

THE AUTOCAR

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

EDITED BY H. WALTER STANER.

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CONTENTS.

	PAGE
NOTES: PRIVATE TOUTING—THE MARINE GORDON-BENNETT— UNOFFICIAL TRIALS—MOTOR CARS AND LONDON TRAFFIC— MILITARY MOTORS... ..	563-565
A HANDSOME CAR (Illustration)	564
USEFUL HINTS AND TIPS	566
FROM PARIS TO ST. PETERSBURG. By Madame Lockert (illus- trated)	567-568
A STEAM WATERING CART (Illustration)	568
THE SUNBEAM CHAIN CASE (Illustrated)	569
A COMPACTLY-DESIGNED CAR (Illustrated)	570-571
A NEW PRIMARY IGNITION BATTERY	572
THE PANHARD CONTROL (Illustrated)	572
RECENT NON-SLIPPING DEVICES (Illustrated)	573-574
WINTER MOTORING GARMENTS	574
CONTINENTAL NOTES AND NEWS (Illustrated)	575-577
LONDON COUNTY COUNCIL AND THE NEWACT... ..	577
AN ANCIENT MOTOR (Illustration)	577
CORRESPONDENCE	578-580
MOTOR MOUNTAINEERING (Illustration)	580
"THE AUTO-CAR" DIARY	581
FLASHES (Illustrated)	581-583
SOME QUERIES AND REPLIES (Illustrated)	584
GOVERNING GAS AND PETROL ENGINES. Paper by Mt. Dugald Clerk (continued)	585
THE FREEDING OF MAIDENHEAD BRIDGE (Illustrated)	586
THE THERMAL TREATMENT OF STEEL	586
A SPEED RECORDING INSTRUMENT... ..	586
FUTURE MOTOR VEHICLE TRIALS: DISCUSSION BY THE SOCIETY OF MOTOR MANUFACTURERS AND TRADERS	587-588
THE SPEED OF TRAMCARS (Illustration)	587
THE AUTOCAR IN WEST AFRICA (Illustration)	588
THROUGH THE FLOODS ON A NEW CAR	589
UNOFFICIAL TRIALS	589
AN AID TO WIRING (Illustrated)	590
POLICE TRAPS	590
NEW PATENTS	590
MARINE MOTORING: THE HARMSWORTH CUP RULES. By Bernard Redwood	591-592

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Notes.

Private Touting.

Under this heading a letter appears from the Wolseley Company which is deserving of more than passing attention. The subject is not a pleasant one, but at the same time it is not likely to become less unpleasant if it is not faced while it is comparatively a small evil. There is no more contemptible being in the motor world than the one who may be described as the maker's amateur. People of this stamp go about among motorists posing as entirely disinterested amateurs, but at the same time pushing to the best of their ability some particular make of car in which they are interested, or believe themselves interested, for some of them will work quite hard in the hope of being able to influence a prospective purchaser, and then as soon as they believe they have convinced him of the virtues of some particular car they write off to the manufacturers, telling them

what they have done and claiming some commission. In some cases they make their advocacy really artistic, and will tell the man they hope to convince of the merits of the car in which they are interested that the makers are shocking people to deal with, most uncivil and high-handed in their methods, but the cars themselves are of such transcendent merit that they put up with this, and more, too, rather than use any less meritorious make. It should be clearly understood we are dealing only with the person who pretends to be a disinterested amateur but who is nothing of the kind. The clever, courteous salesman who does not profess to be anything else commands respect, but the tout who poses as a disinterested amateur is a contemptible person. This matter is not merely of business interest; it is of importance to the private motorist in more ways than one. In the first place he may be deceived by a man whom he believes to be disinterested, and in the second, if these underhand commissions are to be recognised by the makers, it simply means that the price of cars will be proportionately increased, and the purchaser will never be quite certain that he is paying a fair price, and will be inclined to wonder who is getting commission out of the maker. If on the other hand the makers decide to set their faces absolutely against such commissions the purchaser will have no reason for lack of confidence. Not only so, but automobilists like to be able to discuss their cars freely to each other, and to praise unstintingly when praise is, in their opinion, due, besides saying precisely what they think when their cars have not behaved satisfactorily. If, however, the private tout becomes a recognised institution, the average amateur automobilist will make up his mind that he will never speak well of a car except to his most intimate friends, who know him sufficiently well to be sure that he is a thoroughly honourable man. We hope, therefore, that the manufacturers will go into the question carefully and come to a unanimous decision. The matter has been brought up by a strong firm—one which has not feared to strike out a line for itself both in its policy and the design of its cars, and as both have been successful, the action it proposes to take receives additional weight. Coming from such a source, other members of the industry will not regard the suggestion as merely Utopian.

The Marine Gordon-Bennett.

By universal consent the Harmsworth international cup for motor boats has been regarded as the marine equivalent of the international motor car race for the Gordon-Bennett cup. As this is so, it is essential that the race shall be held annually. The holder, Mr. S. F. Edge, has drawn our attention to the fact that the rules prescribe that, unless a challenge be sent in within thirty days from the date of the last race, no race can

be held during the year following. Not only was no challenge sent in within the thirty days, but up to the present no challenge has been received by the Automobile Club as custodians of the cup. Therefore, according to the rules as they stand, no race can be held. This arrangement, we are glad to say, does not meet with the approval of the holder, and he is appealing to the proper authorities to have the rules altered, so that the race may be kept open for entries up till, say, Feb. 1st, 1904. It is, of course, very satisfactory for England and Mr. Edge, with the Napier boat, to hold the cup; but the holder, like any other good sportsman, is not content with this, and does not wish to take refuge behind the letter of the rules as they now stand. In this he is quite right, and we feel tolerably certain that the majority of possible competitors have entirely overlooked the thirty days' provision, which, though doubtless well intended, is unquestionably a mistaken and unnecessary one. In this opinion we have no doubt the donor of the cup, Mr. Harmsworth, will agree; and as the donor and the holder are willing that the rules should be amended, we should imagine there will be no difficulty whatever in effecting the suggested alteration. Another point, too, in favour of the amendment of the rules is that the French have only really taken up the sport of motor boat racing actively since the Harmsworth cup was instituted. There are firms now who,

we believe, would be willing and anxious to enter if it were made possible for them to do so. In fact, all the foreign clubs should not only be officially advised by the Automobile Club of the extension of the date for entry, but every effort should be made through the home and foreign automobile and yachting press to cause this fact to be as widely known as possible, so that the public interest in the event may be fully maintained.

Unofficial Trials.

As soon as the so-called trial of small cars promoted by a paper was announced we at once expressed our opinion that it was the duty of the Automobile Club, in the interests of the user, to disqualify all participants from taking part in club competitions. For the moment this opinion was apparently disregarded, as the Executive Committee of the club, after considering the matter, seemed to imagine that, because the date of the unofficial run had been fixed without consultation with the club, the only thing to do was to recognise the event and to suggest that it should be run under club rules. However, the Executive Committee of the club is not the final authority. Its actions are not often questioned by the General Committee, but that committee has the power of vetoing any resolution of the Executive Committee, and this power was put into force, as it was held by the members of the General Committee that the giving up of the control



A HANDSOME CAR. The illustration above depicts a 24-hp. De Dietrich supplied to the order of Mr. J. Hamilton Houldsworth, of Coltness Castlebank, Lanark. The body, which was constructed by the Burlington Carriage Co., 315 and 317, Oxford Street, W., has been designed with a special view to the requirements of the owner. The tonneau provides accommodation for five persons, two of the seats being removable when the car is set upon the road in touring trim. The vehicle is upholstered in fine English leather, harmonising with Mr. Houldsworth's family colours in which the body is finished. These are a taking Brunswick green, with lighter green relief. The automobilist at the wheel is Mr. A. S. Mays-Smith, the general manager of the Burlington Carriage Co., who made a careful test of this beautiful car before it was delivered to Mr. Houldsworth. Mr. Mays-Smith was the first man to recognise the merits of and place a four-cylinder De Dietrich on exhibit in any London showroom. In the interest of those of the Burlington Carriage Co.'s clientele who are supplanting their horse-drawn vehicles by motor cars, Mr. Mays-Smith has been at some pains to have at the Dietrich works a staff of mechanics carefully drilled in the mechanism and economy of these cars.

and discharge of one of the most important features of the work for which the club was instituted was in every way against the best interests of automobilism, and that for the club to officially recognise this particular exploit was to permit the establishment of a very dangerous precedent. If an unofficial trial was once granted either with club connivance or club support there was no reason why such attitude should not be continued towards all persons seeking advertisement at the expense of the automobilist. At the same time, it is regrettable that the Executive Committee in a matter of such moment to the future policy of the club should not have submitted its resolution to the General Committee for confirmation before communicating it to the promoters of the run. It would have then saved the apparent vacillation in the club policy, and would have partly prevented the promoters of the run from making themselves ridiculous in the way they have done. At the same time, they deserve little sympathy, as they might have saved themselves from ridicule if they had possessed some small knowledge of the automobile world and its usages. However, if they have the good sense to withdraw the run and to admit frankly that they have made a mistake in attempting to play at work which should only be undertaken by the club or some similarly representative body, everyone will admit that they have taken a wise and manly attitude, and they will gain credit rather than discredit by so doing. If, on the other hand, they persist in holding the run, and also in attributing bad motives to all those who have opposed it, and in circulating petty personalities about those who are convinced that unofficial trials are a mistake, they will deserve no sympathy.

Motor Cars and London Traffic.

It is to be hoped that the Royal Commission on London Traffic will take a more enlightened view of their duties than would appear from some of the reports which are to hand as to their recent doings. Several of the Commissioners have just returned from a short visit to America, where they have been investigating the traffic conditions which prevail in some of the large towns and cities there. They are said to have been "much impressed with the systems they saw at work, the smoothness of the electric tramways in crowded and even narrow streets, and especially the ease and speed attained in narrow subways. So noticeable was their surprise," says one report, "at the unexpected results they saw that they are believed to have returned convinced of the absolute superiority of the shallow subway over the deep tube, and to have brought back such improved views of the possibilities of electric tramways that their report will sound the parting knell of the slow and clumsy horse-drawn omnibus, even in Central London, except as feeders from side streets to the tramway and subway stations in the main thoroughfares." We sincerely trust that the Commissioners will have sufficient enlightenment and independence not to be unduly influenced by what they saw in the States, except perhaps as a warning as to what should not be done. American conditions of street traffic appear to be regulated only by the vested interests of the tramway promoter. Before they make up their minds we have no doubt they will turn their attention to the possibilities of the motor car and the motor bus. It is to these and not to the

electric tramway that they must look for a solution of the difficult problem with which they are confronted. Not only in the matter of capital outlay, but in convenience of running and every other consideration, motor buses are far superior to electric tramways. For passenger capacity they would be on equal terms with the horse-drawn bus—that is, they would carry about the same number each, and would therefore run as frequently, while they would only take up about half the amount of road space. In the matter of comfort and speed they would surpass even the electric tramway. The commercial aspect of the question was gone into very ably by Mr. Barker Lake in our last issue, and we would urge that the Commission should thoroughly sound the possibilities of this modern form of locomotion before issuing their report. If they would do this we feel sure they would become so far convinced of its utility as to consider it worth while to give motor buses a fair trial on a large scale.

