and the second chain is now showing signs of wear, though not serious. I contemplate another year's wear out of the car if I should require it, as I think it will be quite equal to it. We can hardly have a worse time than the past few months for motoring, and we may have a great deal better. I may add I have never yet found a hill that it would not climb on the low gear, and on country roads, provided they are in fair condition, I have rarely needed to put in the low gear for ordinary hills, the momentum gained being sufficient to carry it up, unless a very long one indeed.

I have absolutely no interest in this or any other make of car; the above is a plain, unvarnished statement of fact.

FRED H. BOCKMASTER.

[3298.]—I have had an Oldsmobile for fifteen months. For smoothness of running on our rough roads and absence of noise and vibration it is delightful. There has been no trouble with cylinder, piston, valves, valve gear, or carburetter, except the leakage of the packing rings of combustion chamber once. In the rest of the car too much is sacrificed to lightness and neatness, causing the occasional giving way of bolts, wire connections, tube connections, etc. The electric make and break is improved by putting longer brass bearings to it, and the connection to circulating pump will stand better if made longer, the shape of a hairpin, and the ends wired together after it is put in. It is difficult to ensure proper lubrication of the speed gears, and when these dry and out the whole car has to come to pieces to get at them. A canvas cover should be put underneath to protect the machinery from mud and to catch any parts that may be shed, but not so arranged as to conduct these into the after sprocket case. This tends to break the chain. An accumulator should replace the dry cells. The conception of the car is clever, and it is a pity the carrying out is not equally admirable. Still, I prefer it to most of the other cars I have tried, chiefly because of its smooth and quiet running, pretty appearance, and flexibility of speed change. My record of speed is seven miles in twenty minutes on a dry and fairly good road without very steep hills, and I have been towed only once, when all the teeth came off the (cast iron) rear sprocket, but it does not cost much to fit a new steel one.

J. BROWN.

Belfast.

### TYRES.

[3299.]—The letters in your journal No. 3,289 and 3,290 are very interesting, and perhaps to many No. 3,289 will be instructive, but of 3,290 the same cannot be said.

It is generally agreed by all—whether cyclist, motor cyclist, or motorist—that the use and the enjoyment of pneumatic tyres are really worth the extra cost and any trouble they may entail.

I have within the last three months had striking experiences of the enormous difference in solid *versus* pneumatic tyres. A party of us came through from Yorkshire on a car shod with solid tyres (distance about 150 miles). This took two and half days, one tyre coming off and giving a lot of trouble. A week after we came through

exactly the same journey on a car shod with pneumatic tyres in fifteen hours. The result was this, that when I came off the car that did the journey in the quicker time I was much fresher and had had considerably more comfort and enjoyment. Of the two cars the slower one had need of more attention at the finish, not to mention extra cost of fuel, oil, etc., and loss of time.

I may say my pneumatic tyres are lined with Cox's puncture-proof bands that I saw advertised in your paper, and I have had no trouble of any kind all this year. My car gets a considerable amount of work every week over all kinds of roads.

My experience after many years is this: it is no use grumbling with your tyre maker (competition compels him to do his very best); use your own commonsense, and find out what is in the market to give you the greatest pleasure, with the greatest security from burst tyres and punctures; and, finally, when travelling in a good car (and, of course, pneumatic tyres) the sensation and enjoyment I can only describe as flying—actually flying on air. Compare this with solid tyres, and any springs you may have or can produce. The result of favour lies only in one direction, namely, pneumatic tyres.

f. G.

[3500.]—Your correspondent signing himself "A Mechanical Engineer" in your issue of the 14th, goes to the root of the matter as to the expense and worry of pneumatic tyres, and I am very much in accord with the views expressed. He wholly omits heavy motor cars, such as motor buses—most useful if properly supplied with the resilient hubs, but at present using solid rubber tyres costing £120 the set, which rapidly become useless.

It might be well to point out briefly that so valuable a material as rubber would be more effectively and economically employed if placed in a position where the maximum benefit is derived from the minimum quantity employed, while it is protected from injurious treatment.

If enquiry be made as to how such a beneficial arrangement is to be carried out, the answer is, that by properly distributing the weight carried over a number of rubber cushions or buffers suitably arranged in proximity to the axle, but not touching it, the desired effect is produced. While less than a quarter of the rubber used on a tyre is employed, over four times as much area of resilient material sustains the weight carried.

It will be readily understood that any description of tyre may be used with the rubber cushioned hub (which you have illustrated in your valuable journal) and be benefited by it, and if skidding and stripping of tyres be admitted to be serious disadvantages, then solid ribbed iron or steel and lead tyres may be used, and the small objection to the noise consequent on crushing gravel into the road may be disregarded. The rubber-cushioned hub, to which I have already referred, has been most successfully used on a motor car over some thousands of miles.

Should any of your readers desire further information, I shall be happy to show a working model at my office and also to show that it is the most effective and reliable means of securing resilience in every class of vehicle from a bicycle to a locomotive, not excepting gun carriages.

EDWIN N. HENWOOD.

22, Great St. Helens, London.

[3301.]—All practical motorists who are not millionaires must endorse a great many of the remarks made by "A Mechanical Engineer" in his interesting letter appearing in your issue of the 14th inst.

I believe that many of the leading motor car manufacturers recognise that the short-lived, extravagant, and treacherous pneumatic tyre is seriously checking the development of mechanical traction, which, until this tyre problem is solved, will be unable to evolve itself from the stage of what another of your correspondents terms "mechanical toys." What is required is a resilient, non-puncturable, long-lived tyre, and this will doubtless sooner or later arrive.

In the meantime I presume we motorists with modest purses will have to put up with the equally unsatisfactory but more reliable solid tyres on our rear wheels. But I think your inexperienced readers ought to be warned as to the extreme danger of using solid tyres on the front wheels of a high-speed car, however delicate the carriage springs may be. The perpetual vibration is certain,

sooner or later, to affect the metal of that part of the steering gear which lies under the carriage springs, and probably end in a disastrous accident.

I myself have had actual experience of an accident of this kind, which fortunately took place as we were slowing up to pass a restive horse. Had the accident occurred five minutes earlier it would certainly have resulted in the maiming, if not instantaneous death, of all those on the car.

A PRACTICAL MOTORIST.

#### CODE OF SIGNALS FOR AUTOMOBILISTS.

[3302.]—Will you kindly give my letter and suggestions publication in your journal, as I think it would be the means of motorists greatly helping each other, and save a lot of unnecessary shouting between cars, which is seldom or never heard, and only tends to make one curious.

I propose a short code of three signals, which, being in themselves simple and easy to remember, may be the means of saving the driver of a car many pounds through blindly running into danger from want of being cautioned.

The following signals to be made with the right arm extended:

1. Arm pointing down towards the ground signifies "caution."
2. Arm horizontal signifies "trap."
3. Arm perpendicular signifies "want assistance."

For instance, "caution" might mean a tree blown across the road.

"Trap."—This does not want an explanation.

"Want assistance" might be used to ask for help—petrol, use of a spanner, etc., etc.—or to explain the nature and position of a trap, or, possibly, of danger. On passing, the horn to be sounded, so as to give the approximate distance:

One mile—one blast.

Two miles—two blasts.

And so on to ten.

Eleven miles—one blast (short pause), then one blast.

Twelve—one blast (short pause), then two blasts.

Thirteen—one blast (short pause), then three blasts.

Twenty-one—two blasts (short pause), then one blast.

Twenty-two—two blasts (short pause), then two blasts.

And so on.

If these signals meet with approval, will motorists kindly send me a postcard? Already I have received quite a number. In every single case (without any exception) the signals have met with approval, and in some cases writers have expressed their willingness to adopt them.

It will be noted that there is no need to use the number 0, as these are only approximate distances. For instance, if there was a tree across the road thirty miles off sound the thirty-one.

It would be as well in adopting these signals if motorists would use a small and reliable horn, as some of the big ones (fitted with tubes) want the air blowing out before a clear note can be made.

As soon as I see that my signals are approved by motorists I will do all in my power to make them generally known through the press.

My only idea in writing this is to be of service to the users of cars, motor cycles, and last, but not least, the users of ordinary bicycles, who have from time to time been of great service to the public in giving warning. Thus they will be able to do with their bells instead of the horn, and I believe if these signals are universally adopted they will not only be the means of saving all of us a lot of unnecessary annoyance and expense from various sources, but in cases of danger ahead "forewarned would mean being forearmed."

W. G. WINDHAM, Lieut.,

Member of the Automobile Club.

P.S.—It must be distinctly understood that these signals are intended to help motorists to keep the law and not to break it.

#### PRIVATE TOUTING.

[3303.]—The question raised by Mr. Austin is one of some importance at the present time, and so is the nuisance of the man who, because of some remote, imaginary, or real connection with some branch of trade distantly connected with ironmongery or engineering, considers himself entitled to trade terms when buying a car for his personal use. In this connection the following extract from "The Book of the Duryea" may be interest-

ing: "Terms of Business.—Intending customers are respectfully asked to note that the difficulty of our business is not to sell cars, but to supply them in sufficient quantity to adequately meet the demand; also that our prices, by comparison with other first-class cars of equal power, are low. It is therefore but waste of time their own as well as ours—to ask what reduction we will make to them because their wife's great uncle happens to be an engineer, or sells frying pans, or other such cogent reason, or to ask 'what we will take for cash.' Our terms are cash, and our prices are based upon sales being cash transactions."

We believe in treating all customers alike, and if those who make such requests would but think a moment they would see the unreasonableness of it. If we were to adopt such a system we should have to make provision for it in our prices, with the result that the innocent buyer would pay more in order that the "smart" few should gain.

THE DURYEA COMPANY.

[We have also received several letters from agents and other correspondents, but they do not deal with the evil referred to, but rather with the position of the *bona-fide* agent a very different matter, and one which should be discussed at meetings of the Society of Motor Manufacturers and Traders and the Automobile Mutual Protection Association, as the matters dealt with are entirely the concern of the manufacturers and their appointed distributors.—Ed.]

#### THE MOTOR GADABOUT.

[3304.]—We have read with interest the letter of your correspondent, "An Old Cyclist," under the above heading, appearing in last week's issue, and we are pleased to observe that the Oldsmobile comes nearest to your correspondent's requirements.

We are surprised, however, that he raises any question on the hill-climbing qualities of the Oldsmobile, and as it is impossible for us to communicate direct with him, we would like to inform you that we are always prepared to sell one of our little Oldsmobiles on the understanding that it has to do everything it is called upon to do in a fair and reasonable manner. That is to say, there is no part of England, Ireland, Scotland, or Wales, with roads that can be called roads—however steep the gradient—that the Oldsmobile will not climb.

The hill-climbing capability of the Oldsmobile is one of its strongest features.

Perhaps your correspondent will allow us to send one of our cars to climb some of the hills he mentions.

CHARLES JARROTT AND LETTS, LTD.

[3305.]—Being an old cyclist of fifteen years standing, and also having had a season's experience in driving the Vauxhall light car, your correspondent (3,294) may appreciate my opinion of the car.

He appears to lay stress upon hill-climbing power, and I can assure him that these cars can climb hills. There are some fairly stiff hills about here over which I never have any difficulty—for instance, always taking Hind Head, with two up, on the top speed—but the best test was a tour extending over a month throughout Devon and Cornwall, the load being two in the car and luggage behind, where I never found any hill which the car could not negotiate with ease; and some of them are very bad, both as regards gradient and surface. After some 3,000 miles here and in the West my experience is that on the low speed the car will go up any hill.

The car is fairly fast on the level—much faster than your correspondent mentions—and the petrol consumption is remarkably low, working out at something like forty miles per gallon.

The mechanism of the car is simplicity itself, there being only a simple horizontal engine, which is easily looked after, and as long as the lubrication is attended to there is nothing much else to look after.

W. DICKINSON.

[3306.]—The letter from "An Old Cyclist," under the heading of "The Motor Gadabout," doubtless voices the wishes of a large number of would-be motorists, but I think there is even a larger number who, like myself, want a thoroughly reliable miniature car, capable of carrying

four people in tolerable comfort, and capable of being managed entirely by the owner, with, perhaps, the assistance of a weekly wash down by the gardener. I have been looking out for such a motor car for some time, and have nearly come to the conclusion that it does not exist.

All the four-seated, reliable cars are somewhat heavy, unwieldy vehicles of 12 or 13 cwt., that demand the services of a mechanic. I saw a small car with a tonneau that an ordinary sheet would have covered, quite a miniature affair, but, alas! it had only a 5 h.p. engine, and the clatter it made was deafening. (Why do not English and French motor car manufacturers realise that the ordinary man would like to have a car as silent as a bicycle if he could get it?)

My ideal is a small car, about eight feet in length, about 8 cwt. in weight, with a removable tonneau, magnet-ignition, irreversible steering, preferably two-cylinder, mechanically-operated valves, metal clutch, and automatic carburetter.