Military Motors.

When General Miles recently retired from the command of the United States army, he handed in a long report which contained a number of suggestions for the future. His recommendations to the War Department are full of interest to the automobilist; in fact, he goes so far as to recommend reducing the cavalry branch to the minimum, as he considers the automobile will largely take the place of the horse in the next war. At the same time he fully recognises that this would be almost impossible in many parts of his country, owing to the roads being little better than tracks, which would become absolutely impassable under the heavy traffic of military transport. Consequently, he strongly recommends the building of military roads of strategic importance throughout the country in time of peace. He advises the formation of a corps of five regiments, specially trained and organised in the use of autocars and motor cycles. In addition to this he recommends the formation of a sister corps which should be wholly occupied in the building of roads and bridges. Undoubtedly, General Miles's recommendations are eminently practical, though there is no question that five regiments, or, for the matter of that, fifty regiments, would have to work for many years before they could make the States into a fairly well roaded country. However, we presume the work will be commenced at the seaboard, and at the points of the greatest strategic importance, and gradually extended, as the Americans will no doubt realise that the railways and the tramways, useful as they are, are not all sufficient, and that good roads are of commercial as well as strategic importance. As to the pleasure derived from good roads only those who have resided in a more or less roadless country can fully realise what this means. It has often struck us as somewhat remarkable that the United States military authorities should have made so little progress with the motor car; it might have been expected that the American army would have made far greater use of the automobile than any other army in the world. There is no doubt the bad roads have much to do with it, and this fact should provide a lesson to the British War Department, as some of our so-called good roads cut up shockingly under a little extra traffic. The recent manœuvres cut some roads all to pieces.

USEFUL HINTS AND TIPS.

Laying up a Car for the Winter. *(Continued from page 535.)*

Engine Treatment.

The engine should be washed out with paraffin, this being injected into the cylinders and crank chamber, several turns should be given to the starting handle so as to swill the paraffin as much over the interior of the crank chamber as possible. After standing a few minutes, open the drain cock and allow the paraffin to run off. This operation should be repeated until the paraffin flows from the crank chamber as clean as when put in.

As to the outside of the engine, this should also be thoroughly cleaned down. For this purpose use a stiff-bristled paint brush and paraffin. After this treatment the engine should be wiped over with a clean dry rag. As aluminium is affected by the atmosphere, particularly upon the coast line, where the air is often damp and heavily laden with salt, it would be advisable as a protection to all the metallic parts of the engine, to paint these over, and for this purpose some special form of paint is necessary. The heat of the engine would affect ordinary paint, so that if this were used, when the engine was again started, the paint would burn off by reason of the heat generated. At the moment we do not know of any paint which will exactly meet the requirements of the case, but it seems quite feasible that a mixture of white lead and olive oil reduced to a workable consistency by means of spirits of turpentine would form a suitable covering for the engine. This is frequently used as a protection for machine tools which are stored away or are standing idle. Olive oil does not dry or oxidise as linseed oil does, and, therefore, is easily removable by means of turpentine when its presence is no longer required. The white lead adds metallic body to the oil, and assists in preventing the attacks of moisture, aciduous vapours, etc.

Reverting to the interior of the engine, it is not generally advisable to lubricate this; but if it is thought for any special reasons necessary to do so, cylinder oil only should be used, and the pistons should be worked up and down their cylinders from time to time by the rotation of the crankshaft with the starting handle. This will prevent them being stuck should the handle oxidise, and also give the owner warning if the oil is hardening by reason of the resistance set up in the engine. With regard to the valves, these might be removed with advantage in some instances; and if the exhaust valves are removed, the bottom end of the guides should be plugged to prevent the ingress of dust and dirt.

Transmission Gear.

The change speed gear should be washed out with paraffin in a similar manner to the engine. If the car is a direct driven one, the bevel gear case should be filled with grease, there being no necessity to clean this out, though it would do no harm if it were washed out with paraffin, and fresh grease put in. Returning to the change-speed gears, the gear box lid should be removed, or probably in many instances it would be better to remove the top half of the gear box completely so as to expose the gear

wheels contained therein. Good lubricating oil should then be applied to the gear wheels by means of a brush. For this purpose, cylinder lubricating oil would probably be the best medium to employ, as it would not be so liable to oxidise as many of the cheaper lubricants.

Connections and Chains.

All the pins, joints, and connections should be well oiled; in fact, it would be better to remove these, cleaning them thoroughly and replacing them, having previously given them a good coating of vaseline. The wheels should be jacked up and removed from their axles, these and the axle boxes being cleaned out and well greased before replacing. When going round the car, attention should be given to the anchored ends of the carriage springs; also their shackles, these being well greased. These are some of the points which are particularly liable to be overlooked when going through the process of overhauling and cleaning. Where chain driving is employed, the chains should be removed from the sprockets and well cleaned in paraffin, after which they should be immersed in melted tallow and be allowed to remain in this for several hours. Remove the chains, hang them up to allow the superfluous grease to drain off, and then fold them up and pack them away in greased paper until they are required again.

The Protection of Exposed Metallic Parts.

After having attended to the engine and gearing, the next thing is to go carefully over all the metallic parts of the frame and of the connecting rods used in conjunction with the steering gear, change-speed gear, and the brakes. Where the paint has been scratched or barked sufficiently to expose the metal, this should be rubbed bright with a piece of emery cloth and paint or air drying enamel applied, giving it at least two coats of either. All plated or polished parts should be given a coating of pure vaseline after they have been thoroughly cleaned and polished. Pure vaseline, as obtained from the chemist, is specified as distinct from the commercial article, which is not so pure, containing as it does salts which are highly injurious to nickel or silver-plated parts, whereas the refined vaseline has no effect upon them. Rangoon jelly also serves the purpose equally well.

The Clutch.

Special attention should be given to the clutch. This should be withdrawn as far as possible, and its surface well cleaned with petrol, after which it should be given a good coating of castor or collan oil. The clutch pedal, or some of the connections, should be tied up in such a way that the clutch leather is not allowed to be in actual contact with the opposite portion of the clutch; or to this end a small wedge may be inserted at opposite sides of the clutch. This will prevent all possibility of the clutch faces becoming stuck by reason of remaining in contact for a long period.

(To be continued.)

FROM PARIS TO ST. PETERSBURG. BY MADAME LOCKERT.

From Berlin to St. Petersburg, to begin with, the road was quite unknown to us; and, as the Automobile Club Francaise is thinking of making this the track over which to run the big race of 1904, it struck us that it would be interesting to go and spy out the land. Accompanied by my daughters and chauffeur, I therefore set out with great confidence, and made my journey very successfully. Procuring petrol, which can only be obtained at a chemist's in Russia, was the thing that gave us the most trouble, as it is very uncertain where one can find it; and this is perhaps the most necessary thing about which to make arrangements when travelling in that country.

Here we are arrived at Berlin, and it is now that our drive commences to become interesting. The roads are not so good, but one still comes across motor cars; but if before Berlin we met about three cars in the day, after we had passed the German capital this proportion became less by two-thirds, and with this the difficulty of procuring petrol increased. Indeed, one might say that the petrol sellers hid themselves like timid violets. One finds the roads less and less used after passing Berlin; and we were able, notwithstanding the badly-constructed roads, to travel rapidly enough through the country, very fertile up to Kustrin, after which it becomes less and less cultivated.

We ran into rainstorms after leaving Berlin, and these became our faithful companions until we reached the Russian frontier, when snow took their place. How unpleasant the travelling was under these conditions!—each kilometre appeared to count as two.

At Konitz we found some fine old houses, but Königsberg was quite a disenchantment to us. We quite expected to find a town of the Middle Ages, but this was not the case. We found huge buildings like those of Berlin, but without any character, constructed of stone or brick, and painted carved work.

At the Russian Frontier.

At last we reached Eydtknunen. Here we were at the door of Holy Russia, but only at the door, be it said, as for twenty-four hours they would not let us pass through it.

We arrived with our car and showed our passports, and asked to be allowed to pass through, as that was what we had come for; but, "Halt here, madame! you cannot enter thus into Russia. Your passports are not sufficient. You should have procured a special permit to travel by this road." Naturally, as we had followed the advice of the Russian Ambassador at Paris, we did not bring this.

Another thing, a man or a woman at the Russian frontier must permit himself or herself to be thoroughly searched, so as to see that he or she has not smuggled anything. What can one do? They insist!

After this they explained to us that our car could pass, but by itself. As for our party, we should have to take the train, and in this case the passport which we had brought with us would be sufficient. To leave our car and go on by ourselves was the very last thing that we could think of doing. Another means was proposed, that our car and ourselves should be put on the train from Eydtknunen to Virballen, a distance of about 200 metres. This solution of the question was quite impossible, as these 200 metres would mean transshipment, in consequence of the Russian railway not being of the same gauge as the German. The evening came on

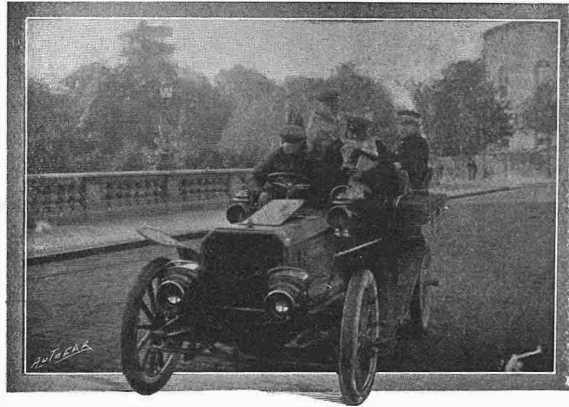
us while we were still attempting to find some solution of the question, when we had the good luck to come across Lieut.-Col. Serge de Messaiedorff, who, speaking French like a Parisian, promised to meet us next morning, as he thought he would be able to help us.

After this, matters changed entirely. The Colonel took his seat in our car, the doors opened, the chains fell. All the troublesome official formalities became as nothing, and, thanks to the Colonel, we were introduced to

Mons. Wissotsky, Officer of Customs, who quickly put lead seals on our car, even more rapidly examined our baggage, and everything was made simple. It is not so easy to enter Russia, after all, as we had to pay 302 roubles for our car before we were able to penetrate beyond the frontier, and roll over the bad Russian roads.