Can anyone kindly tell me where this ideal is to be found? True, there are a legion of four-seated cars on the market at about £200; a new one every week, under fancy names, capable of carrying four people, but, alas! I distrust them. They are, I find on enquiry, cheap French affairs, and I fear little would be left of them in six months. And they are all noisy.

As for Yankee cars, I have been solemnly warned by owners of them to avoid them as the plague. Their only good quality is their comparatively noiseless running. If anyone will assist me in my search I shall be infinitely obliged.

F. A. MORGAN.

#### REPAIR FACILITIES.

[3307.]—It is certainly an excellent suggestion of your correspondent, Mr. W. H. Jane, that a list of reliable repairers in various parts of the British Isles should be compiled, but surely it is asking too much of the Automobile Club to undertake to obtain bankers' references in each case. The matter concerns rather the manufacturers. I have sometimes required replacements, and have never experienced difficulty; but then I have an English-built car. I wired the other day when away from home for a part at 5.45 p.m., and duly received it at eight the next morning. Purchasers of cars do not, when buying, take into consideration the facility or otherwise of obtaining parts of their car later, though in my opinion it adds much to one's comfort to know that one can obtain anything in a few hours. In this respect there appears to me an advantage in obtaining a car from an English firm who have agencies in many parts of the country. I must add that I have no connection or interest with any motor firm.

E. C. HOLLAND.

#### AN ERRONEOUS IMPRESSION.

[3308.]—We have been very much annoyed by questions which have been fired at us, following the official intimation of the taking over the parent company, styled the "Collier Twin Tyre Company, Ltd., by the now Collier Tyre Co., Ltd. It would appear that a peculiarly sensitive nervousness shocks the world of motor car manufacturers and affiliated trades as soon as the words "liquidation" and "liquidator" are mentioned, and we should esteem it a favour if you would be good enough to grant us sufficient space in your valuable journal for the insertion of this note, in order that the minds of many of your readers and the trade generally, who misconstrued the official notice of liquidation of the old company, may be set at rest.

The business of the Collier Tyre Co., Ltd., has been so eminently successful—proving itself thoroughly satisfactory not alone to its *clients* but also to its proprietors—that the stronger and more intelligent mind will readily appreciate the true position, as well as the feeling, which the Collier tyre's splendid success, already achieved, may have engendered in that of the weaker.

THE COLLIER TYRE CO., LTD.

W. GEO. WILLIAMS, general manager.

#### STEAM CARS.

[3309.]—I advise "Uloola" (3268) to get "Notes on the Management of the Gardner-Serpollet Steam Car," by G. H. Olliver (Hiffe and Sons, Ltd., 3, St. Bride Street, E.C.)

I have driven a Serpollet for three years, and if "Uloola" would like my address, please forward it to him. E.L.

[3310.]—*In re* the correspondence which is taking place in *The Autocar* respecting steam cars, we have no desire to use your correspondence columns as a medium of advertisement. But as the manufacturers of the Miesse car, we shall be much obliged if you will allow us to inform shortly the several correspondents who have written suggesting what a great improvement it would be if a pilot light were fitted that we are now fitting to the Miesse cars a pilot light.

It is extremely simple, and enables the main burner to be turned right out when the car is standing, and the car can be left without attention for hours at a stretch if necessary with the pilot light burning, and when it is desired to start the car again it is ready instantaneously by merely turning on the main burner and turning off the pilot light. J. B. DUMBELL, managing director.

#### AN IMPROVED INDUCTION VALVE.

[3311.]—Mr. James Virtue, in his letter in your issue of the 7th inst., takes me to task for failing to claim what he states to be one of the most important points in the design, viz., the quick and accurate closing of the valve by the previously strongly compressed spring. This is not an important point, or even a point at all, in my design, as all mechanically operated induction valves as at present employed on petrol engines are closed by a previously strongly compressed spring, and the action of my valve in closing is exactly the same as that of all such mechanically operated valves.

Had Mr. Virtue carefully read the description of the valve he would have seen that no advantageous claim was made that the eight valves of a four-cylinder engine could be operated by four cams. What was stated to be an advantage is that in a four-cylinder engine fitted with my induction valves the whole of the eight valves can be operated from four cams by four lifters or strikers.

It is news to me that in an ordinary gas or oil engine of the usual type the air valve remains open for a longer period than the exhaust valve; but, allowing Mr. Virtue even this special construction, his suggested method of taking the necessary operating motion for all the valves from one set of cams is both unpractical and unworkable when but four cams and four lifters or strikers are employed.

I quite agree with Mr. Virtue that with valves as ordinarily arranged, or even arranged as suggested by him, it would be better to use separate cams for the air and exhaust valves, but with my improved valve the whole conditions are altered, with the result that not only can a number of working parts be dispensed with and all delicate adjustment be avoided, but a perfect opening action is obtained which is entirely self-regulating.

ROBERT E. PHILLIPS.

#### LE ROY AUTOVULCANISER.

[3312.]—After reading an article in your columns *re* the above, I bought a set and used it the other day to patch three inner tubes. I was dismayed to find subsequently that wherever the acid from the yellow bottle went on to the tube outside the patch, it completely perished the rubber, so that the tubes are ruined.

I think it is only fair to insert this experience in your columns to save other people from loss.

E. R. HOLLOND.

[A letter has already been published in these columns advising great care in the use of this method, owing to the presence of fuming nitric acid in one of the numerous bottles included in the outfit.—Ed.]

#### THE SAINSBURY ANTI-SKIDDER.

[3313.]—Referring to the statement in your issue of the 7th inst. (page 590), under the heading "New Patents," I find an erroneous description of my invention, which I would thank you to have corrected. The error referred to is in the description, which states that the plates "dig into the ground." This is just the opposite of the idea and what I claim for it, as a perusal of my specification will show. You may have ten thousand revolutions with my device on the direct drive, and it would have no effect

whatever, much less digging into the ground. It is only on the tendency to skid that the horns come into action, and then it is not by digging into the ground, but by dragging transversely against the ground, by which I arrest the skid.

I may add, in your description of the device in the earlier part of your paper, you correctly point out that the device does not dig into the ground, but I think it just as well to correct this error which has unaccountably crept into the other description. W. D. SAINSBURY.

#### MOTOR RACING.

[3314.]—I am sorry to note in a contemporary of November 14th a letter from Mr. Edge, which I think is rather unfair to English manufacturers.

Our company has always intended to compete for the Gordon-Bennett Cup and the motor boat races, but we think that motor car manufacturers will do well first to consider the fact that motor car races are almost impossible now, and as there will be practically only one race next year, namely, the Gordon-Bennett, whether the cost of going in for racing is recompensed by their chance of winning in the eliminating test, such as was held this year at Welbeck. By all means let us try to get back the Gordon-Bennett Cup, but at the same time let us be sensible enough not to waste capital, which in itself is bad for the industry, by building an unnecessary lot of cars for a competition among ourselves as to who should represent us in this international contest.

I still feel most strongly that the safest, the most economical, and the best results could be obtained by the club if it were to nominate three of our leading manufacturers to build one car each, under the supervision of a small committee to be appointed by the club. To have any chance of winning next year's Gordon-Bennett, we shall have to build a car which will be quite useless for anything but a speed contest; and we ought to do as little of this as possible if we are to husband our resources.

H. AUSTIN,

THE WOLSELEY TOOL AND MOTOR CO.

#### THE MIDGLEY NON-SLIPPING DEVICE.

[3315.]—Referring to the letter appearing in your last issue under this head from the Parsons Non-skid Co., Ltd., stating that the traction band invented by Mr. E. Midgley is fully covered by Mr. Parsons's patent, I am instructed, on behalf of Mr. Midgley, to state that his device is a new invention, differing in all its essentials from that of Mr. Parsons. I shall be obliged if you will give publicity to this letter in your columns.

J. S. WILKINSON.

[This correspondence, so far as the similarity or otherwise of the Parsons and Midgley devices is concerned, is closed.—Ed.]

#### UNOFFICIAL TRIALS.

[3316.]—Under the above heading we have read Mr. Jane's letter and Mr. Stocks's reply.

Naturally, the professional chauffeur, the man who is always driving, will get better results out of a car than the owner driver, who only drives when he feels inclined to; but we do say without fear of contradiction that M.M.C. cars are so simple and so automatic (that is to say, as little as possible is left to the non-expert judgment) that many of our clients get just as good results from their cars as our own experts can.

In the recent thousand miles trials our cars were driven by experts, but we should have felt quite confident had they been handled by several of our customers.

Mr. Jane's arguments are perhaps just a little "new," but they are sound nevertheless. What better advice can one get with regard to a car than that which can be given by friends who have driven their cars not one thousand but many thousands of miles? The point, however, that we wish to bring forward is the fact that Mr. Jane has shown his good sense by having placed his order with us for a 10 h.p. M.M.C. car, after trials and after making his enquiries *Verb. sap.*

THE MOTOR MANUFACTURING CO., LTD.

ALFRED BURGESS, manager and secretary.

[Owing to pressure on our space a number of letters are unavoidably withheld.—Ed.]

## Flashes.

Will Mr. E. Leslie Bacon please forward us his address?

\* \* \*

The officer holding the appointment of District Officer, Raub, will officiate as licensing officer for automobiles for Pahang.

\* \* \*

The Bishop of Winchester is making the acquaintance of the people of his new diocese, by means of a motor car.

\* \* \*

Messrs. Joseph Lucas, Ltd., notify the removal of their "Motoralities" department from Birmingham to 224, Shaftesbury Avenue, London.

\* \* \*

The *Western Mail* says: "Why not adopt the motor car for rural mails? The driver of the mail-cart running between Newport (Mon.) and Brecon told the magistrates at Newport last week that he starts from Newport at 2.30 a.m., and arrives back from Brecon at 11 p.m. By the time he has fed and groomed his horses and put his cart away, where does his own grooming and rest come in? Humanitarianism, as well as speed, seems to call aloud for the motor car."

\* \* \*

A further demonstration of the amount of work which an Ivel agricultural motor can accomplish was recently given at Biggleswade, when one of these machines, working a three-furrow plough, succeeded in turning up 11 acres 1 rood 13 poles of wet loam land in 17h. 28m., using 25½ gallons of petrol during this period. It is stated that a two-horse plough is only capable of doing one acre per day on the same land. This being so, it at once demonstrates the superiority of the motor over the horse in this particular line of agriculture.

\* \* \*

Every motor manufacturer who does not already possess a copy of Messrs. David Brown and Sons' treatise on "Cut Gears" should apply to this firm, whose address is Park Gear Works, Lockwood, Huddersfield, for one of these books, wherein is contained information relating to every description of gearing. The sections which will be of special interest to the automobile engineer are those treating of bevel wheel, worm gearing, and rawhide pinions. Private individuals who take an interest in the inner workings of a motor car would also obtain much useful information from a perusal of this book, which we have no doubt would be supplied to them upon application. Rawhide gear wheels are made a speciality of by this firm, they having taken over the whole of the gear wheel manufacturing part of the business of the British Chicago Rawhide Manufacturing Co.

During the month of September those in charge of the mail motor cars on the Pahang trunk road had to saw through no fewer than ten trees which blocked the path.

\* \* \*

We have had a great number of enquiries as to the agent for the Perfecter non-slipping band, so it will be of interest to say that it can be obtained from H. M. Hobson, Ltd., 36, Basinghall Street, London, E.C.

\* \* \*

We are informed that Messrs. Van Raden and Co., Ltd., have acquired and are at present removing to a very spacious and well-equipped factory at 567, Foleshill Road, Coventry, where several additional modern tools have been installed for the manufacture of electrical ignition devices of all kinds.

\* \* \*

Ten summonses have been taken out by Mr. Moffat Ford, of the Motor Car Co., against drivers of the London County Council's electric trams for alleged infringements of the speed regulations. Accompanied by Mr. C. W.

Brown, official timekeeper of the National Cyclists' Union, Mr. Ford timed the cars in question, and obtained evidence of speed which he considers sufficient to secure convictions. It may be remembered that Mr. Ford recently obtained four convictions against drivers of the London United Tramway Company for exceeding the limit ordained by the Board of Trade.

\* \* \*

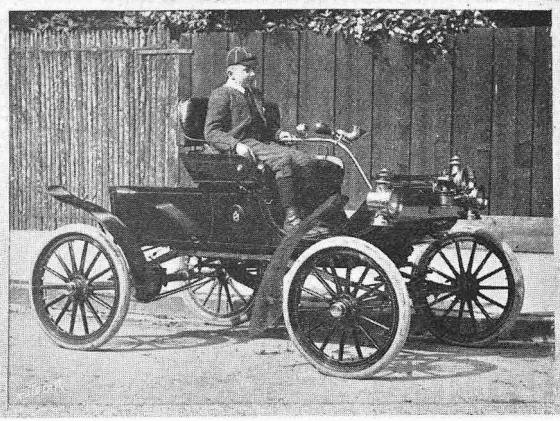
At the third annual meeting of the shareholders of the Hozier Engineering Co., Ltd., makers of the Argyll cars, a dividend of ten per cent. was declared. It was reported that large contracts for 1904 pattern Argylls had been booked, amounting to upwards of £50,000. The Chairman stated that no doubt the chief reason for this satisfactory state of affairs was the unique successes of the Argyll cars in public competitions. We understand that, although a very large addition was made to the plant last year, there is still great difficulty in keeping pace with the orders, and it has now been decided to further extend the plant. It will be remembered that the Hozier Engineering Co., Ltd., paid a dividend of five per cent. last year. They were the first British manufacturers, therefore, to establish motor car making on a paying basis.