Our Custom House payments during the whole tour were as follow: On passing the French frontier we were obliged to procure a Custom House pass, which cost us five centimes, and which gave us the right to bring our car back into France during one year. At the Belgian frontier we had to pay 780 francs, a sum which we had some difficulty in getting back on our return, and at a loss of five francs in changing our money from Belgian into French.

More than this, at Longwilly, they had not enough gold to repay us with, and we had to go on twenty-six kilometres to a place called Benonchamp before we could regain possession of our caution money. For passing through Luxembourg one pays nothing; also, to pass through Germany, one should pay, only we were unable to find the Custom House, and so did not pay anything.



Madame Lockert and her daughters on their way to St. Petersburg in their 14 h.p. Tony-Huber.

Thus it will be seen that we smuggled ourselves and car through Germany from one end to the other, and, therefore, cannot say what the required Custom House formalities are.

But here we are at last in Russia, thanks to the great kindness of the Colonel, who is the owner of a superb motor bicycle.

In Poland.

We remarked that the Poles were a very miserable-looking lot, very thin, and holding themselves as if they were carrying too heavy a burden. They wear long frock coats, and are all very dirty; but the women are very pretty. In Poland, and, indeed, all over Russia, one finds a mattress to sleep on; that is all, and it is very dear. The country we passed through between Virballen and Kowno possesses a very religious population, about equally divided into Jews and Catholics; and one comes across about an equal number of churches and synagogues, the two buildings being often side by side.

As to the Russian roads, they are straight and wide, but very rough; but with pneumatic tyres this does not matter much. Except on market days there is not much traffic; in consequence, there are not many nails, and very little risk of punctures. As for ourselves, we only had one at Mariampol, which was a very small average for the 800 kilometres over which we travelled in Russia. In the towns, however, the streets are very badly paved; but even then the roadways are not so bad as those of Spain. The Russian driver is a great horse

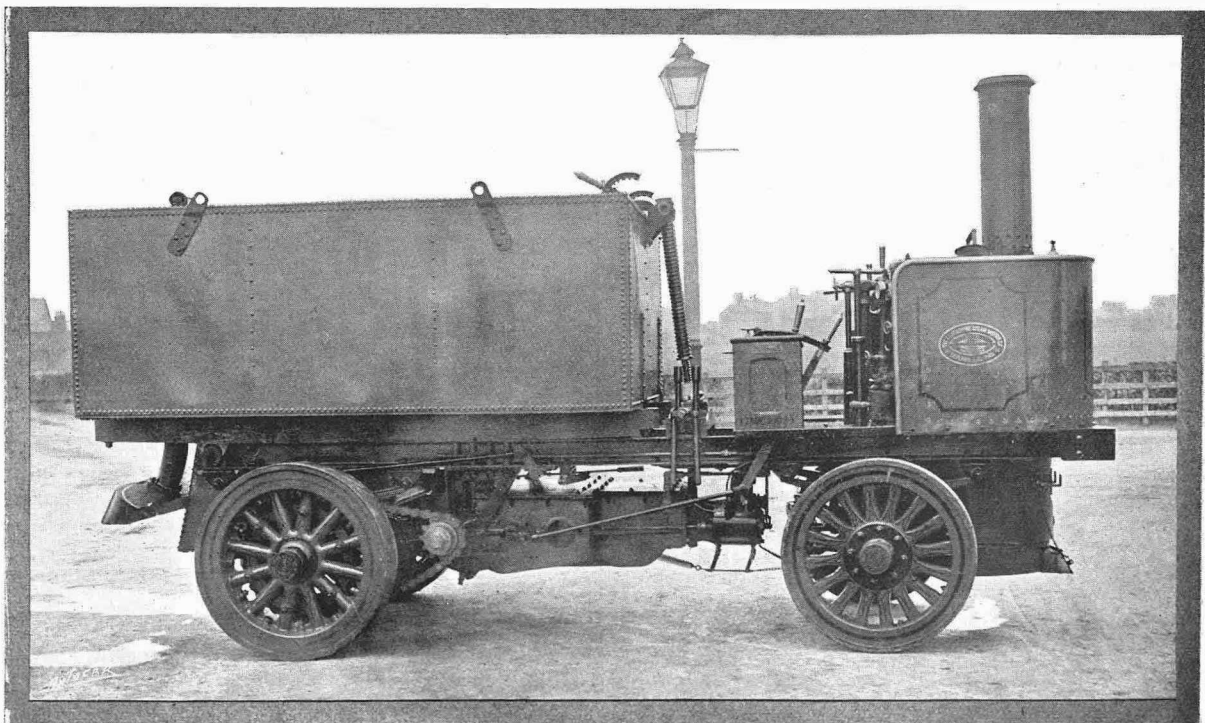
lover. He constantly speaks to it, and whips it very rarely. The Russian peasant does not bridle his horse, but he drives very well, so that when these lively little horses take fright on meeting a car, he soon masters them, smiling sweetly all the time.

In the course of our travels we ran over two pigeons; but upon wishing to take them with us and have them cooked at our next stopping place, our interpreter was very much against this, and did his best to dissuade us, as he told us that the pigeons are sacred birds in Russia, and it appears that we should not have found a solitary Russian who would have cared to have cooked them.

The stage from Ostroff to Pskoff was a particularly trying one. Rain gave place to snow, and there was such a piercingly cold wind that we shivered in our car in spite of our heavy clothing.

We were very pleased when we arrived at Gutschina, the last stage before reaching St. Petersburg. The roads, however, did not become any better, even though we were approaching the capital. At St. Petersburg we received a very hearty welcome, and they were even kind enough to invite us to a splendid banquet.

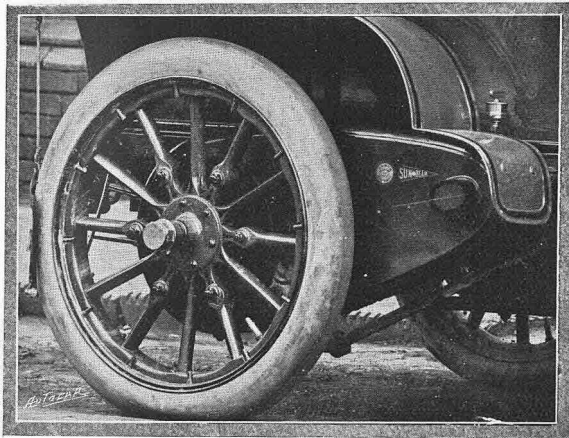
We are in great hopes that an excursion will be organised next summer for a Paris to St. Petersburg tour. The thing is quite possible if one is content with a car which is not too heavy, not too quick, and is driven with consideration. We spent many pleasant and profitable days in the city of the empire before our return to Paris.



A STEAM WATERING CART. Three years ago, the Lancashire Steam Motor Co., of Leyland, supplied to the Borough of Chelsea two standard four-ton tip waggons. These have performed their work in so satisfactory a manner that two more waggons have been ordered. One of these waggons, which are convertible from a tip waggon to a watering cart, is depicted above with its water tank in position. This carries no less than 1,000 gallons, while as a waggon it is capable of carrying a load of five tons. The tipping gear is seen forward of the tank.

THE SUNBEAM CHAIN CASE.

At various times attempts have been made to protect the side driving chains on autocars from dust and dirt, and at the same time provide them with better lubrication. Hitherto these attempts have been but partial successes at the best, and it has remained for Messrs. John Marston, Ltd., of Wolverhampton, the makers of the Sunbeam cars, to devise and fit really efficient gear cases. The firm's experience in the manufacture and fitting of gear cases to bicycles has proved of great advantage to them, and this experience has been worked upon. The line drawings given herewith show the details of construction, while the half-tone engraving depicts the Sunbeam gear case *in situ*. The first of the drawings shows a section through the back axle and a side view

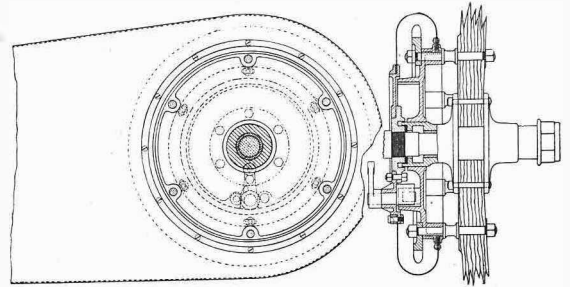


The Sunbeam gear case in position.

of the same. On the inner end of the axle a flange is formed, and to this is fixed a casting having a circular groove in its periphery, in which the inside edge of the gear case is placed. The driven sprocket wheel is attached to a casting, which forms the drum for the expanding brakes, by the same bolts which attach the whole to the spokes of the road driving wheel. This brake drum casting is also provided with a groove wherein the outer edge of the gear case is accommodated through the medium of a V-shaped ring, to which the gear case is fixed by twelve screws. The gear case is formed in two parts—an upper and a lower—the sections being held together by means of the screws which attach them to the V-shaped ring working in the groove in the brake drum, and by other screws and plate which secure the sections

One of the most successful schools for motoring which are now springing up in various parts of the country is that conducted by Mr. Archibald Ford at Mr. William Lea's motor car depot, Berry Street, Liverpool. The course of instruction varies according to the aptitude of the pupil, the principle upon which the school is conducted being that for a specified payment proficiency in driving is guaranteed, though a limit of fifteen lessons is fixed. Most of the pupils become proficient after twelve lessons. During the two years the school has been

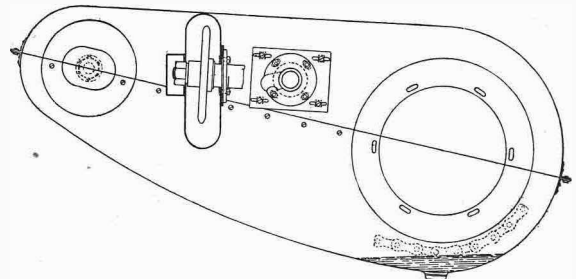
along the horizontal division line. Provision is made for springing movements by six slots in the inner side member of the case where the bolts pass through the fixed member on the axle, so that the gear case may



Elevation and section of the Sunbeam gear case at the road wheel end

oscillate to a sufficient extent in the casting which is fixed to the axle. To this last-named casting the brake rings and expanding motion are attached.

Referring to the second drawing, which shows the details of the fixing of the gear case at the countershaft end, a plate, which is seen in elevation on the right of the section, is loosely mounted on the countershaft bearing to provide for oscillation, but is held in position by four bolts working in concentric slots. The attachment for this plate is secured to the car by four bolts, there being horizontal slots provided so as to enable the plate to be moved in accordance with the position of the gear case in



Side view of the Sunbeam gear case, upon which are shown the details of attachment at the countershaft end.

relation to the chain tension. The lower section of the gear case is provided with a sufficient quantity of suitable oil to provide for a constant lubrication of the chain, which conduces to a lengthy life and sweet running.

open, only one failure to master the art of motor car driving has been recorded, and the pupil in that case was not given up until twenty-seven lessons had been given. Mr. Ford states that forty per cent. of the pupils are intending chauffeurs, to whom a slight remission of fees is granted as compared with car owners. Individual instruction is given in both classes, and not only are pupils taught actual driving, but they have the opportunity of witnessing and assisting mechanics at work upon the repair of cars.

A COMPACTLY DESIGNED CAR.

We are indebted to our contemporary *La Locomotion Automobile* for the following details of a very interesting design of car—one which we believe has great possibilities before it. The car in question is known as the Motobloc, Paris Madrid type, and one has only to look at the sectional illustration of the engine (fig. 1) to understand the reason of its title.

Dealing first with the engine and transmission gear—the most interesting part of the vehicle—it will be

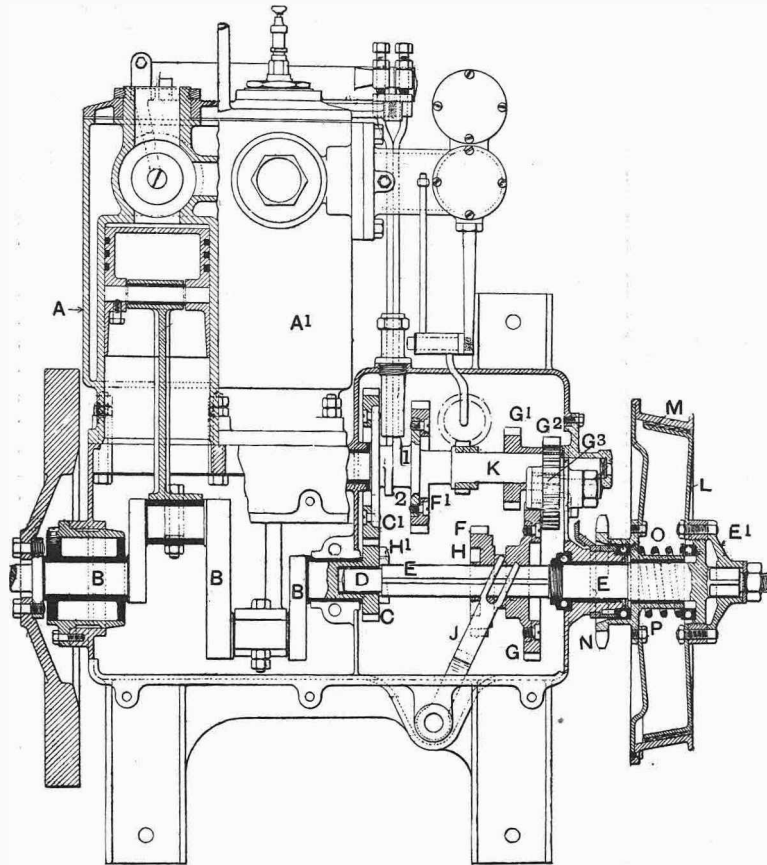


Fig. 1. Part section of the Motobloc engine and gear.

- | | |
|--------------------------------------|---|
| A A1, engine cylinders | J, speed changing lever, actuating F and G |
| B B B, crankshaft | K, two-to-one shaft and first motion shaft to transmission gear |
| C, two-to-one pinion on B | L, male part of clutch fixed to E1 |
| D, end of countershaft pocketed in B | M, female part of clutch sliding on E E |
| E E, countershaft | N, chain-driving sprocket |
| E1, driving plate on E | O, clutch spring |
| F F1, second speed gear wheel | P, ball thrust bearings |
| G G1, first speed gears | 1 and 2, exhaust valve cams |
| H H1, high speed clutch | |

seen that the change-speed gear is contained within an extension of the crank chamber proper, thus ensuring the whole of the mechanism being wonderfully compact, and as rigid as possible as to the alignment of its shafts. The engine has two water-cooled cylinders A and A1, the former of which is shown in section. These are provided with the usual high tension electric ignition. The crankshaft B, it will be noticed, is a solid forging (the

cranks being set at one hundred and eighty degrees) carrying at its outer forward end a flywheel, the shaft being extended to form the usual clutch engagement for the starting handle. At the opposite end is fitted a pinion C, engaging with the gear wheel C1, which actuates the layshaft at half the crankshaft speed for the operation of the exhaust valves, and this forms the primary gearshaft in the transmission. At the inner end of the crankshaft B is formed the bearing D in which the inner end of

the change-speed gear countershaft E is pocketed. This shaft, which is of square section, carries the sliding gear wheels F and G. F is provided with jaws H on its left-hand face, which when the high speed is put into operation engage with the opposite jaws H1, which are formed on the end of the driving pinion C. It will be shown later exactly how, when this gear is in operation, the engine is driving direct. With the sliding gear wheels in the position shown, the engine is running free, but when they are moved to the right by means of the fork J, the gear wheel G engages the gear wheel G1, which is fixed to the layshaft K. The drive is now from the pinion C on the crankshaft B, through the gear wheel C1 on the layshaft K, and through the gear wheels G1 and G, to the countershaft E E, thence through the clutch M and chain wheel N to the rear live axle K (fig. 3). In the second speed the sliding gear wheels are moved to the left, until F engages with F1. The drive is now the same as on the first speed, excepting that the gear wheels F and F1 are in operation instead of G and G1. A further movement to the right disengages the gear wheels F and F1, and engages the jaws H and H1 on the positive clutch, so that the countershaft is locked to the crankshaft and becomes a part of it while driving on the top gear. While running on this gear the layshaft K is simply revolving and operating the exhaust valves of the engine by means of the cams 1 and 2. For the reverse speed the sliding gear wheels are moved to the extreme right, when G is brought into engagement with G2, through the intermediate pinion G3, which is seen in front of G2.

It will be noticed that an additional feature of this engine is that the clutch is quite separate and distinct from the flywheel, and that it is mounted upon the countershaft of the change-speed gear. In this the male portion of the clutch L is fixed to the shaft E E by means of a driving plate E1. The female part of the clutch M is attached to the driving chain sprocket N, and is free to rotate upon the shaft E, when the clutch is not in actual engagement, and is capable of a certain amount of longitudinal move-

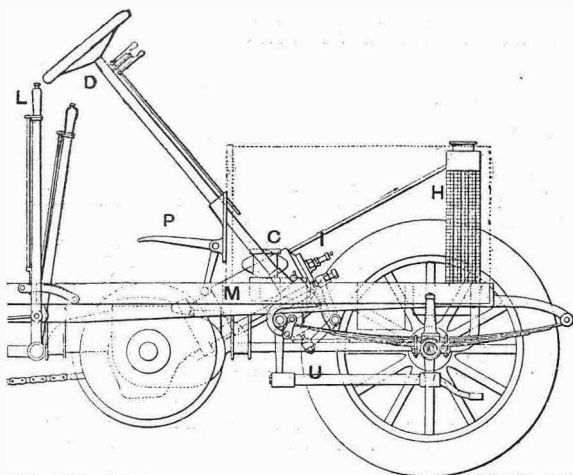


Fig. 2.—Front half elevation of the Motobloc car, showing the inclined position of the engine.

- | | |
|--------------------|------------------------|
| C, carburetter | L, change speed lever |
| D, steering column | M, motor |
| H, radiators | P, clutch pedal |
| I, sparking plug | U, steering connection |

ment for the engagement or disengagement of the clutch. The clutch spring O is placed between the two components of the clutch, and ball thrust bearings P are provided to distribute the pressure of the spring O. Reference to the plan (fig. 3) and the part elevation (fig. 2) will serve to show the position which the engine occupies, and the position of the driving chain. It is interesting to note that an inclined position is adopted for this engine. Three Motobloc cars were entered in the Paris-Madrid race, and all three got through to Bordeaux. We may say that the idea of using a two to one shaft on the engine as the first reduction in the change-speed gear is not at all new, it having been, as far as we can remember, adopted in this country by Mr. Roots, of oil engine fame, in one of his designs, produced during the year 1898. Probably there were even earlier examples than this.

It will be interesting to add that the new Wolsley two-seated single cylinder car of 6 h.p. has this special feature. That is to say, the engine, change speed and reversing gear are all contained in one chamber, and the drive from the secondary gear shaft to the live back axle is by a single chain.

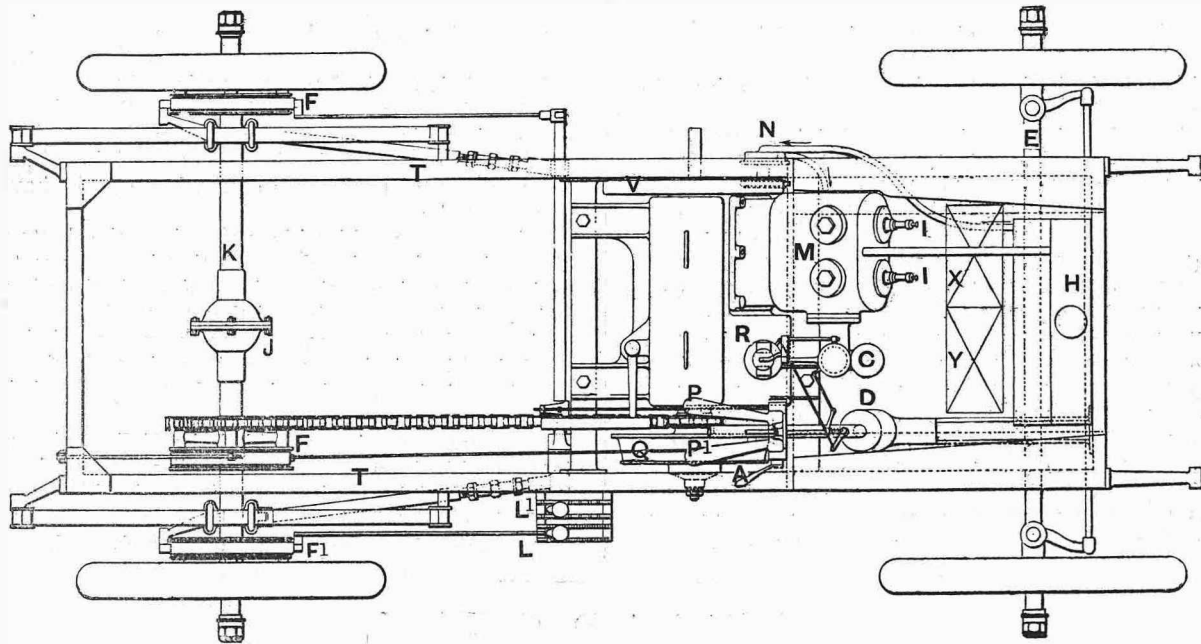


Fig. 3.—Plan of the Motobloc car, showing the disposition of the engine and gearing.