\* \* \*

Last week, in referring to the ingenious and simple starting handle which Dr. Abbott, of Cheltenham, has upon his 4½ h.p. De Dion, we attributed the invention to Messrs. Hughes and Son. In this we were in error, as the invention is entirely that of Mr. J. H. Bishop, of 9, Oriol Place, Cheltenham. It will be remembered that the safety handle referred to makes it absolutely impossible for a backfire from the engine in starting to be transmitted to the arm of the operator, as the least backward movement of the engine automatically releases the handle.

### "THE AUTOCAR" DIARY.

- Motor and Cycle Show at Crystal Palace closes Nov. 23.  
 Nov. 21 & 28.—Balloon Chases by Autocars, Crystal Palace.  
 „ 23.—Scottish A.C. (Western Section). Discussion, "The Ideal Touring Car."  
 „ 25.—Aero Club Anniversary Dinner.  
 „ 26.—A.C.G.B.I. Paper, "The Dust Problem," by Col. Crompton and Mr. C. W. S. Crawley.  
 Dec. 1.—Cheltenham and Gloucestershire A.C. Meeting.  
 „ 1.—Annual Dinner Auto Cycle Club.  
 „ 2.—A.C.G.B.I. Foundation Members' Dinner.  
 „ 3.—A.C.G.B.I. Paper, "Les Combustibles Liquides employés dans les Moteurs de Voitures Automobiles, leur mélange avec l'air et leur inflammation," by M. Forestier.  
 „ 4.—Annual Dinner, Yorkshire A.C., Leeds.  
 „ 7.—Scottish A.C. (Western Section). Annual Dinner, Glasgow.  
 „ 8.—Motor Volunteer Corps. Annual Dinner.  
 „ 10 to 25.—Paris Salon (A.C. de France).  
 „ 11.—Annual Dinner Norfolk A. and Launch Club  
 „ 31.—Entries close for 1904 Gordon-Bennett Race.



**A YOUTHFUL AUTOMOBILIST.** There are but few who can boast of being able to operate an autocar before they are in their teens, but Mr. E. A. Stretton, of Cheltenham, has taught his son, who is eleven years old, to run an Oldsmobile, which he does with no little skill. The new Act will prevent his using the car after January 1st, when no one under seventeen years of age may drive an automobile. This youthful driver's experience awheel began before he was five years old, when he rode a bicycle.

The Cardiff Motor Garage, Ltd., has purchased freehold premises in Queen Street, Cardiff—one of the leading thoroughfares in the Welsh Metropolis—by private treaty, for £10,300. The building has a depth of 250ft. and a frontage of 28ft.

We have received from Messrs. Peto and Radford one of their 30 ampère hour accumulators, filled with their semi-solid electrolyte. This we are subjecting to some very severe tests, details of which we intend to publish so soon as these tests are completed.

We have had several enquiries as to the address of the distillers of Whitaker's spirit. Several of our readers have been good enough to inform us that the spirit can be obtained from Whitaker and Co., Montague Street, Lower Broughton, Manchester.

Messrs. Stareys, Ltd., of Nottingham, inform us that they were the constructors of the body fitted to Mr. F. Bowden's 24 h.p. Darracq, an illustration of which appeared on page 594 of the last issue of *The Autocar*.

Some special pictorial postcards for the use of motorists have been produced by the Pictorial Post Card Co., of 44, Moor Lane, E.C. On the back there is a neat illustration of a car and headings given for the motorist to insert particulars of his drive, so that he can advise his friends of his progress with the minimum amount of trouble.

Users of the Parsons non-skids will be interested to know that the company are now prepared to supply free of cost a new type of double-ended bent spanner, designed for holding the two screws of the adjustable hoop together. This spanner, with a tommy for tightening the sleeve, which unites the two ends of stranded flexible wire, removes all possibility of the wire being untwisted in tightening the union, and not only so, it enables the tightening to be effected much more easily and positively.

The Right Hon. the Earl of Guildford is the latest convert to the automobile, having just purchased a Gladiator car.

The 20th Century Manufacturing Co., whose address is 114, Fore Street, London, E.C., send us a copy of a very handsome catalogue, in which their numerous patterns of oil and acetylene lamps are most excellently illustrated.

In reply to those correspondents who have asked where Mr. R. E. Phillips's induction valve, which was described on page 515, can be obtained, we may say that at the moment arrangements have not been completed for its manufacture, though since the description of it appeared in our columns quite a number have approached Mr. Phillips with the idea of taking it up and making it.

As foreshadowed last week, the report of the Daimler Motor Co. for the year's business is the most satisfactory which has been issued since the foundation of the business in 1896. A nett profit of over £15,300 is shown, and this is after writing off the debenture issue expenses and interest on debentures. Of course, no dividend is suggested, as last year's deficit is not yet entirely wiped out, but we are extremely pleased to record the fact that the pioneer company has apparently come to the end of its series of lean years, and having now secured a substantial balance it should soon be placed upon the list of dividend-earning concerns.

An interesting paper on "Motor Cars" was read by Mr. Alex Govan, of the Hozier Engineering Co., Ltd., before the members of the Glasgow Scientific Society, on Saturday, the 14th inst. Next week we intend to give a summary of the most interesting items dealt with in the lecture, which was illustrated by several lantern slides reproduced from photographs and drawings originally appearing in the pages of *The Autocar*.



**A GERMAIN MOTOR LORRY.** This lorry has been specially built from instructions given to Captain Masui by Messrs. Lawrence, the Wolverhampton wine merchants. It is mainly used for their business between Birmingham and Wolverhampton—a strip of road which is in many respects one of the worst in the kingdom, being almost continuous bad setts and ill-laid tramlines from end to end. The engine has four cylinders with mechanically-operated inlets, and develops some 18 h.p. It is provided with a cooling fan and all the latest improvements. Four speeds are provided, forward and reverse, and the lorry will carry a load of two tons at fifteen miles (or a little over) an hour, and will take any hill. The tare weight of the vehicle is about two tons. The front tyres are solid rubber, and the back iron, a combination which has been found very satisfactory. There are three brakes, the usual pedal on the differential, side lever on the back hubs, and a screw brake on the back tyres, so that there is no fear of the vehicle, which is a very handy one in all respects, getting out of control.



With regard to the International Motor Car Exhibition to be held at Frankfort-on-Main from the 19th to the 27th of March, 1904, it is reported that His Royal Highness Prince Henry of Prussia has consented to take the Protectorate. At the head of the Committee of Honour stands His Highness the Duc of Ratibor.

\* \* \*

In referring to our note on "Vehicular Speed in London"—dealing with Mr. Moffat Ford's successful attempt to draw attention to the fact that autocars were not the only vehicles which exceeded the legal speed limit, and that if trams were allowed to exceed the limit within moderation, the letter of the law should not be too strictly enforced upon the more modern and much more controllable vehicle—Mr. Stanley Rawdon, of Bexley Road, Erith, informs us that he is bringing out an automatic hydraulic emergency brake for use on tramcars. The brake, he explains, not only prevents a tramcar from getting beyond control whilst descending sharp inclines, but also renders it impossible for the driver to attain a greater speed than twelve miles an hour. Of course, from a motorist's point of view the latter is the more interesting side of the invention, though, considering the number of terrible accidents which have occurred through tramcars getting absolutely beyond control, some sort of brake which will prevent this is far more necessary in the public interest than a device which will prevent the legal speed limit being minutely exceeded.

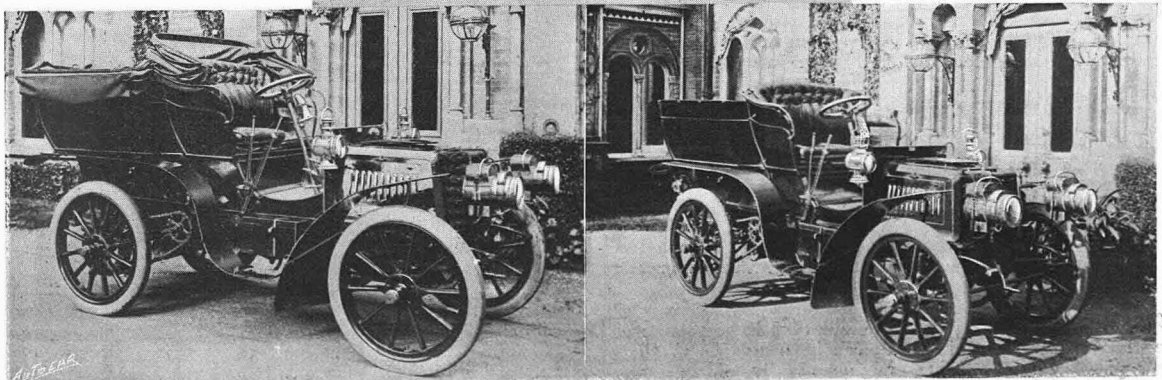
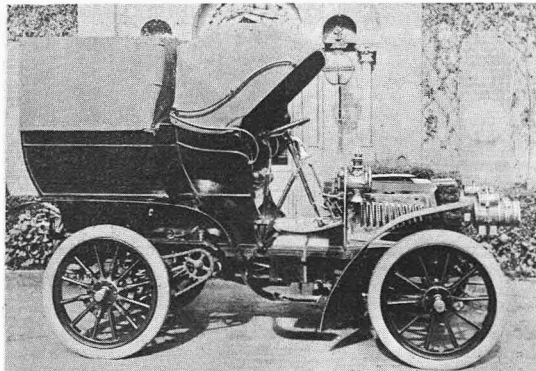
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Automobilists will be glad to hear that the Napier hydraulic air regulator—which is one of the features of the 1904 car, and by the use of which the amount of air drawn into the carburetter is automatically regulated—can be fitted to any make of motor. Messrs. S. F. Edge have prepared an illustrated circular dealing with this improvement, a copy of which can be obtained by applying to 14, New Burlington Street, W.

The speed prosecution at Lewes, to which a short reference was made in *The Autocar* last week (page 607), was against a gentleman who has since been elected Mayor of Tunbridge Wells, and who was defended by the Mayor-elect of Brighton. It is doubtful whether the case would have been dismissed had not the Mayor-elect of Tunbridge Wells had as a fellow passenger the borough electrician (Mr. H. Boot), who, upon the car being stopped by the police, asked to be allowed to examine the electrical apparatus with which the timing was being performed. Mr. Boot found the connecting wire only imperfectly insulated. It was covered with cotton and paraffin wax, and had been lying in the wet until it was completely saturated. The policeman's stop watch was started by pressing a button, but, owing to the defective insulation, the button had to be pressed several times before contact was made, and, therefore, the car traversed part of the measured distance before the signal was given. The time recorded against the motorists was thus shorter than that actually occupied in covering the measured trap. We have no doubt that many of the so-called electrical timing instruments used by the police—who, of course, are entirely ignorant of electricity—are similarly defective, and that if matters were investigated on the spot, as they were in this instance, police evidence might be materially discounted.

\* \* \*

The Star Motor Agency, of 16, Upper St. Martin's Lane, W.C., send us a specimen of a very useful and well got-up little booklet, which gives the complete text of the new Motor Car Act, reprinted by special permission of the Government. It is handy pocket size— $3\frac{3}{4}$  in. by 5 in.—and nicely bound in blue cloth, with rounded corners. In fact, it is what it professes to be—a pocket edition of the Act. It will be sent gratis to any motorist who applies for it at the above address or by Mr. F. R. Goodwin from the stand of the Star motor cars at the National Show.



PROTECTION FROM THE WEATHER. The Hon. Sir Swinfen Eady, Judge of the High Court, recently purchased a 15 h.p. Panhard from Messrs. C. S. Rolls & Co. The vehicle is intended for use in all weathers, and the back hood, which opens sideways like the King's old Lonsdale-Daimler, affords complete protection, and very good shelter is also afforded by the front hood. The right hand view at the bottom shows that both hoods can be taken away and the car driven entirely free from them when wished.

## SOME QUERIES AND REPLIES.

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.

### DRIVERS AND FINES.

Will you kindly tell me if the driver of a motor car is compelled to pay a fine out of his own pocket for driving above the speed limit when the owner of the car is with him at the time? Some time ago I was driver for a gentleman, when one Sunday while bringing his wife from church on the car, I was stopped by the police for exceeding the speed limit, was summoned, and had to pay a fine of £5. My employer refused to pay me the fine, simply because I had given him notice to leave. Can I recover it if I take the case into court?—A. S.