- | | | |
|----------------------|---------------------------|-------------------------------|
| A, pedal accelerator | J, differential gear box | P1, brake pedal |
| C, carburetter | K, back axle | Q, engine clutch |
| D, steering column | L, change-speed lever | R, sparking advance mechanism |
| E, front axle | L1, brake lever | T, chain adjusters |
| F, band brakes | M, motor | V, motor flywheel |
| H, radiators | N, water circulating pump | X, coil |
| I, sparking plugs | P, clutch pedal | Y, accumulators |

Our attention was attracted the other day at Messrs. Panhard-Levassor's, at 14, Regent Street, W., to a most handsomely bodied 10 h.p. Panhard about to be supplied to the order of Lord Dalmeny. The body, which is by the Coupe Co., is entirely of aluminium, and finished in stoved enamel. The surface of the panels so produced is most brilliant, as indeed is the whole turnout of the vehicle.

When automobilists ponder regretfully over the wounded feelings of our Canadian brethren respecting the Alaska Boundary Arbitration Award, they should remember that the learned Judge more or less responsible for the colonial chagrin once made the pronouncement that a motor car could be driven to the public danger on a highway whereon it was shown there was no public!

A NEW PRIMARY IGNITION BATTERY.

Attempts to employ a primary battery for the purpose of ignition in a petrol engine have been few and far between, the chief objection to their use being: their size, depreciation when out of use, want of constancy, difficulty in re-energising, and lack of reliability. These have been the reasons that have set back the primary battery in favour of the accumulator, which, although not faultless, has so many recommendatory features of its own that it has hitherto held undisputed sway as one of the factors in jump-spark ignition.

During the past few weeks we have made several experimental runs with one of the new Fuller batteries, designed to provide the primary current in jump-spark ignition. Owing to the fact that the Fuller battery was too large to be accommodated by our accumulator box, and had to be placed somewhat inconveniently upon the footboard, our experiments have only been made at odd times and for short trips, but on each occasion the battery has functioned in a perfectly satisfactory manner.

The battery is a compromise between the Fuller mercury-bichromate cell and the ordinary bichromate battery. One electrolyte only is used in order to render charging a simple matter, but the fluid, although single, is not perfectly continuous throughout its bulk.

The zinc electrode is surrounded by a specially-constructed porous diaphragm, which performs the dual duty of limiting chemical action, thus preventing waste in the cell, and of forming a pocket or well to contain a certain quantity of mercury, which constitutes one of the essential features of the battery.

The carbons, which are claimed to be very durable, are carried in proximity to the porous diaphragm, and the whole cell is so constructed as to be absolutely acid-tight. Three such cells, each having a capacity of 40 ampère hours, are fitted into a teak case, which in outward aspect resembles an ordinary accumulator box, but is lighter than a set of accumulators of equal capacity.

The complete battery has an E.M.F. of six volts, each cell giving individually two volts. Although it would be supposed that a battery giving a current

of six volts would prove injurious to the ordinary four-volt coil, Messrs. Fuller and Son claim that by the presence of the porous diaphragm before mentioned any undue rush of current is immediately checked, and that they have not known of a case in which a four-volt coil has been injured when working with one of their six-volt batteries.

As the coil fitted to our own 12-16 h.p. Clément works habitually with six volts, we have had no opportunity of checking this, but if there is any reason to doubt that a four-volt coil will stand the increased pressure, a resistance might be put in.

The method of charging the battery, say for 1,000 miles, is as follows: The three caps which are fitted are removed from the cells, and by means of a syringe supplied, each cell is filled with a solution of bichromate of potash and acid, previously prepared. The three zinc rods, already referred to as zinc electrodes, are taken from a rack on the inside of the lid of the case and inserted one in each cell through the apertures provided. The plugs are then replaced and the battery is charged and ready for use.

At the end of a day's run, when the car is put away the zincs are lifted out of the cells and placed in the lid rack provided for their accommodation.

When it is required to start again, all that has to be done is to replace the zincs and the primary current is again ready for work. Should the zincs be forgotten and left in the cells over-night, about ten per cent. of the energy of the battery will have been wasted.

After some considerable use, when the battery shows signs of running down, all that is necessary to recharge is to insert the syringe through the plug-holes, withdraw a portion of the spent solution and replace with fresh—a reserve for the purpose being carried, although the necessary ingredients for forming the solution can be obtained at any chemist's shop.

It seems to us that, provided the Fuller primary battery will always function as well as it has done on our few trial runs, its convenience should recommend it to owners of cars who live in places remote from places where accumulators can be charged.

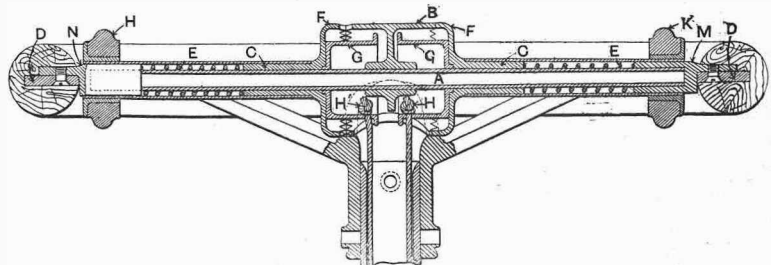
THE PANHARD CONTROL.

Every driver of a car realises the importance of being able to control the speed of the engine from the steering wheel without removing his hands therefrom to operate levers.

It is to enable the driver to effect this with the greatest convenience that Panhard and Levassor have introduced the control system, which we now illustrate. Across the steering wheel is fixed a shaft A supported centrally by a cap B. On the shaft A are carried sleeves C free to rotate as well as to slide upon the shaft A, and connected to thumbscrews K, by which they may be moved. The enlarged portions of the sleeves C C are formed with teeth engaging with other teeth on the cap B, and springs E E are interposed to keep the teeth in constant engagement to retain the parts in the required position.

Formed integral with the sleeves F are drums G G, to which are connected wires H H¹ operating the throttle and ignition timing gear, the operating wires passing down the hollow steering-pillar.

To control the engine, the sleeves are drawn outwards by means of the thumbscrews C, so that the

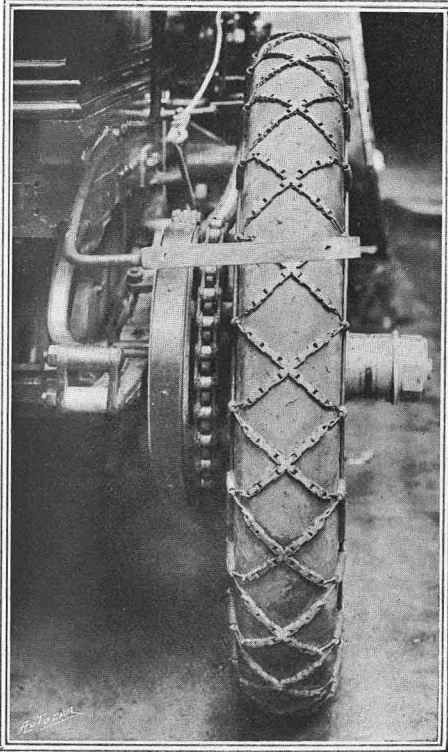


teeth are disengaged, and the thumbscrews rotated until the desired effect is obtained.

RECENT NON-SLIPPING DEVICES.

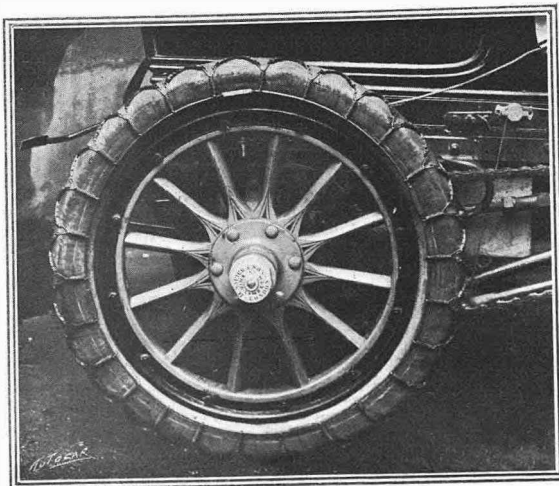
The Midgley.

The accompanying photographic engravings depict an improved form of chain non-slipping device which has been designed by Mr. E. Midgley, a gentleman whose name is well known in automobile



End view of the Midgley non-skid fitted to a wheel.

circles. The construction and fitting of this device are so clearly illustrated that but little description of it is necessary. Briefly, it consists of an arrangement of block chain similar to that used on bicycles some four or five years ago, though not actually the same. The crosspiece which rests on the periphery of the tyre connects up these chains in a diamond-



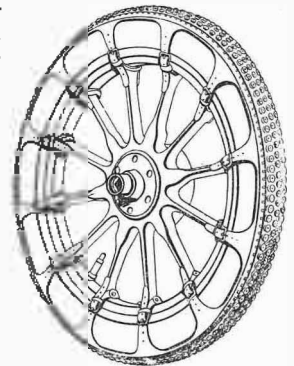
Side view of a wheel fitted with the Midgley non-skid.

shaped pattern around the tyre. The chains are made of bar steel $\frac{1}{4}$ in. wide and $\frac{3}{16}$ in. deep, the bars being of different lengths, those near the centre crosspiece being $\frac{7}{8}$ in. long, and those nearer the rim of the tyre $\frac{5}{8}$ in. long. These are connected together by sheet steel side plates and bronze rivets. At the end of each section of chain the side plates are closed inwards, and have a hole through their ends, whereby they are attached by means of a V-shaped hook and small spiral springs to a steel band, which approximates to the inner diameter of the steel tyre rim. This band is provided with right and left-hand threaded screws and bronze nuts, which allow of its ready attachment or removal. It will be understood that the steel bands, to which the chains are fixed through the medium of the spiral springs, and which rest upon the sides of the tyre, and do not come in contact with the tread, are in no wise attached to the wheel itself.

The Perfecter.

This device, of which a sketch is given, is the invention of a Belgian—Mr. Theodore Houben, of Verviers. It consists of a cover made from chrome leather, which is plentifully provided with leather buttons attached by means of steel rivets. The mode

of attaching this non-skidding and protecting tread is clearly shown in our illustration. The detail of the buckles is shown beneath. It will be seen that a strap is secured around each of the spokes of the wheel by means of a studded fastening, and that the straps which form part of the chrome leather tread are attached to the buckles of the leather fastenings around the spokes. Except for such wear as might possibly arise through dirt finding its way



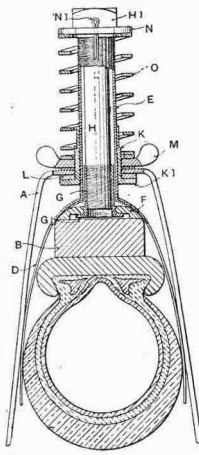
between the leather covering and the tread of the tyre, there would be practically none, as it is all taken up by the leather covering and its projections.

All of the devices described here are only to be fitted to the driving wheels of motor vehicles. If fixed to the front wheels the adhesion to the ground would be such as to render steering very difficult.

The Sainsbury.

This device is the invention of a Dublin automobilist who has devoted a considerable amount of time in carrying out experiments with various non-skidding devices, the outcome of which is the device now under notice. Referring to the sectional drawing given herewith. A is a U shaped fork of flat steel, which embraces the rim and tyre of the wheel for its width. In order that this fork may not damage either tyre or rim a brass or other friction plate D is provided to which is rigidly attached the tubular pillar E. Fixed to the rim is a plate or washer F.

through which passes a tubular socket G, provided at its lower end with a flange G¹, this preventing its passing through the plate F. Screwed into the socket G is a pin H, whose opposite extremity H¹ forms an abutment for the tubular pillar E, to which it is fixed by means of the washer N and split pin N¹.



Section of the Sainsbury non-skid.

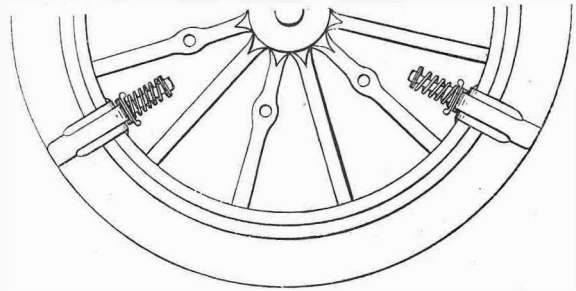
Around the lower part of the pulley E, and screwed thereto is a sleeve K, whose stem passes freely through the central hole in the plate A, which rests against the flange K¹ or against an interposed washer L. On the sleeve K above the fork A is a wing nut M, the rotation of which, together with K, causes the fork A to be moved up or down so as to make contact with the road surface or otherwise. A resilient connection between the fork A and the rim B is provided by a spring O, which when the non-skid is in operation forces the fork into contact with the ground but prevents its digging into it.

When the non-skids are not required they may be either screwed up by means of the wing nut M or removed by unscrewing the pin H, and removing the

- A, metal forks
- B, wheel rim
- D, brass friction plate
- E, tubular pillar
- F, washer fixed to B
- G, tubular socket
- G¹, flange on G
- H, screwed pin in G
- H¹, abutment washer for E
- K, screwed sleeve
- K¹, flange on K
- L, washer
- M, wing nut
- N, washer
- N¹, split pin
- O, helical spring

forks A bodily, in which case the socket G is closed by a cap.

The second drawing shows two of the three non-skids required per wheel in position. The number given is stated to be all that is required, as it is argued that one of the total of six is almost certain to be in



The Sainsbury non-skids in position.

contact with the ground. Personally, we should favour the use of four per wheel, as the original setting is sure to be altered after a few miles driving owing to the action of the differential gear. Preparations are being made for the manufacturing and marketing of this device, which will shortly make its public appearance.

Other anti-skidding devices which we have described in detail as they have been introduced are the Parsons, Wilkinson, and Samson-Hutchinson. The Parsons, we need hardly say, is a detachable chain arrangement. The Wilkinson is a tread, with steel pins projecting from it, and the Samson is also a band with steel studs. The Michelin, Dunlop, Continental, and other tyre makers also supply special non-slipping covers.

WINTER MOTORING GARMENTS.

Chill November, and the prospect of chillier months to follow, are causing automobilists' thoughts to turn towards that clothing which shall defend the person against the sleet and the snow and the driving rain, the inclemencies of which are tripled to the sensations when travelling at anything beyond slow speeds on a car. A visit to Dunhill's smart emporium in Conduit Street will afford a good idea how much thought is taken to the turn-out of practical motor garments for both sexes. Particularly is this so with regard to garments for the fair sex. When there a day or two since, Mr. Dunhill, jun., showed us some most tasteful caps in down—elegant, light, warm, and smart—for motor garments and millinery have to be smart to-day or automobilistes will not consider them. Our attention, too, was drawn to some particularly smart coats in "Drencher-proof" cloths, lined with silk fur, delightfully light and warm. This lining is vastly preferable to heavy fur, and equally good. Many coats were in shrunken Irish frieze—a grand weather-resisting material, and lined with a warm light material made of camel's hair. Smart garments in tinted doeskins, which are in great favour with certain fashionable automobilistes, are also to be seen, and we are bound to say that these coats, while being most tasteful in design and finish, are perfect car coats. The "Freer" apron, which gives room for open knees and space for steering

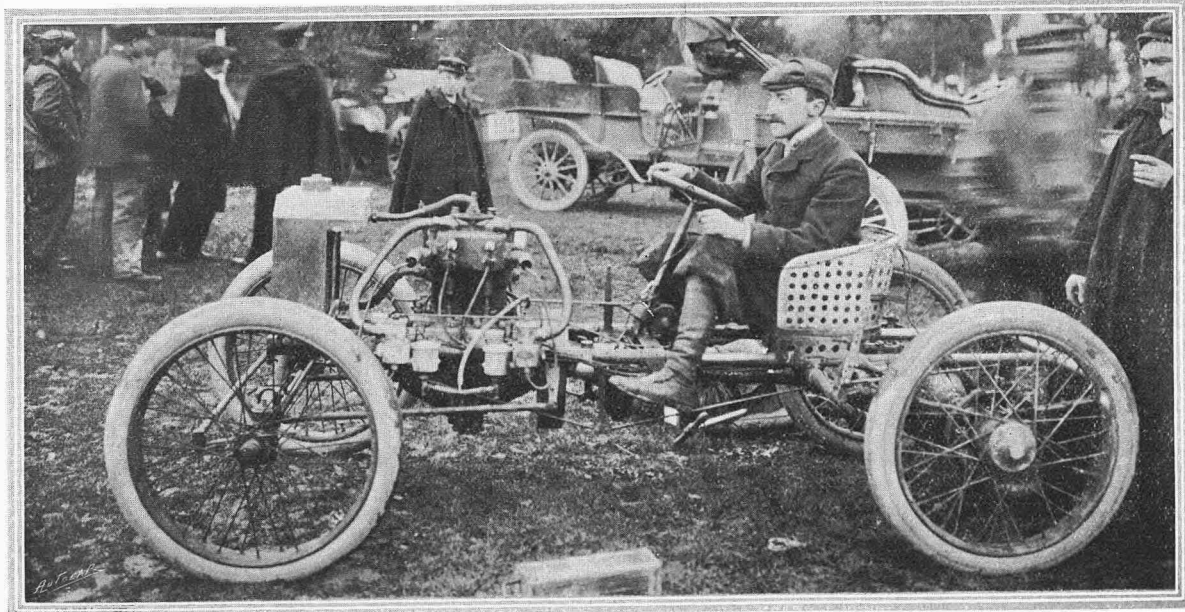
standard, while keeping in its place, has been still further improved, and is very hard to beat for the purpose for which it is designed. A better motor apron for driver cannot be found. Mr. Dunhill showed us, too, an adaptation of the old morion-shaped shooting cap in cloth, but with an unsuspected flap, which can be pulled down to afford ample protection for the ears and back of the neck in bad weather. A very large assortment of accessories—many of them made specially for Messrs. Dunhill—are to be seen at the Conduit Street establishment, one of the special novelties being a petrol funnel with over-swept edges to avoid splashing; Murphy's patent depthometer, for fixing to dashboard to announce exact quantity of petrol in tank wherever the latter is situated; the collapsible Bex Hill goggles—very light, draught-proof, but perfectly ventilated—and other goggles with opening frame to render easy the replacement of a broken glass. We were shown some motor cycle hand protectors in fur, and learnt with pleasure that these excellent and comforting articles are in making for attachment to the steering wheels of cars. So manifold and interesting are the articles to be seen at Messrs. Dunhill's establishment that a visit there more than repays the trouble, if only because one finds that there are still "things" without which one's motoring outfit is incomplete.

CONTINENTAL NOTES AND NEWS.

The Speed of Autocars.

The chances of a race being authorised in France appear to have been greatly increased by the publication of the report of M. Coutant, Deputy of the Seine, on behalf of the technical sub-committee of the extra-Parliamentary Commission, which was appointed a few months ago by the Government to consider the various matters affecting automobile traffic. The constitution of this extra-Parliamentary Commission was the result, it will be remembered, of the Paris-Madrid disaster, when the Government, instead of losing its head and inflicting all sorts of restrictions which would strike a deadly blow at a new and flourishing industry—the only one which is really flourishing in France—delegated the whole matter to a Commission composed of representatives of almost every class of the community. The questions affecting the speed of autocars were submitted to a tech-

a year hence. It is therefore undesirable to fix too low a limit. If a law were passed to this effect it would be absolutely necessary to amend it in a very short time, and it is notoriously more difficult to amend a law than to pass a new one. For this reason the sub-committee is of the opinion that in legislating for speed, sufficient account should be taken of conditions which are constantly changing in favour of a higher limit. The report then goes on to analyse the causes of accidents, which are placed under three heads: those due to the fault of the driver; those due to causes independent of the car, such as obstacles of all kinds; and those due to the defective construction of the vehicle itself. It is probable that the majority of accidents may be placed in the first category, and they are nearly always more dangerous to the drivers themselves than to the public. Nevertheless, the public have been particularly alarmed at