You have no claim against the owner of the car. The driver is alone liable for the fine. If a person does an act which is manifestly unlawful, it is against public policy that he should recover from a third party the amount of any fine imposed, although that third party be his master. In fact, even though a master orders his servant to transgress the law and undertakes to indemnify him from the consequences, no action will lie.

### THE MOTOR CAR ACT.

1. Under the new Act, am I required to pull up my car when the driver or rider of a horse puts his hand up, same as now? 2. Why are not horse users prosecuted when travelling faster than their legal limit, viz., eight miles an hour? 3. How fast may a cyclist travel legally? 4. To whom do I apply for a license under the new Act? 5. Where can proper grinding powder be obtained for valves, inlet and exhaust, and what is its trade name exactly? 6. Do you measure the diameter of a wheel across its rim to know size of tyre required, or do you measure inflated tyre also? 7. Will a four-volt fourteen ampere accumulator run a two-cylinder 8 h.p. car? 8. Suppose I charge a P. and R. thirty ampere hour accumulator in the country where there is no main, and I use a Bunsen battery, would you use four, five, or six Bunsen cells, and could you not dispense with a resistance switch and ammeter, as I have none?—A. H.

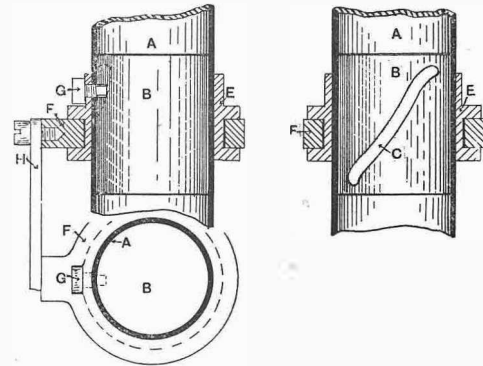
1. No provision is made under the new Act for the stopping of motor vehicles by riders or drivers of horses. This is a matter which is left to be dealt with by the Local Government Board, whose final regulations have not yet been issued. 2. There is no legal speed limit for horse users. They are subject to the provisions of Section 78, Clause 7, of the Highways Act of 1835, which enacts that any carriage shall not be driven furiously so as to endanger the life or limb of any passenger. 3. Cyclists generally are under the same law as regards speed as horse users, but local authorities have power to make by-laws, subject to the sanction of the Local Government Board limiting the speed in their district. 4. If you reside in a county borough, you must apply to the town clerk; if under the jurisdiction of a county council, application will have to be made to the clerk of that county council. This is for the registration of the car, and for the receipt of the identification mark. Drivers' licenses must also be obtained from the same authorities. The Inland Revenue carriage license is to be obtained from the post office. 5. The material generally used for grinding in valves is No. 00 flour emery, which can be procured at any first-class ironmonger's. Oakley's Wellington knife powder is practically the same thing, and can be bought in much smaller quantities. Flour emery is not usually sold in less quantities than 7 lb. packages, which is, of course, a far greater quantity than would be required by any ordinary automobilist. For the fine finishing off of valves crocus powder should be used. This also can be obtained at the same places as the emery. 6. The diameter of the wheel

is measured from the ground to the top of the tyre. As different sized sections of tyres require different sized rims—that is to say, as the sectional diameter increases, the diameter of the rim decreases—it is usual to specify the size of the tyre as that which it attains when fitted to the rim. 7. Yes. 8. Six Bunsen cells would be required to recharge the accumulator. No resistance or ammeter is required, though it is advisable to have a switch so that the charging current can be shut off while the accumulator is being tested with the voltmeter.

### MERCEDES CONTROL.

Being a subscriber to your paper, I should feel much obliged to you for answering the following question: Referring to the description of the Mercedes car on page 572, May 31st, 1902, please let me know how the levers on the steering wheel can work independently of the steering wheel.—C. F. M., Kiel, Germany.

The central lever control, as used on the Mercedes and other cars, is carried out in an extremely simple manner, as will be seen by the diagram. The tube A, which forms the steering column, is provided with a plug B, in which a diagonal channel is cut, as shown by C. The plug B is rigidly connected by means of a spindle to one of the centrally fulcrumed levers on the top of the steering wheel. Loosely mounted on the outside of the steering column A is a collar E, which is provided with a groove, in which a second collar F is placed. E is provided with a screw G, which passes through a vertical slot cut in A, the end of the screw engaging with the slot C in the plug B. To F is connected a suitable actuating lever, as shown by H.



A, steering column.  
B, block attached to control lever.  
C, angular slot cut in B.  
E, loose collar on A.  
F, collar working in a groove in E.  
G, screwed pin passing through A and engaging in C.  
H, connection to F.

The action then is this: When the plug B is rotated, it causes the collar E to move up and down the steering column A by reason of the inclination of the slot C. E carries with it the collar F, so that the movement is communicated to the sparking advance arrangement, or the throttle, as the case may be, through the connections H. The collar F, being free to rotate in E, enables the steering column to be rotated without imparting any movement whatever to the collar E. Thus the steering movement has no effect whatever upon the position of the controlling levers. As there are two of these mechanisms required, one for the operation of the sparking advance, and the other for the throttle, one of the levers has its connection to B in the form of a tube, through which, together with B, the rod actuating the lower mechanism passes.

## THE NEW REX CARS.

For 1904 the Rex cars will be made in two powers only—two-cylinder 12 h.p. and four-cylinder 24 h.p., the bore in each case being 4in. and the stroke 4½in. In the two-cylinder engine heavy disc cranks are used, so that, instead of the usual flywheel outside the crank case, there are four discs or flywheels inside. These discs are balanced, and with a third or central bearing ensure a very smooth-running engine. Both exhaust and inlet valves are in the cylinder head—a practice first introduced into this country by the Rex Company some years ago—and the sparking plug is also similarly placed. Both valves are most easily accessible, while very large waterways are provided for the efficient cooling of the piston head and valve chambers. The engine is bolted direct to the pressed steel frame, these frames, by the way, being constructed on the premises. The change-speed gear box is also bolted direct upon the frame through long bridge pieces extending from the case to the frame sides. For the secondary shaft, a third or central bearing is introduced, and the whole of the gear, which provides a

direct drive on the top speed, is exceedingly strong, while all the lever motion for its operation is fixed upon it. In addition to the usual provision for flexibility, in the drivingshaft from the gear box to the bevel drive on the live back axle an universal joint is provided to connect the clutchshaft with the first gearshaft, and is so constructed that the clutch can be dismantled without disturbing the gear. Simplicity and accessibility have been aimed at throughout. The pump, commutator, and carburetter are all conveniently situated just below the front of the radiator, so that they can be got at instantly. On both the 12 h.p. and 24 h.p. long wheelbases are provided, especially in the case of the bigger car, which provides a most luxurious tonneau with a semi-circular three-seated back and side entrance. This is a very graceful design, and, like practically every other part of the cars, is designed and constructed in the Rex factory. Two new types will be shown for the first time at the National exhibition, in addition to a most imposing array of not less than fifty Rex motor cycles.

## THE STANLEY SILENCER.

A few weeks ago a letter appeared in our correspondence columns, in which the Stanley silencer was mentioned as having been fitted to a car with very excellent results. As the question of the noise from the exhaust is one which is seriously troubling many owners of motor cars, the following description of the Stanley silencer mentioned by our correspondent will be of considerable interest:

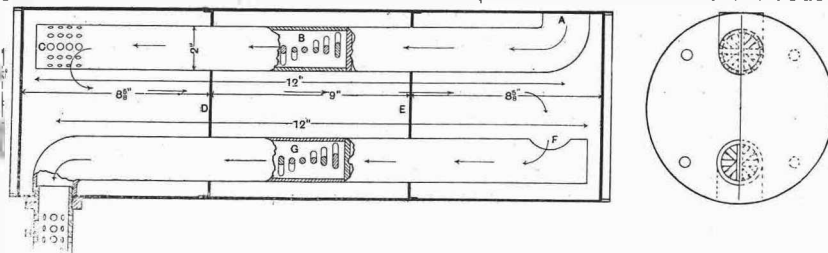
It will be seen, on reference to the diagram given herewith, that the silencer body is of the usual cylindrical form, and is provided with two pipes, the ends of which are closed for the inlet and exhaust of the spent gases from the cylinder.

These gases pass through the pipe A, which is provided with a series of studs placed across the bore of the pipe at varying angles, so that as the gas passes through the pipe it has imparted to it a spiral movement, until, reaching the end of the closed pipe, it escapes into the body of the silencer through the holes lettered C, whence it passes through the perforated plates D and E, and enters the second pipe at F, which is also provided with similar studs, as shown at G, the exhaust gases eventually escaping to atmosphere through the holes as shown by H. According to the claims made in the patent specification, the chief object of the invention is "to provide a silencer through which the exhaust gases will be discharged freely at a steady and practically uniform pressure, and without the usual explosion sounds.

"One or more tubes are employed, through which the exhaust gases are caused to pass in a circuitous manner, being at the same time broken up into small streams by impinging against projections in the

tubes, the gases being at the same time cooled, so that when finally reaching the atmosphere they are practically at normal or atmospheric temperature and pressure. The studs are arranged along the tube in the form of a spiral of any appropriate pitch, and pass diametrically across the tube, with a convenient distance between them.

"The gases are caused to pass from the exhaust pipe of the engine into one or more pipes having studs as above described, and are afterwards delivered into an expansion chamber or chambers, from which they pass into one or more studded



A part section and end elevation of the Stanley silencer.

A, entrance for exhaust  
B, section of pipe showing baffle pins  
C, exit holes in A  
D and E, perforated plates

F, entrance for exhaust  
G, second pipe leading exhaust to atmosphere  
H, exhaust escape holes

tubes before escaping to the atmosphere *noiselessly* as above stated.

"The exhaust gases condense in the box, creating a vacuum, and thereby drawing in the next lot of burnt gas, and so getting more power out of the engine, as the cylinders are scoured of all burnt gases, and are free to receive a full, fresh charge of explosive mixture."

A license has been granted by the patentee, Mr. Stanley W. Andrews, Denmark Hill, S.E., to the Motor Traction Co., Ltd., of 27, Walnut Tree Walk, Kennington Road, S.E., from whom the silencer may be obtained, suitable for any power of engine.

## A TRIAL RUN ON THE 18 H.P. CHENARD AND WALCKER.

At the invitation of the Weston Motors Syndicate, Ltd., of 14, Mortimer Street, Regent Street, W., we made last week an interesting trial run upon the first car of the above-named type to reach these shores. The vehicle was driven by Mons. Walcker (of the constructing firm), a young French automobile engineer, who is responsible for the design and construction of the Chenard-Walcker cars, together with the undoubtedly efficient and interesting improvements which are found on the new 18 h.p. vehicle. The governing principle which made the 1903 Chenard and Walcker motors remarkable, namely, the variable lift duration of the mechanically operated induction valves, is found in the new car, but greatly improved. By means of a suitable connection and a locking rotating arm placed in the centre of the steering wheel, the maximum pace of the car on the level can be absolutely set, the speed from zero up to the fixed point being controlled by an accelerator pedal. The four-cylinder motor, which, upon the first removal of the bonnet strikes one as a thoroughly sound, well-finished, and workmanlike job, is wonderfully elastic, and permits of the big car being driven at the speed of a market-garden waggon or up to fifty miles per hour—in France. Of the crawling possibilities of the car we had full evidence in King Street, Hammersmith, for the whole length of which it proceeded in the rear of a waggon, and this with the utmost smoothness and on top speed all the time. Indeed, so flexible is the engine that from rest, the top speed can be got in from twenty to thirty yards without jar or jerk. The car picks up marvellously. A feature of the engine design, which largely conduces to this desirable attribute, is a novel form of automatic carburetter, the details of which we may not yet refer to, but which by a most simple and ingeniously designed and cleverly proportioned valve always keeps the feed of petrol and air in exact and proper proportions, no matter what the speed of the engine. This clever apparatus, together with other interesting details, we shall describe and illustrate in detail shortly after the French Show. Another special feature of this machine is the cellular or honeycomb cooler. This is of considerable size, and, by the smart sectional designing of the in-

numerable air tubes composing it, allows of the total abolition of the water circulating pump, so that thermo-syphon, or natural circulation and perfect cooling, is made possible even with an engine of this calibre. Our trial run was made from Barnes to Kingston, Wimbledon, Mitcham, Purley, and Godstone, to Westerham and back, the top speed only being thrown out twice on the outward, and not at all upon the homeward journey. The roads were in a terribly heavy condition throughout, which made such a performance all the more remarkable. At Westerham the car was tried and timed by us up the hill, over the reliability trials section, when, notwithstanding the very heavy condition of the surface (Hell Corner was two inches deep in sticky leafy mud), the car made the ascent in 2m. 30 $\frac{1}{2}$ s., equaling 14.56 miles per hour. The two best performances by petrol cars in the reliability trials, and made over dry surfaces, were 14.44 and 14.36 miles per hour. How much the 18 h.p. Chenard and Walcker could improve upon its performance of last week when roads are good we could not say, but as its driving wheels raced freely on the steeper portions of the ascent, we should not be surprised to find it doing from five to seven seconds better under more favourable circumstances. In descending the hill, tests of both the clutch and rear wheel drum brakes were separately made, both proving themselves to be most satisfactory. Neither on the trial nor timed trip up the hill was there the slightest sign of steaming from the vent of the radiator. Upon descending the second time the first speed was thrown in, and the car let down without braking, during which its speed did not exceed eight miles per hour. This, however, made some call upon the cooling installation, for, upon returning to the starting point, two and a quarter pints of water were found necessary to replenish the radiator to working level. By the experience afforded us we can confidently say that the new 18 h.p. Chenard and Walcker is a fine, fast, and most easily controlled and driven car, as comfortable and easy to drive upon top speed in the most crowded London street as it is upon the open country road. Also the handsome tonneau body is beautifully sprung, and, if possible, is more luxurious than ever.

## THE ENGLISH DURYEA.

A few days since we had the opportunity of inspecting the first chassis of the new Duryea design, which is of British manufacture throughout. The three-cylinder engine is built by Willans and Robinson, of Rugby, so that criticism of it would be superfluous. None of the main features of the unique Duryea design have been departed from, this remark applying both to the engine and the car. The improvements are not confined to the workmanship alone. Every part of the mechanism has been carefully considered on its merits, and where possible simplified. This applies particularly to the engine, which, with its three cylinders, mechanically-operated inlet valves, and the ordinary high tension ignition, is decidedly a simpler motor

than its predecessor. The power drum is more strongly constructed, and full support is given to the planet pinion ring, while the balance geared live axle with its three double grip brakes is a remarkably simple and neat looking combination. The frame is of angle steel, reinforced by wood, the forecarriage being entirely novel and very taking in appearance, but it is not possible to do justice to it without an illustration, which, however, we hope to give shortly. The control, with the exception of the brakes, is entirely by hand. By inclining the frame it has been found possible to retain the characteristic curved outline of the Duryea, and the chassis will doubtless be one of the most interesting exhibits in the motor section of the National Show.

## HEAVY MOTOR TRAFFIC. The Discussion.

*(Continued from page 617.)*

Sir John Thornycroft, in inviting discussion upon Mr. Smith's address, said they should all thank him for bringing the question of heavy motor traffic before them in such a complete manner. Attention had been drawn to one very important item, viz., it was only possible to use motor waggons with good results on roads that were constructed on proper foundations. In order to increase the load they had to increase the weight of the waggons and the width of the wheels, and that could only be done if roads were strengthened.

Mr. Loxton Hunter thought Mr. Smith had suggested the formation of a Heavy Traffic Committee of the Club, but he wasn't quite clear as to what Mr. Smith meant.

Mr. Smith replied that he had suggested the formation of a committee for motor waggon users in connection with the club. Heavy motor traffic had now, as it were, turned the corner. It had come to stay, and he thought something should be done, either by the club directly or through the Motor Union, to ensure that the heavy motor transport users should have their interests protected, as was done for users of traction engines by the Traction Engine Users' Association.

Mr. Mark Mayhew said he had listened with very great interest to Mr. Smith's most comprehensive paper, but he would like to remark upon and to traverse one or two of the statements contained in it. Dealing with the question of drivers, Mr. Smith had asserted that the labouring man could easily be turned into a motor waggon driver. Mr. Smith was probably referring to the labouring man of the North, but he could assure them that it would take a very long time before the labouring man of the South could be made an efficient driver. He could be taught to get his vehicle along, but he could never be got to understand the boiler. People generally could not be brought to understand that the boiler was the most important part of a heavy motor vehicle, and when that was neglected, as it often was, the results were very serious. Re-expansion of the tubes was unsatisfactory, and retubing had to be resorted to at very great expense. His view of this question of driving was that if owners of heavy motor vehicles wanted to get good results they should engage only the most experienced men. (Hear, hear.) There was one point which Mr. Smith had not mentioned, that was with regard to driving wheels. He found that while they could get front wheels which would go all right, and last a reasonable length of time, that very few manufacturers of lorries had been able to put on the market a good tractor wheel. They could get driving wheels to go for, say, six months without much trouble, but that was not good commercial usage, and it was a serious thing that such wheels should have to go into dock every six months to be repaired. What he, as a commercial user, looked for, was a wheel that would last for at least a year without repair, and then, after being repaired, for another year or two. Driving wheels should have a life of at least three years, business men were looking for that, and they wouldn't be satisfied till they got it. He quite agreed with Mr. Smith that a motor lorry must be kept in constant use, as they couldn't have one of these vehicles, representing a capital outlay of £800 or £900, lying idle in their yards. With regard to tare weight, Mr. Smith was quite right in saying that it was the fulcrum of the problem. He knew how difficult it was in London to get vehicles that were quite satisfactory in every way, and which also came within the miserable limit of three tons. He did not think it was commercially useful to send out loads of less than seven tons, and the vehicles manufactured to carry that load or drag it behind them and still come within the tare limit were not strong enough, and ate up in repairs more than their economy over horses. As to fuel, his experience was this—that in these vehicles, with extremely small boilers and high evaporative capacity, there was nothing like using the best fuels. Recently he had some experience with two well-known Welsh coals—one costing 25s. a ton and the other 21s. a ton—he found that the results obtained from the dearer coal were nearly as two to one better than those from the cheaper. His advice was to use the best coal they could come across and to have it screened. There was one other aspect of the problem:

If they were going to ask the Legislature to deal with the tare, there was another thing they wanted, that was to be allowed to drag more than one vehicle. That would make a big difference from the commercial standpoint. They wanted to be able to drag two vehicles, and they would not object to being limited as to their length. He thought engineers would agree with him that it was unfair to the engine and transmission gear to put five or six tons upon it, and if they could get a small short tractor that would drag behind it a vehicle or vehicles of the same capacity it would be much better.

Mr. Douglas Mackenzie was afraid all he could say was in corroboration of Mr. Smith and Mr. Mayhew. His own experience in London had corresponded with Mr. Smith's in Liverpool both on general points and the figures giving the cost of working. He had found double shifts impracticable owing to the varying conditions of traffic; then, too, when a lorry was sent out they did not know whether the loading and unloading would be expeditious, and often there was as much difference as two or three hours between the calculated and actual time of its return, which, when men had to be kept waiting to go on a night shift, rendered the double shift system quite impracticable. He had been horrified at Mr. Smith's estimate of 280 working days in a year. His experience was that 240 days was the outside limit, and, as a consequence, all expenses had to be spread over those 240 days, with the result that working expenses were much more than they were usually supposed to be. Mr. Smith had left out the whole question of management and supervision. That was hardly fair to those who were considering the utilisation of the motor vehicle in their businesses, and many people recognised that it was the coming thing, and would probably be very useful to them, but they wanted to know first would it pay. Very different qualities were, he might say, required for the management of a stud of motor lorries than for the management of a large stud of horses, and the man who was put on to supervise them would have to be a traffic manager, who would know, for instance, whether, when a waggon came back from a short morning run, it was practicable to send it out again on a much longer run. With motor vehicles as compared with horses longer hours could be worked, and longer journeys made; but one had to be prepared for contingencies, which might prevent a waggon returning to its depot till late at night, or perhaps till next morning. Consequently, the conditions were quite new, and a manager must know something about the mechanical capacity of his vehicles. The men they got as drivers could not be trusted to get the best results from their lorries without very careful engineering supervision, for the man who made smart road journeys was not always the man who took the best care of the engine, and had to be closely watched to see that he did not start in the morning without properly lubricating his motor, and did not light his fires with too little water in the boiler, and other details of that kind. As to what he called the smart 'ter, he, on the other hand, cared more for the mechanical details than for the driving details, and would be more concerned about having his bushes properly set than about ensuring that he had a proper supply of fuel and water to carry him a certain distance. As to the drivers themselves, he had found the men trained in the manufacturers' shops very unsatisfactory. He drew his drivers from two classes of men. The first were men who had driven traction engines and steam rollers in the country. They wanted men who knew how to manage their vehicles, and at the same time had sufficient experience, in case of a slight mishap, to get their waggons home somehow, and not leave them by the roadside. That was where the country steam roller driver had the advantage over the London man; he had been used to working far away from an engineer, and his first thought when something went wrong was not to wire for an engineer and sit down and wait till that engineer came to put things right. Such men had a fund of practical experience to draw on, that stood to them on many occasions. The second class of men from which he liked to choose his drivers was steam tram drivers. They had been accustomed to getting their steam tram through traffic in which they were quite at home, and were also accustomed to getting their tram

\* A paper read before the A.C.G.B. & L., on November 5th, by Mr. E. Shrapnell Smith.

locomotive home if anything went wrong. These two classes of men were, he had found, the best to draw upon; the labourer might pick up a good deal of knowledge, but he had no resourcefulness in difficulties. He (Mr. Mackenzie) had not only found that they must have the best coal, but they must have it screened, for the result of the present system of handling Welsh steam coal in transport was that they got about 14 cwt. of coal dust in every sack. In conclusion, he might say that it was absolutely necessary they should have a committee or association to look after the interests of heavy traffic. He understood Mr. Rees Jeffreys was at work on the matter, but he also understood that there was a movement in another quarter to form such an association of experts in heavy traffic. He hoped it would be possible so to arrange matters that there would not be two bodies, as if there were they could not, working separately, bring such influences to bear on the Legislature as was needed. It would be a good thing if they could come together in a joint conference and arrange to amalgamate and work together, so that the best interests of heavy motor transport users might be advanced.

Mr. G. H. Burford said it was with the greatest interest he had listened to Mr. Smith, although the steam lorry which had been most largely dealt with was not that in which he was most closely concerned. He thought the heavy motor transport of the future would not be done by the steam lorry, but with the petrol lorry. With the petrol lorry they overcame the fuel difficulty and the

difficulties with the boiler, and in spite of all the genius and experience brought to bear upon the question, no one had yet been able to produce an altogether satisfactory boiler. He had to disagree with Mr. Smith with regard to drivers, for even the most skilful of traction engine drivers must have a certain amount of very necessary training before he became an efficient and trustworthy driver of a motor lorry. Passing from that part of the problem, there was one important matter to which he would like to refer—the position taken by the judges of the High Courts as regarded motor vehicles in London. Last week damages had been given against the owners of a motor waggon simply on the ground that it was ugly. That was a very serious point for manufacturers and users of such waggons, and he thought steps should at once be taken to appeal against that decision. For one thing, if it stood it would mean that insurance companies would refuse to insure a vehicle of which the owner could be mulcted in damages merely on the ground of the vehicle's ugliness. That, to his mind, was much more important just at the moment than the question of tare. He scarcely thought that the success or failure of heavy motor traffic rested on tare, as under present circumstances our roads would not carry heavier vehicles, except in a few districts round London. Before they talked of raising the tare weight, they should attack the much more important problem of improving the roads—a matter which many seemed inclined to overlook.

(To be continued.)

## THE EXHIBITIONS.

The two exhibitions which opened yesterday, the 20th inst., and remain open till Saturday next, the 28th inst., although nominally cycle shows, have a very strong motor interest indeed; in fact, the National at the Crystal Palace and the Stanley at the Agricultural Hall are officially known as cycle and motor shows. In the Stanley the number of cars is limited, owing to an agreement which exists between the proprietors and the promoters of the spring motor show, but the full number of thirty cars is exhibited, the most prominent exhibitors being the Motor Manufacturing Co., and there will be several new cars shown for the first time. The number of motor cycles is little short of a revelation to those who do not yet take the motor cycling pastime seriously. The motor cycles show an immense advance since last year, and will be very fully described in our motor cycle off-spring, *The Motor Cycle*, which has already given many details of the machines in the exhibitions. To turn to the National, while it is also

exceeding strong in motor cycles (one firm alone showing fifty), its car section is one of the best, if indeed it is not the best, which has been gathered together under the Palace roof prior to the great show of last February, which was devoted wholly and solely to motors. Elsewhere we refer to some of the new cars which will be exhibited for the first time, and in addition to those may be mentioned some very important exhibitors, such as the Burlington Carriage Co., Darracq and Co., Friswell, Ltd., H. E. Hall and Co., J. Marston, Ltd., Richardson and Co., Star Engineering Co., Vauxhall Ironworks Co., and Singer Cycle Co. In both shows most of the leading tyre manufacturers will be represented, and motor accessories, clothing, and requisites generally will play a prominent part in both exhibitions, particularly in the Gallery of the Agricultural Hall. In fact, there is no doubt that the motor interest in both shows is very strong. We shall deal with and illustrate any notable vehicles or items of interest next week.