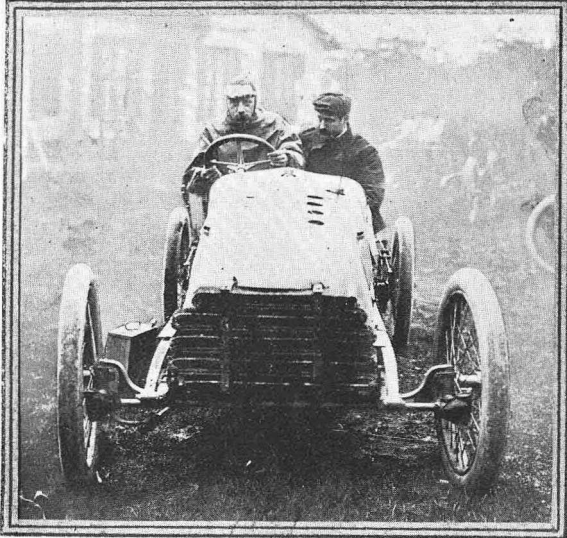


LOURDAN RACES. An extreme example of the stripping of a car for racing. A close study of this illustration discloses many interesting features; for instance, there is no silencer, so the ends of the pipes leading the hot exhaust to the carburetter jackets are turned into the exhaust ports, and two carburetters are employed.

nical committee, who have just presented their report signed by M. Coutant, one of the leading Socialist members of the Chamber of Deputies. His signature may therefore be expected to carry specially great weight with the Socialist classes, who have always displayed the most uncompromising hostility towards automobilism. The report itself is a document of considerable value, since it admirably summarises the position, without prejudice or partiality, by a body who have closely gone into the matter and examined it from every point of view. It is also likely to mark an entirely new departure in the automobile industry. In dealing with the question of speed the sub-committee states that this is purely a matter of appreciation. As the public become more and more accustomed to autocars, and the vehicles themselves are improved, it is found that a car which appears to go very fast now will not convey the same impression

accidents of a special character such as those which occurred in the Paris-Madrid race, and it is highly necessary that everything should be done to avoid them in the future. It should be pointed out, says the committee, that the liability to accident is becoming less as the result of the great change now taking place in automobilism generally. While automobilists continue to show a great interest in the sport they are no longer led away by the vogue for powerful high-speed machines, and the enthusiasm for speed having cooled down, the tendency at the moment is in favour of heavy and comfortable touring cars, which offer nothing like the same danger in the hands of any but the most expert drivers. Under these conditions the sub-committee is of the opinion that the limit of speed should be that at which the car can be driven with absolute safety. It should be limited only by the possibility of promptly stopping

the car, and as the efficiency of brakes continues to increase it follows that this limit may be augmented with the improvement of the vehicles. The limit proposed in the body of the report is seventy kilometres, or about $43\frac{1}{2}$ miles; but in the final conclusions the sub-committee recommends the Government to adopt a legal limit of sixty kilometres (about



DOURDAN RACES. A front view of a Clement-Bayard light racer.

$37\frac{1}{2}$ miles) on country roads and of twenty kilometres ($12\frac{1}{2}$ miles) in populated centres. The report also discusses the method to be adopted of preventing these speeds from being exceeded. The idea of placing the responsibility on the makers by ordaining that no vehicles capable of exceeding the maximum speed will be allowed to leave the works is rejected for various reasons, the most important being that this would place the French manufacturer at a great disadvantage as compared with his foreign competitors, who would escape this responsibility, and it would also be easy for the owner to gear his car for higher speeds after it had left the works. The report says nothing about the use of racing machines transformed into touring cars, which the president of the extra-Parliamentary Commission suggested some time ago should be suppressed. It is quite possible that this matter will receive a good deal of attention during the discussion of the proposed new rules.

The Advantages of Racing.

In dealing with the question of racing, M. Coutant, on behalf of the sub-committee, goes at some length into the influence of speed tests upon the construction of cars, and shows how each big race has been followed by a diminution of weight per horse-power. He also analyses the causes of the Paris-Madrid disaster, which he attributes to the considerable number of competitors, of whom many were incapable of properly driving racing machines, and to the imperfect organisation. He points to the Gordon-Bennett race in Ireland as proving the possibility of carrying out races with perfect safety, and in this connection we may say that if racing is once more authorised on the Continent it will be due largely to the experience of the Irish meeting, which showed foreign visitors that everything depended upon the

organisation. The report states that racing is absolutely necessary for the progress of automobilism. But the vehicles should be in the hands of expert drivers. Permission should only be given to certain professional drivers, mechanics, and others who possess all the experience and skill for piloting racing machines, for in the hands of such men the high speed car is less dangerous than horse vehicles. The report concludes by saying that "speed tests on the public roads should be authorised as one of the surest ways of keeping the automobile in the path of progress which it has followed up to the present moment." In a word, the sub-committee strongly recommends racing subject to the organisation of the contests being carried out with the greatest possible care, and to the number of competing vehicles being limited and driven by men of proved ability.

The Gordon-Bennett Course.

After prospecting a number of courses around Homburg, all of them more or less unsuitable for autocar racing, the German Automobile Club has selected one starting from and finishing at Saalburg. From this town the circuit passes through Oberursel, Koenigstein, Esen, Narhof, Limburg, Weilburg, Usingen, and back to Saalburg. It has been stated in some of the papers that Prince Henry of Prussia recently went over the course, and was very enthusiastic about its condition, which he declared was "like a billiard table." It is to be hoped that this is not a picturesque exaggeration, for the accounts from Germany a little while ago spoke anything but favourably about the roads around Homburg, which were said to be so narrow and sinuous that racing was practically impossible. The selection of this route is not yet official, for the German Club will continue to carry on its prospecting work until it is sure of getting absolutely the best course available. Moreover, money will not be wanting either for putting the course in good condition, or for the organisation, as the sum of 20,000 marks has already been guaranteed in equal parts by the



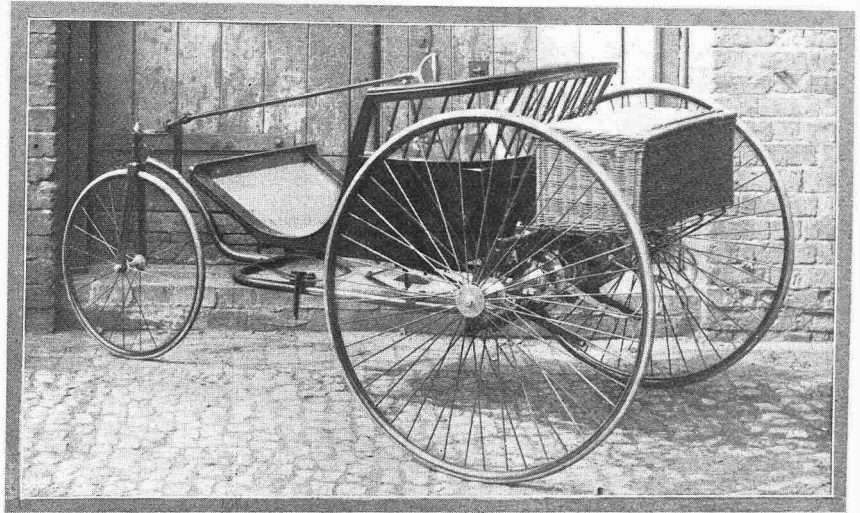
DOURDAN RACES. Coming home from the contest.

Homburg Municipal Council and the syndicate of hotel-keepers, and the Automobile Club of Frankfurt announced at its last meeting that it would make up any deficiency in the cost of carrying out this great event.

Brake Trials.

Some months ago a series of stopping tests with ordinary horse-drawn cabs and autocars were carried out in the Bois de Boulogne for the benefit of the

commission of the municipal council, which was then drawing up new regulations for the automobile traffic in Paris. Those tests proved in a most convincing manner the greater facilities possessed by the autocar for stopping at a signal, and they also opened the eyes of the councillors to the speeds usually attained by horse-drawn vehicles in Paris, for being so accustomed to the traffic, the members, like the public generally, believed that the cabs travelled at well within the twelve kiloms. an hour limit fixed for autocars in the towns. The trials showed that the cab horses at a trot invariably did fifteen and seventen kiloms., while it was nothing unusual for a private carriage to travel at twenty kiloms. The result showed clearly enough that it was illogical to base a limit upon a personal appreciation of what was a safe speed, since, as the public got accustomed to higher speeds, they would no longer consider them dangerous, and the only real criterion was therefore to fix the limit according to the distance in which the cars could be stopped. It was with a view of getting further data upon this matter that tests were carried out this week in the presence of members of the extra-Parliamentary Automobile Commission. The course selected was the road at Longchamp bordering the Seine, where the going was particularly greasy on account of the damp weather, and it must be confessed that the conditions were all against the prompt stopping of cars. The vehicles employed for the experiments were a one-horse cab, private carriages with one and two horses, a 6 h.p. De Dion car, and a 40 h.p. Gardner-Serpollet. The stopping signals were given first behind the driver by whistle and then in front by signs, and in all cases the vehicles were stopped in shorter distances when the driver was



AN ANCIENT MOTOR. This machine was, we believe, the first motor vehicle made in Coventry. It was produced at the old Meteor Works, in West Orchard, by the late Mr. J. K. Starley (the introducer of the modern rear driving or safety bicycle), whose name is so well-known in connection with the Rover make. The little car was driven by electricity, the motor and accumulators being supplied by the late Mr. Elwell, of Messrs. Elwell-Parker, Ltd., Wolverhampton. The body was made by Messrs. Hollick, who still do much motor car coachwork. It will be seen that the steering was effected through a spade handle and pinion working on a toothed quadrant. As Mr. Starley found he was not allowed, by law, to drive the machine in England at more than four miles an hour on the roads, and not even at that speed unless it was preceded by a man with a red flag, he took it over to France, and, strangely enough, tested it at Deauville, a place which has since become famous for its motor races. It gave every satisfaction, and averaged about eight miles an hour. This was as long ago as 1888. We are indebted to Mr. Harry Smith, managing director of the Rover Cycle Co., for the very interesting photograph and particulars concerning it.

able to see the signals. Going first at twelve kiloms. an hour, the cab was pulled up in 9m. 60, and the two autocars in 3m.; from sixteen to nineteen kiloms. the private carriage stopped successively in 13m. 50 and 12m., and the autocars in 4m. 70 and 4m., and from nineteen to twenty kiloms. the two-horse private carriage was pulled up in 13m. 30, and the cars in 5m. 60. In these cases the vehicles were stopped by visible signals. When signalled by the whistle behind the advantage in favour of the automobiles was still more marked. The cars were then tested alone at higher speeds, and were brought to a standstill in 10m. 40 at twenty-five kiloms. an hour, and in 18m. 50 at forty kiloms. an hour, the signals being given behind. The results of these trials will form part of the reports which are being prepared by the extra-Parliamentary Commission upon the proposed new traffic regulations.

LONDON COUNTY COUNCIL AND THE NEW ACT.

A report from the Highways Committee in reference to the administration of the Motor Car Acts 1896 and 1903 was presented on Tuesday last to the London County Council.