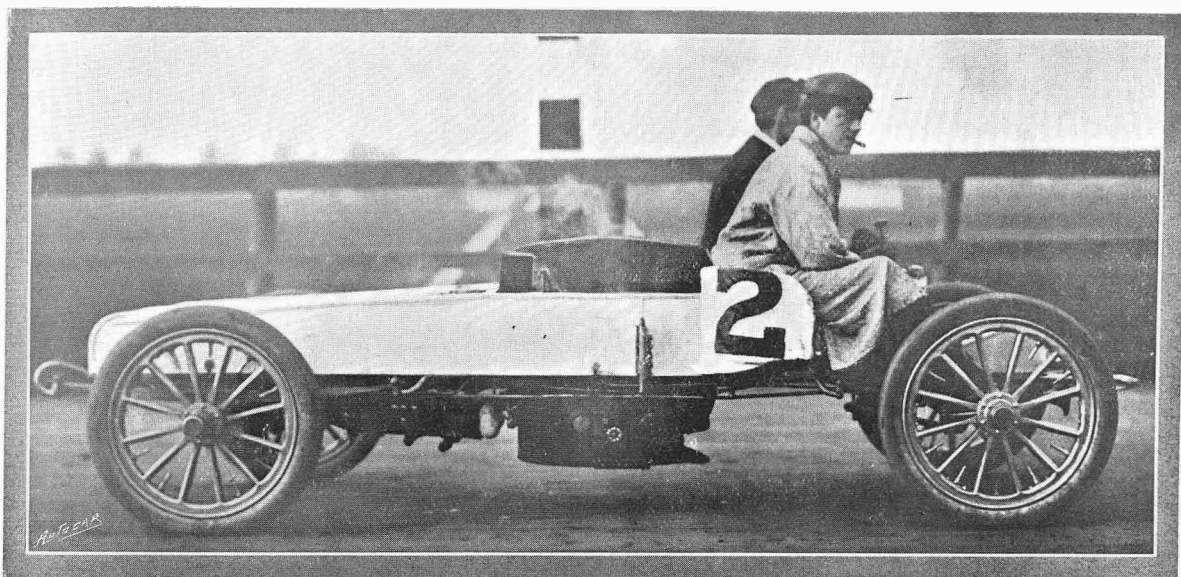
## A TECHNICAL OBSTRUCTION.

Mr. A. J. Wilson, of 168, Clerkenwell Road, E.C., was summoned by the police at Marlborough Street Police Court, London, on the 17th inst., for causing an obstruction on October 30th outside No. 11, Great Marlborough Street, the premises of the De Dion Company, with his motor car. The police stated that Mr. Wilson's car remained on the spot for thirty minutes. When asked to remove it, he said he would report the officer who spoke to him. Other vans stood about, but they were loading or unloading, and were therefore not summoned. There was room for only one line of traffic in consequence of the obstruction. Mr. Stapley Firth, for the defence, pointed out that with vans both sides of the road there was still a width of over sixteen feet for the other traffic. There was no actual obstruction of any vehicle or person by the motor car, which stood outside the premises only about fifteen minutes, and not half an hour, as the police said. Mr. Wilson was inside the De Dion premises during that time on business, and he contended that a person was entitled to leave his private motor car in such circum-

stances for a reasonable time on the roadway. Recent decisions supported him in that view, and Mr. Plowden quite recently said that a case in which a motor car stood for two hours in the street should not have been taken into court. Before a conviction could follow there must be shown by evidence that some actual obstruction took place. He would ask that the case be dismissed, with the magistrate's expression of opinion that Mr. Wilson was entitled to leave his motor car while attending to business inside premises, so long as the car did not actually interfere with traffic. Mr. Denman, in giving his decision, said the question was one of a "reasonable user" of the highway, and it was not necessary to prove obstruction that the street must have been blocked up. A part of a thoroughfare might be obstructed. Mr. Wilson would have to pay a fine of ten shillings, with two shillings costs. Notice of appeal was given, and the magistrate remarked that it would be satisfactory to have a decision from the High Court on the matter. The Motor Union, of which Mr. Wilson is a member, supported the case.

## MOTOR RACING IN AMERICA.

A New System of Handicapping.



Mr. George Cannon's 6 h.p. racing steam car. It is propelled by an ordinary two-cylinder horizontal Mason engine, steam being supplied by a fire tube boiler, heated by a paraffin burner.

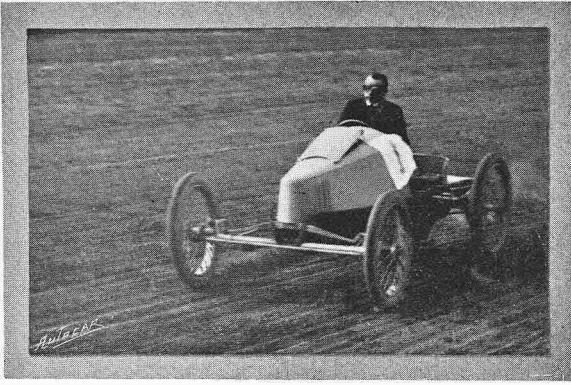
The last motor race of the season under American Automobile Association rules was held on Sunday, October 31st, on Brighton Beach track, under the auspices of the Long Island Automobile Club. The attendance was fairly good, though not so large as at previous races on the Empire City track, the smaller attendance being perhaps due to the fact that the Brighton Beach track is not so good as the Empire City one, the bends being sharper and the surface generally such as does not conduce to high speeds. The weather conditions were very favourable to a larger attendance.

The first race on the programme was for a distance of five miles, for any cars taken from stock weighing not more than  $10\frac{1}{2}$  cwts. In this race there were four starters, namely, a 16 h.p. Darracq, a 16 h.p. Georges Richard, an 8 h.p. De Dion, and a 12 h.p. Darracq. The race was won by the 16 h.p. Georges Richard; time, 6m.  $41\frac{1}{8}$ s., the 12 h.p. Darracq running second in 8m.  $28\frac{3}{8}$ s.

The second item was a ten miles race for cars of any motive power weighing under 16 cwts. The starters were a Packard (Grey Wolf), a 30 h.p. Renault, and a 40 h.p. Darracq. The 30 h.p. Renault won in 11m.  $23\frac{3}{8}$ s., being followed by the 40 h.p. Darracq, whose time was 11m.  $35\frac{1}{8}$ s., the Grey Wolf being considerably behind. The winning car was owned by Mr. W. G. Brokaw, one of America's many millionaires.

A five miles race for gentlemen drivers was next run off. In this event cars having the same horsepower were grouped together in the heats, and then in the final the winners of the previous heats were handicapped according to their respective performances—a scheme which worked very well indeed. The number of entrants was small, and the race is therefore no criterion as to what would be the actual results in such a large meeting as that which obtained at Southport on the occasion of the recent

speed trials there. Mr. Brokaw's Renault turned out the winner of the first heat, but was disqualified on account of its not being driven by the owner or a gentleman friend, leaving the 40 h.p. Darracq the winner; time, 5m.  $49\frac{2}{5}$ s. In the second heat there were two starters—a 15 h.p. Winton and a 16 h.p. Georges-Richard, which latter made the faster time (8m.  $46\frac{2}{5}$ s.), though it was subsequently disqualified for not having its bonnet on, and the heat was given to the 15 h.p. Winton, which completed the course in 8m.  $48\frac{1}{5}$ s. The third heat was a walk-over for a 20 h.p. Darracq, which covered the mile in 1m.  $27\frac{3}{8}$ s. In the fourth heat four Franklin cars started. All these were fitted with their ordinary silencers, and the diminished amount of noise created by these machines as compared with others which had run previously, and which exhausted directly into the atmosphere, was very marked. The winner's time was 9m.  $1\frac{2}{5}$ s. In the final heat the 40 h.p. Darracq was put on scratch; the 20 h.p. Darracq was given 56s. handicap; the Franklin 3m. 20s.; and the Winton 3m. 8s. The last-named, for some reason, did not start. As previously stated, the handicaps were based on the performances of the cars in the heats, and an exciting finish was expected. The spectators were not disappointed in this respect. At the end of the fourth mile the 40 h.p. Darracq seemed to have very little chance of overtaking the Franklin with its 3m. 20s. handicap. During the next mile, however, a lot of ground was covered, and the larger car came up to the smaller one hand over hand, until within the last few hundred yards from the finishing post it became very evident that there was going to be a very close struggle. The excitement was intense, and when the 40 h.p. Darracq, having passed its smaller-powered stable companion, overhauled the Franklin and crossed the line about a car's length in front—having gained this distance in the last twenty-five yards—the excitement was such as to equal that



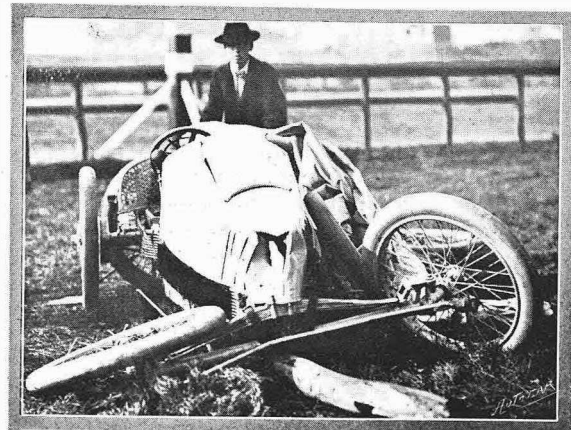
The Packard (Grey Wolf) on its last run. This illustration clearly depicts the front axle and the height of the machine.

which prevailed during the period when Barney Oldfield was making one of his special performances on the Empire City track.

The fourth event, a five miles race for a trophy given by the Diamond Rubber Company, brought out three starters—a Howard steamer, a Packard (Grey Wolf), and a 40 h.p. Darracq. The last named won the race in 6m.  $3\frac{1}{2}$ s.

A special three miles race for steam cars was next run between a 6 h.p. Cannon and a 10 h.p. Howard. The Cannon machine—an illustration of which is given on page 643—has a tremendous fire tube boiler placed centrally in the car, the engine being a two-cylinder horizontal Mason, gearing by means of equally sized spur wheels direct on to the live back axle. The boiler is fitted with a Barber paraffin burner. Two men are required to run this machine—one to do the steering, while the second operates the engine and attends to the boiler. The Howard car is an ordinary run-about type of steamer with an increased wheelbase. The Cannon won in 3m.  $46\frac{3}{4}$ s.

The final event was a free-to-all pursuit race, in which the ever-present Renault, Darracq, and Grey Wolf started. The Renault was on the back mark, the Darracq at the quarter-mile post, and Grey Wolf at the  $\frac{5}{8}$  mile post. For the purpose of getting an equal start, the official, whose duty it was to send the cars away, mounted to the roof of the grand-stand, and by the combined use of a flag and a pistol he succeeded in getting a very satis-

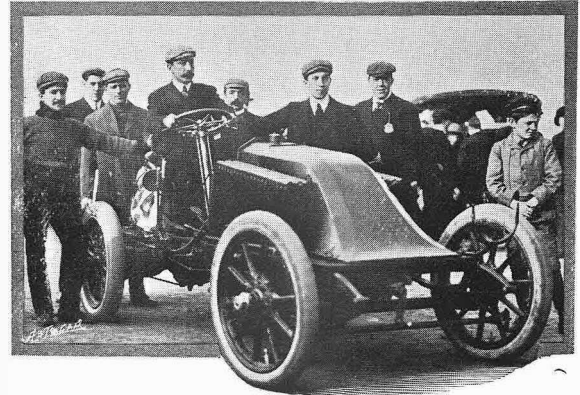


The end of the Packard racer, Grey Wolf.

factory start. During this race the Grey Wolf, of which so much has been heard in America recently, met with an accident which was almost fatal to the driver. At present it is doubtful whether its operator will ever regain his normal state of health. Whilst rounding a curve the car skidded badly and broke through a fence; its off front wheel axle broke off short. The end of the main axle dug into the ground and projected the unfortunate operator a distance of twenty feet from his seat—this after he had come very nearly being decapitated when the machine ran into the fence. It was only by an adroit ducking of the head that he saved his neck for the time being. Great excitement was occasioned by this accident, which was the one feature which marred an otherwise successful meeting. The race was continued between the Darracq and the Renault, the latter proving the winner. No times were taken in this event.

Two more events were run off after this. One of these was a five miles club championship, in which two 15 h.p. Winton touring cars were stripped down to compete against a 16 h.p. F.I.A.T. tonneau, which on account of its higher resistance did not get a look in during this race.

The last event was the ten miles Brighton handicap, which brought out the largest field of the day,



Mr. Brokaws's 30 h.p. Renault, which did so well in all the events in which it competed. The owner is at the wheel.

comprising the following: 30 h.p. Renault (scratch), 40 h.p. Darracq (5s. handicap), 16 h.p. Georges Richard and 6 $\frac{1}{2}$  h.p. Cadillac (5m. 10s. each), 15 h.p. Winton and 30 h.p. Daimler (5m. 16s.) The race was won by the 15 h.p. Winton. The speed was very low owing to the rapidly failing light.

As an up-to-date addition to military training, Mr. H. F. Trippel, the well-known Army coach at Richmond, gives his pupils lessons in motoring.

\* \* \*

The Taff Vale Railway automobile car had another successful trial last week, when it was run from Cardiff to Pontypridd and back. It conveyed the directors of one of the largest collieries in Wales—the Albion—to Cilfynydd. Accompanying the car were Mr. Harland (traffic manager), Mr. Cameron (deputy loco. superintendent), and Mr. Hallett. The vehicle ran smoothly, and the trial in every way was a complete success. It is probable that the company will shortly have a number of these motor vehicles built.



## THE LIMITATION OF CYLINDER CAPACITY.

The Smoking Room of the Automobile Club was hardly so well filled as usual upon the evening of Thursday, 12th inst., when Mr. C. W. S. Crawley read a short paper on the above subject. Remarking that late events had shown that "racer" racing would in future only be possible over a short special track, and that cars running singly against the watch was a deadly dull thing to witness, Mr. Crawley suggested that as up to the present only vague generalities had been arrived at, he thought it well to bring the matter to discussion. His scheme might be wrong in many points, but criticism would indicate them, and they might come to the conclusion either that there were too many objections to limiting cylinder capacity, or that so much could be said in its favour that the club should take it up. He had put his figures in round numbers. The final figures must be subject to conference with the makers. The *raison d'être* of horse, cycle, or motor racing was improvement of the breed, the one for the majority was sport. Motor racing to catch on must appeal to the sporting instincts, must provide glory to the winner, and advertisement to the manufacturer, the honour for choice, or where would the money come from? It had improved construction, and would continue to do so. Present racing conditions were to "get as much horse-power into the ton" as possible, and races had been run thereunder with success and justification. By these races every mechanical part of an automobile had been improved. The very success of present conditions proved them out-of-date. The improvements induced and obliged the construction of monstrosities, useless but for racing, not to speak of the difficulty of providing suitable courses therefor. Racing conditions to provide good sport, to improve the various points requiring improvement, were wanted based on what had been done and what still looked practical. What was required was more power out of engines, more of that power at the driving wheels, greater freedom from break-downs, lighter and more convenient cars.

**WEIGHT.**—30 cwts. was too heavy for tyres; an ideal car should not be more than 20 cwts.

**SPEED.**—Constants could be of any value, he suggested, taken to give somewhere about thirty miles per hour. Makers would then do all possible to improve working and not racing cars.

**POWER.**—He suggested 15 h.p. as ample all-round, but would not limit horse-power that would not tend to improve construction. Therefore other means must be found.

**CYLINDER CAPACITY.**—He had worked out the cylinder capacities of all cars in the reliability trials, and though a few differed widely ten cubic inches might be taken to represent what was called a horse-power. The limitation of cylinder capacity would oblige effort to get more power out of the engine, to improve transmission gear, and obtain more power on road wheels.

**BODY AND WEIGHT.**—In a real car there was considerable weight of body and passengers; in a racing machine a minimum of both. Given a 20 cwts. road car, weights would be roughly as under:

	Cwts.
Chassis, with every working part, including petrol and water for 150 miles	15
Body	5
Tools, lamps, aprons, anti-skids	1
Four passengers (including driver), wrapped up	7
Spares, including chain and two tyres and tubes	1

Not definitely but simply let the chassis be 15 cwts., other weight 15 cwts., and 15 h.p. (at ten cubic inches per horse-power). We should thus get an excellent handicap for cars, not necessarily finishing under a handkerchief, but the car best suited to average wants would win. Price would not enter into the calculation, which was good. Conditions simply for every ten cubic inches of cylinder capacity—first, chassis must weigh 1 cwt.; and secondly, further weight of at least 1 cwt. must be carried. If chassis was under this weight, load not counting as body weight must be carried to make up. If frames were lightened all round the chassis figure might be diminished. Maker might increase weight of chassis if he chose, but would have to carry it as extra. "Body weight" covered everything else—all passengers, body, lamp, spares, etc., but not more than 42 lbs. per cwt. to be passengers, or

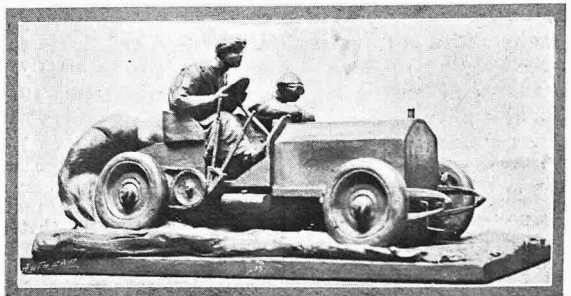
7 lbs. spares. To avoid freak frames without ordinary body, a box, 5ft. by 3ft. by 3ft., to be carried. Thus a strong incentive produced to race with ordinary body, which was most desirable.

These conditions would not, he thought, make the racing car resemble a touring car but every tourer a racer, which could enter and compete on level terms in any automobile event. Cars in which use had been sacrificed to speed would not be met, and a beating would only mean a worse car or driver. Under such conditions all cars would shortly be built to them, as they allowed all latitude for comfort, strength, and room without impairment of racing chances.

He had spoken only of 20 cwts. cars, but a 15 cwts. car required a little more power in proportion, and a 10 cwts. car a little more style, and these could be easily allowed for in the conditions if required to race all in one class. Indeed, with known cylinder capacity and chassis and body weight, present cars could compete.

Looking at the matter from the makers' and purchasers' point of view, it would make racing more useful in improving points requiring improvement; a win would be an index of what the purchaser desired to know. He would order a duplicate of the winning car, knowing it was capable of certain speeds, and would generally behave itself. Now if a car was ordered of a winning maker, the purchaser got an entirely different machine. Makers had undoubtedly learnt much by racing, but their best brains had been devoted for months to problems other than the improvement of the user's car. He had only considered the question of the four-cycle engine, the others might at present be ignored. The steam car was another matter. A separate class would have to be formed for them. Electric cars might be left out altogether. As racing freaks they covered short distances in short times. By the aid of rails and a trolley pole they were the most perfect disorganisers of traffic imaginable; as touring cars the least said of them the better.

As to objections, limit of cylinder capacity would tend to faster running engines. That was bad. Ill effects might be prevented by a stipulation that on fourth speed with road wheels revolving at forty miles per hour the engine revolutions should not exceed, say, 1,200 per minute. This gave 900 revolutions at thirty miles, about present practice. It would tend towards higher compression, but he did not think this very bad, not worth legislating against. It would, however, bring about many little dodges to obtain advantages on the part of the manufacturers; but they would be mostly improvements. The greatest objection to be raised would be speed, which had nothing to do with the pleasure of racing. What made for sport was a good man on a good horse, yacht, or car trying by his own skill or nerve to beat another on equal terms. Mere speed, so long as the last ounce was being squeezed out of the car, had nothing to do with sport. It would mean racing at a maximum speed of, say, thirty-five miles per hour, instead of eighty, but we should do it ourselves. Which was the better—to watch other people's paid professionals ride a flat race, or to ride one's own horse in a hunt steeplechase?



AN UP-TO-DATE BRONZE. Messrs. Gebrüder Beissbarth, of Munich, send us a photograph of a small bronze which they have designed and made for the deflection of motorists. A good idea of its appearance can be gathered from the illustration.

## CLUB DOINGS.

### THE PROPOSED FEDERATION OF PROVINCIAL AUTOMOBILISTS.

#### The Reading A.C.

The hon. secretary of the Reading A.C. (Mr. A. E. Newton) writes: We duly received the Nottingham Club's letter as published in your last issue, to which we replied as follows:

"We have read your letter of the 6th inst., and have come to the conclusion that it calls for no detailed reply *direct*. It is not criticism you present, but irrelevant abuse."

Taking the letter *seriatim*, they open by dilating on the amount of affiliation fee, and quote a sentence from the letter we sent round to the provincial clubs at the commencement of the movement now on foot. They are careful, however, to rob the sentence of its context. We have said that the financial aspect is not one to be seriously considered, provided that corresponding advantages are obtained for the sum demanded.

The cost of federating will depend entirely on what the members of the federation want. The point is, that the federation will be a perfectly independent and representative body, and, as such, can have anything it likes and do anything it likes, provided that it is prepared to pay for it.

The Nottingham Club states that such a scheme as we propose "will require both brains and money," but I go further than that, and say that it will not only require these necessities, but will have to use them, which is a totally different matter. The Nottingham Club says it early recognised the splendid work done by the A.C.G.B. and I. (and who did not?). It gladly welcomed the chance of becoming affiliated *after it had arranged favourable terms for itself*, by which its fifty odd members were affiliated on payment of an acknowledgment fee of £10 (*vide* letter to *The Autocar*, Feb. 22nd, 1902). It appears that this lack of large-heartedness on the part of most of the provincial automobile clubs is what the Nottingham Club so sorely deprecates. It also states that it has a voice on the *Executive Committee* of the A.C.G.B. and I. If this is the case, it will readily be seen that preferential treatment has been meted out to this club, and, therefore, it is not in sympathy with the clubs to whom this treatment has not been extended.

With regard to the term "provincial automobilism," to which it takes exception, what else can this mean but "the use of the autocar by members of provincial automobile clubs, and others who are not members of the A.C.G.B. and I." It is these users of motor vehicles that the federation would embrace and cement into a body which would have a far more reaching influence, both in the provinces and in Parliament, than any existing organisation of automobilists.

The Nottingham Club says: "We have in the parent club an organisation capable of enormous good," etc. No one, to my knowledge, has ever disputed its capabilities. It is not a question of capability; for instance, the Nottingham Club has not grasped the meaning of "federation," but I do not suggest that it is incapable of grasping it.

In conclusion, I can say that fifteen provincial automobile clubs have already definitely decided to take part in the formation of an automobile federation, and that a conference to discuss same will be held in London early in December.

#### Manchester A.C.

An extraordinary general meeting of this club was held at the Albion Hotel, Manchester, on Nov. 10th. Mr. Frederic Smith in the chair, to consider the affiliation agreement presented by the Automobile Club of Great Britain and Ireland. The Chairman reminded the members that at the last extraordinary general meeting the committee were empowered to make the best terms possible with the London Club. Some correspondence had taken place, and an offer had been made to the London Club to fix the maximum contribution of the Manchester A.C. at £100, approximately equivalent to a payment on a membership of 200, any increase in membership not to be subject to a payment. This suggestion, however, was declined. The committee felt that it was a reasonable offer, and one that might

fairly have been entertained by the central body. There has been a growing feeling on the part of members against affiliation, especially in view of a draft agreement setting forth the terms of relationship. By this agreement the provincial club would be bound for at least fourteen months, and possibly for two years. There was also an objectionable clause limiting their freedom of action in automobile matters. The committee, therefore, did not care to undertake the responsibility of signing the agreement without calling another meeting of members. A number of clubs had signed it, still there were a number who had refused to sign. The Chairman reminded the meeting of the advantages of the London Club, one of whose aims was the promotion of the interests of automobilism throughout Great Britain and Ireland. It was only fair that motorists should recognise some obligation to such an institution by their contributions and support. Work of a political kind could be much better done by such a central body than by independent units scattered over the kingdom. He urged this point, and, while wishing the meeting to consider the question entirely on its merits, hoped they would not take a step which might possibly be regretted. At the same time he was of opinion that a little more consideration on the part of the London Club and some concession to provincial sentiment might have averted the present state of feeling. The committee itself was unfortunately divided on the subject, seven of their number being in favour of the resolution which would be submitted, and four against it. Mr. H. Lee then proposed, and Mr. L. G. Schwabe seconded, "That the London Automobile Club be informed that we have decided not to sign the affiliation agreement, and consequently our connection with them ceases at the end of this year." The motion was supported by Mr. Henriques and Mr. Baume. Mr. Seddon favoured affiliation with the central body. Mr. Grace supported the resolution, and reminded Mr. Seddon of the efforts made to come to terms with the London Club, and intimated that not the slightest effort had been made to meet the wishes of the Manchester Club. He was of opinion that it would be found necessary ultimately to separate the social part of the London Club from its political and general organisation. Further discussion took place, during which Mr. Rowcliffe expressed his surprise at the feeling which existed against affiliation, others joining in the discussion being Mr. A. Morris, Mr. Herbert Bright, Mr. O'Neill, and Mr. Whittaker. The resolution was carried by a large majority.

#### The Nottingham and the Lincolnshire Clubs.

Sir,—In your last issue there is a letter of self-adulation from the Notts Automobile Club, in which appear some impertinent and altogether uncalled for remarks concerning the Lincolnshire Automobile Club. As a member of the latter club's committee, will you allow me to suggest to the Notts Club that they should give their opinion on the federation question without seeking to disparage any other club whose members may conceivably possess as many brains as themselves.

The Notts Club take unto themselves great virtue for the support they have so unanimously given to the parent club by paying the affiliation fee, but doubtless they have forgotten the excessive amount they drew back last year for payment of fines and legal costs, whereas the poor abused Lincolnshire Club, with a larger membership, required and received nothing.

Truly the Notts Club may say "We are keen as decency will allow in getting full value for money, and in making arrangements which will be most beneficial to ourselves."

The Lincolnshire Club will shortly give its decision on the affiliation question, and in the event of its members deciding to affiliate, I am sure the last thing they will look for from the parent club will be the payment of expenses incurred through careless or incompetent driving.

In conclusion, I think I can speak for the Lincolnshire Club when I say we have an idea that by behaving as gentlemen on the roads, by showing every consideration to other users of the roads, and by using conciliation whenever possible, we can do as much to advance the best

interests of automobilism as our Nottingham neighbours, whose superior acquaintance with the police courts requires such substantial support from the parent club.

W. R. PENNELL.

[We give this opportunity for the Lincolnshire Club to reply to the statements contained in the Nottingham Club's letter, so far as they affect the former, but we cannot publish any further communications of a similar character. Correspondents must deal with the broad question of the proposed federation, and must not descend to personalities.—Ed.]

#### Automobile Clubs and County Councils.

An example of useful work done by provincial automobile clubs in view of the coming into force of the new Act reaches us from Wolverhampton. The hon. secretary of the Wolverhampton and District A.C. (Mr. S. R. Rhodes) has circularised the town clerks of county boroughs and the clerks to county councils within a radius of about forty miles to the following effect: It is respectfully submitted that adequate protection is already given to the public by the common law and by the provisions of the Motor Car Act, 1903, by which Act all motor cars are required to be numbered and registered, without local councils exercising the powers conferred upon them by the Local Government Board, and councils are requested not to suggest the imposing of further restrictions upon the drivers of motor vehicles. The letter then continues: "If, however, your council are of opinion that the travelling public are not sufficiently protected, my committee respectfully request your council not to recommend the closing of any roads to motor cars or the reducing of the speed limit at which they will be permitted to travel under the Act, until an opportunity has been given to the members of the above club to drive yourself and the members of your council over the roads which they consider should be closed to motor cars, or upon which in their opinion the speed limit should be reduced, and to demonstrate the ease and safety at which motor cars travel over narrow and tortuous roads, and how apparently difficult and dangerous places are negotiated without danger to any users of the highway. If your council accede to this request, and you will be good enough to intimate to me place, date, and time, and number of passengers for whom seating accommodation is required, I shall be pleased to arrange for cars to be at your dis-

posal, feeling assured that the ultimate result will be not only the saving of local rates by reducing the number of notice boards and the continual outlay consequent upon keeping them illuminated at night, but also to foster and encourage an industry which is calculated to materially promote the prosperity of our country towns and villages."

#### Wolverhampton and District A.C.

A paperchase has been arranged for to-day (Saturday, the 21st inst.) Messrs. W. Owen and Walter Evans will act as hares, and start from the Top Green, Tettenhall, at 2.30 prompt. Ten minutes later the other members will follow, and endeavour to overtake their quarry before reaching the rendezvous, the "Barley Mow," Newport, at 4.30, at which hotel tea will be provided at five o'clock.

#### The Scottish A.C. (Western Section).

It has been arranged that the Glasgow to London non-stop trial, 1904, organised by the above club shall take place on May 19th and 20th, and it has been remitted to a special committee to consider the rules and conditions of the trial.

#### Hampshire Motor Union.

Last week we cited the enlightened action of the Hampshire County Council in regard to the exercise of the powers given them under the Motor Car Act. Their action is an example of what can be done by the persistent effort of one automobilist. Although he would be the last to claim full credit for the decision of the council, there is no doubt that the Hon. John Scott Montagu has had a great deal to do with the enlightenment of the Hampshire County Council. The automobilists of the county have now formed a union to promote and protect the rights and privileges of automobilists and motor cyclists in the county of Hants and surrounding area; to bring influence to bear upon local authorities for the improvement of roads and dangerous corners and the removal of irksome and unnecessary restrictions; to establish a defence fund for the purpose of defending cases which the committee consider should be contested, and to do all such other things as may tend to popularise automobilism in the district. All those interested in motor traffic, though not necessarily owners or users of motor cars or cycles, are invited to join. The secretary is Mr. J. Charles Warner, 29A, Jewry Street, Winchester.

## THE LATEST TALBOT MODELS.

To many automobilists the National Show will present a special interest, for the reason that the 1904 models of the new 6 h.p., the 11 h.p., the 20 h.p., and 27 h.p. Talbot cars will see the light there for the first time in any show. It usually happens that the new types of cars of French origin are kept carefully in the background until the French Salon opens, but in the case of the Talbot cars—which in France are Bayards—certainly *sans reproche*, the National Show at the Palace has precedence. The engines of these cars are practically alike, save that the 6 h.p. has one cylinder, while the 11 h.p. (the two-cylinder) and the 20 h.p. and 27 h.p. (the four-cylinders) are cast in pairs, and so set upon the crank chamber. It will be found that the chief differences distinguishing these engines from the motors of this year are the placing of the exhaust valves and induction valves on opposite sides of the cylinder, and worked independently by different half-time shafts, in all but the 27 h.p. motor. But the bore and stroke of the 6 h.p., the 11 h.p., and the 20 h.p. are all alike, so that the fittings throughout are identical in size for each motor. This is a point which should have particular interest for agents, who, handling Talbot cars, like to hold a stock of parts for the convenience of their patrons. All the 1904 cars will be found fitted with magneto ignition, a rotary magneto

being provided to furnish the current. The gear-driven pump, too, is now placed at cylinder level. The carburetter, pump, and magneto are all part and parcel of the engine, and all their working parts run in an oil-tight case. In other respects, the 1904 cars are on the well-known 1903 lines, but with all-round improvements in detail. The 6 h.p. Talbot will be a welcome addition to the patterns; indeed, much regret has been expressed at the cessation of the supply of the small car this year. The 27 h.p. Talbot (*Voiture de Luxe*) is the vehicle upon which appear the most novel features. The stroke and bore of the four-cylinder engine are 110 mm. × 130 mm., with mechanically-operated valves, but the induction valves are set in the crown of the combustion chambers, and made with variable lift controlled by the driver from his seat. The ignition is by magneto to advance or retard. The front axles (H section), and the back axles are solid, the transmission from countershaft to road wheels being by chains. A coil clutch of small dimensions takes the place of the ordinary friction clutch fitted to the pre-described cars. The draught-inducing fan is formed in the flywheel. This is a car which should attract much attention, and, taking the whole contents of the stand into consideration, they alone will make it worth while to pay a visit to the Crystal Palace.

## THE 100 MILES CLUB TRIALS.

The quarterly 100 miles non-stop trial of the A.C.G.B.I. was held on Friday, November 13th. The vehicles started from and finished at the Club's Garage, 18, Down Street, W. The route was as follows: From the Garage along Down Street, Hertford Street, Park Lane; then inside the Park towards Marble Arch as far as Victoria Gate; then *via* Notting Hill to Uxbridge Road Station, Acton, Ealing, Beaconsfield, High Wycombe, and Stokenchurch, to the cross roads immediately beyond the 49th milestone from London and back. Condition of the road: Very heavy and greasy. The weather: Dull. Wind: Light journey, light, against cars; return journey, light, with cars.

The hills on which climbing trials took place were:

- The steep portion of Dashwood Hill, commencing at 33rd milestone and ending at danger-board at the top, 1,180 yards, having an average ascent of 1 in 16 and including 352 yards of 1 in 10.9.
- One mile, including Dashwood Hill, commencing at 33rd milestone, and terminating at 34th milestone, having a total rise of 241ft. in one mile, including 275 yards of a gradient of 1 in 21.7 and 600 yards of a gradient of 1 in 11.
- Aston Hill on the return journey. Distance one mile 1,100 yards, having a total rise of 365ft., and including 1,910 yards of a gradient of 1 in 21.

THE SIDDELEY AUTOCAR COMPANY, 79-80, YORK STREET, WESTMINSTER, S.W.—6 H.P. SIDDELEY.

Makers' description—6 h.p. Siddeley light car, one cylinder, water-cooled, radiator fitted with Clarkson tubes in combination with water tank. To seat two. Transmission—By gearing from motor and one chain to back axle. Weight without passengers—10 cwt. 2 qrs. 24½ lbs. Quantity of petroleum spirit used on the journey—2 gals. 3 qts. 1 pt. Quantity of water used on journey—1 pt. 14 ozs. Average cost of fuel per mile at 1s. 3d. per gallon—43d. Speed—Up to legal limit.

Hill-climbing speeds:

- The steep portion of Dashwood Hill. Time to danger-board, 2m. 50s. = 14.19 miles per hour.
- One mile, including Dashwood Hill. Time for the mile, 3m. 40s. = 16.36 miles per hour.
- Aston Hill. Took two passengers all the way up in 6m. 5s. = 16.02 miles per hour.

Remarks—Mr. H. Burke, who acted as hon. observer, reports: "Car pulled exceedingly well, especially on hills. Absolute non-stop run."

MESSRS. FRANK F. WELLINGTON, LTD., 151 AND 153, WARDOUR STREET, W.—6 H.P. PICK.

Makers' description—6 h.p. Pick; two cylinders, water-cooled by pump, radiators and tank. To seat two. Transmission—Chain from motor to gear, chain from gear to wheels. Weight without passengers—11 cwt. 3 qrs. 3½ lbs. Quantity of petroleum spirit used on journey—2 gals. 2 qts. Quantity of water used on journey—1 qt. 8 ozs. Average cost of fuel per mile at 1s. 3d. per gallon—375d. Speed—Up to legal limit.

Hill-climbing speeds:

- The steep portion of Dashwood Hill—Time to danger-board, 4m. = 10.05 miles per hour.
- One mile, including Dashwood Hill—Time for the mile, 5m. = 12 miles per hour.
- Aston Hill—Took two passengers all the way up in 8m. = 12.18 miles per hour.

Remarks—Mr. Allen Vickers, who acted as hon. observer, reports: "Stopped to replace four broken sparking plugs. No other trouble."

THE WESTON MOTOR SYNDICATE, 14, MORTIMER STREET, REGENT STREET, W.—18 H.P. CHENARD AND WALCKER.

Makers' description—18 h.p. Chenard and Walcker, four cylinders, water-cooled by special type honeycomb radiator, no pump; Chenard and Walcker single-contact high-tension ignition, with accumulators. To seat four. Transmission—Through clutch to change-speed gear, thence through propeller to double-live axle, through internal spur gears to road wheels. Weight without passengers—25 cwt. 2 qrs. 24 lbs. Quantity of petroleum spirit used on journey—7 gals. 12 ozs. Average cost of fuel per mile at 1s. 3d. per gallon—1.06d. Speed—Up to legal limit.

Hill-climbing speeds:

- The steep portion of Dashwood Hill—Time to danger-board, 2m. 16s. = 17.74 miles per hour.
- One mile, including Dashwood Hill—Time for the mile, 3m. 4 3/5s. = 19.501 miles per hour.
- Aston Hill—Took four passengers all the way up in 4m. 50s. = 20.17 miles per hour.

Remarks—Mr. F. Straight who acted as observer, reports: "Had to stop in Southall to take in water, owing to belt of fan breaking. Hills in very greasy condition, causing wheels to race."

THE WESTON MOTOR SYNDICATE, 14, MORTIMER STREET, REGENT STREET, W.—12 H.P. CHENARD AND WALCKER.

Makers' description—12 h.p. Chenard and Walcker, two cylinders, cooled by fin-type radiators, Chenard and Walcker single-contact electric ignition, with accumulators; to seat four. Transmission—To change speeds, thence through differential on gear box to side chains. Weight without passengers—16 cwt. 2 qrs. 24 lbs. Quantity of petroleum spirit used on journey—4 gals. 1 pt. 4 ozs. Quantity of water used on journey—2 pt. 7 ozs. Average cost of fuel per mile at 1s. 3d. per gallon—62d. Speed—Up to legal limit.

Hill-climbing speeds:

- The steep portion of Dashwood Hill—Time to danger board, 5m. 26s. = 7.403 miles per hour.
- One mile, including Dashwood Hill—Time for the mile, 6m. 48s. = 8.82 miles per hour.
- Aston Hill—Took four passengers all the way up in 10m 15s. = 9.51 miles per hour.

Remarks—Mr. D. A. McNeill, who acted as honorary observer, reports, "Three stops for ignition trouble, after which car ran exceptionally well."

THE CREMORNE MOTOR MANUFACTURING COMPANY, LOTS ROAD, CHELSEA, S.W.—12 H.P. CREMORNE.

Broke down on the return journey about seven miles from Oxford owing to broken eccentric strap.

## POLICE TRAPS.

A "measured" quarter of a mile is reported on the road from Maidenhead to London, the exact spot being alongside of Taplow Station. It must not be assumed, however, that it is the only trap in the vicinity, for when the police become active in a district they have a habit of shifting their quarters from one portion of road to another. It is, therefore, necessary to drive with caution throughout the whole neighbourhood where a police trap is known to exist. There is also a measured strip of road between Lewes and Falmer. We trust that readers will keep us informed promptly of any traps that may come to their knowledge.

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