The document sets forth the duties of the council and the fees they are empowered to charge—registration, £1 for a motor car and 5s. for a motor cycle; license to drive, 5s.; maximum fee of 10s. for registration of change of ownership; 1s. for a new license in place of one lost or defaced—and recommended that in these cases the maximum fees allowed by the Act should be charged. In regard

to the erection of sign-posts at places denoting dangerous corners, cross roads, and precipitous places, the committee had given instructions with a view to ascertaining what action it was desirable to take.

The solicitor did not consider it necessary for the licenses to be issued under the seal of the council—a course which would entail serious delay and inconvenience—and the committee had accordingly arranged for the licenses to be issued by the clerk to the council.

The discussion on the report was postponed till next week.

Correspondence.

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

UNOFFICIAL TRIALS.

[3265.]—With reference to the unreliable trial which it is proposed to run next Saturday, I may say that I thoroughly endorse the views of Mr. Chas. Jarrott and Mr. Letts, and being a small agent myself in handling light cars, I feel very much obliged to this firm for taking the stand they have in the matter, and can assure them of the support of their weaker brethren at all times in trying to stop unauthorised persons promoting trials, exhibitions, etc., owing to the amount of time and money they draw from our small capital.

Regarding the trial, I quite believe myself that this is got up purely in the interests of the motor paper, and the only benefit to be gained is a boom for the paper itself.

I have the pleasure of knowing both Mr. Jarrott and Mr. Letts, and know that these gentlemen would not do anything unless it were in the interest of the automobile world at large, and I can tell you I was more than surprised when I received the circular signed by Mr. Dangerfield, making a personal attack upon Mr. Jarrott and Mr. Letts. So far as the Society of Automobile Manufacturers and Traders is concerned, if they do not take action over this they ought.

I, as a member, expect and look to them to watch the interests and the welfare of the automobile trade in England. I have to pay a subscription to this society, and if they do not look after our interests they are neglecting their duty.

I am very pleased indeed to hear that Mr. Jarrott and Mr. Letts are members of this society, and also are on the council. It gives us more confidence in the society to have men who we know are strong, and will make a move and take a firm stand when these absurd ideas are mooted.

I think that one reliability trial run under the rules of the Automobile Club, and one exhibition, each year, are quite sufficient for all purposes.

AN AGENT SELLING SMALL CARS.

[3266.]—In connection with the correspondence upon this subject, I would like to say that I think it high time for the makers of cars to realise that cars exist primarily for the users. This little point seems in considerable danger of being overlooked. To take Mr. Letts's letter, the burden of his complaint about the "unofficial trial" is, "Where is the benefit to the manufacturers?" and that only the paper interested will make anything out of it. Well, why not? Gordon-Bennett is a name associated with the press—but the manufacturers do not grumble where he is concerned.

There is a brief mention of the "public." As one of the public, and a car user, I wish to say that any trials are of interest, and I do not care a fig whether the Automobile Club puts its blessing on a trial or not. That body, I believe, consists largely of people interested in the sale of cars; in any case, it has little or nothing in common with the ordinary car user. It gets up trials in which, for all proof I have to the contrary, specially prepared cars may contest. The makes that are lucky bombard me in the press with these "proofs of excellence," those which are unlucky explain away failures with equal facility. Is this to be a "last word"?

Now, in common with many other people, I do not buy on reliability trial results; instead, I hear what my friends have to say about their experiences of any make. I am at the moment of writing halting between a 10 h.p. M.M.C. and a 12 h.p. De Dion-Bouton. The latter did excellently in the last trials, but that has not entered into my calculations at all. It was not driven by me or by anyone of my ability; it had a first-class driver, capable of avoiding troubles that I, an ordinary user, could not perhaps have avoided. The gear that gave him no trouble might land me in endless bother, as De Dion gear has before now. On the other hand, I have had a very comfortable car of this make of less horse-power, and have a prejudice in its favour. I am taking the views and experiences of every private user of De Dions that I can come across. But nothing that, say, Mr. Stocks might

say or do would influence my decision. What he might do with the car is no criterion as to what I could do.

So with the M.M.C. It has points that from all I hear beat the De Dion hollow; but there are other things in which the De Dion is just as much preferable. At the moment I am chiefly interested in the hill-climbing abilities of these two types, but I have not taken the trouble to ascertain whether both tried the hill tests in the last trials. Instead, I question private owners as to how they manage on hills.

Therefore I am, on principle, delighted to learn of the projected "unofficial" trials; not that these particular ones will be of service to me, but because I hope such trials will "catch-on" and multiply till the "professionals" retire altogether and private users run their cars to see how they do against others—till the everyday make is run against the everyday make. Cars of every make vary greatly; you may get an extra good one, or you may get one that is below standard. If trials are continual we shall get a good idea of the normal car of any make.

I am perfectly able to see that weekly events would be a terrible nuisance to the manufacturers and possibly a heavy drain on their resources, but, as implied above, the user is not concerned with the manufacturer, but with the car. Innumerable trials must eliminate the luck element, and greatly reduce the chance of any car securing credit that is really due to the driver. The best all-round make will come out on top. I will add that in my opinion the best all-round car will turn out to be neither the swiftest nor the best hill climber, nor the most economical, but the one that "any fool can manage." The buyer will want it put to him more delicately than that; but there is no question that the real standard of excellence is how a car does in the hands of the average user.

So let us hope that the complained-of unofficial trial will lead to hundreds more, and ones in which only private owners can participate. Good makes of cars, whether well known or not, will have nothing to fear from such tests. Before proceeding to grumble manufacturers should reflect on this.

As signing a letter with initials appears to be regarded as injurious to the motor industry, I have pleasure in signing in full. I had better, too, perhaps, add that, although a journalist, I am in no way connected with any projected trials, unofficial or otherwise.

FRED T. JANE.

THE RELIABILITY TRIALS.

[3267.]—We have read the reply of H.W., who for some reason or other still conceals his identity. We notice he does not reply to the main point of our letter. We asked him how it was that the only cars which came through the trials without a hitch were English cars if the English cars are so inferior to the foreign ones? We have no reply to this. Passing on to his remark concerning our 18 h.p. car which was withdrawn. It is a great pity that this hypercritical gentleman did not make sure of his statement, seeing that the 18 h.p. car most emphatically did not break a sprocket wheel, and we should like to see H. W.'s proof that it did. We would also point out that our 12 h.p. car is exactly similar in design and material to the 18 h.p., so, according to H. W.'s theory, this car also should have been disabled. It is interesting to note that H. W. has no axe to grind; why then does he cast reflection upon English cars, when only English cars made the successful runs, which not a single foreign car could accomplish? In conclusion, we would ask our correspondent to keep to the point at issue when he replies? THE STAR ENGINEERING CO.

TYRES.

[3268.]—I rejoice to see the letter (3251) of "N.S." on pneumatic tyres in your last issue. It is entirely to the point, and your most useful "analysis" of the percentage of tyre troubles in the recent trials gives point to the letter.

As a medical man, I can say that no busy practitioner can afford to travel on pneumatic tyres whose percentage of "no trouble" runs is no better than any of them, and I am by this post writing to *The Lancet* quoting your figures, and begging my professional brethren to have nothing to say to any car which runs on pneumatic tyres.

H.S.

STEAM CARS.

[3269].—The manufacturers of the White steam car have hitherto kept entirely out of the discussion re steam cars which has been recently appearing in *The Autocar*.

Two points have been brought up, however, which have made a note in reply necessary.

Both of these points were brought up by people who apparently know nothing of White steam cars. What letters have emanated from owners of our make of car have given us great and just satisfaction, but had they been critical we should not have thought of replying to aught but unfair statements. Nine car owners out of ten will speak of an automobile as they find it. That we are satisfied with the printed letters from users of White steam cars need not be told to those who have read the letters, and we wish to take this occasion to thank those who spoke so highly of the car.

Of the two points mentioned, one is a question and the other a suggestion.

The question was a query as to what fuel we burn. We use as fuel any petrol, but preferably, on account of its cheapness, we burn "C" petrol or benzolene, the specific gravity of which is from .740 to .750. This fuel retails at from 9d. to 10d. per gallon, and as we run from fifteen to seventeen miles on a gallon of fuel, the cost of running is low. As all the prominent petrol companies manufacture a petrol of this grade, it is very easy to procure it.

Now as to the suggestion.

"Guert" and "H.W." think it dangerous to carry petrol on a steam car. We have been making and selling steam cars that burn petrol for about five years. During this year twenty odd cars a week have been turned out of our works and sold all over the world to all sorts of people.

Yet in all our experience no accident has occurred to show us that any danger existed from the fact that we use petrol as a fuel.

In making this statement, I except such accidents as that of the driver of a White steam car who cleaned out the water tank of his car with petrol, and immediately after doing so put a lighted match down into the tank to see if it was clean. That incident actually occurred recently in the Automobile Club garage.

Surely some of the many users of our cars would deem the White steam car dangerous if it were so, but we do not think one user can be found who thinks as do the two correspondents mentioned.

Therefore it seems to us extremely unfair that such a criticism should be made without other foundation than mere surmise, and we are surprised that so well-known a correspondent as "H.W." should make so unfair a conjecture.

We consider our car as safe as any made, and although we cannot utilise this space in telling why it is so, we invite correspondence on the subject, and will gladly answer all questions to the best of our ability.

FREDERIC COLEMAN.

[3270].—I fear I cannot answer "Progression's" letter exactly in the way he wants, but perhaps the following facts may be of use to him. In this hilly country I have to keep the burner always full on, and can run eighteen miles on one gallon of American Tea Rose paraffin at eightpence a gallon.

The blow lamp to start the burner holds rather less than a quart of petrol, and lasts for three operations. To maintain a good working pressure (500 lbs. if necessary) I give twenty minutes from time of putting in the lamp, but in a more level country the car can be started in considerably less time.

The only figures I have by me as to oil for the engines show that between here (Sedburgh, Yorks.) and London (265 miles), three-quarters of a gallon was used.

I employ a mechanic.

If "Progression" cares to write to me, I should be glad to give him any further particulars he may require.

C. W. GOOCH.

[3271].—As a prospective buyer, I have followed this correspondence with much interest. Seeing that the several writers all agree that with paraffin as the fuel the steam car is superior to the petrol car, it appears strange that there is not more reference to the Miesse and Gardner-

Serpellet cars. The correspondence centres on the White, which burns petrol. Is the Miesse, burning paraffin, a satisfactory car, and is the flash generator reliable?

It almost seems from the non-reference to this car that the problem of paraffin as a fuel is not yet satisfactorily settled. If some of your correspondents deal more with this question they will be conferring a service on many, including,

UULOOLA.

[The Miesse car was described in *The Autocar* of Sept. 26th, page 379, and Oct. 17th, page 480.—Ed.]

THE NEW ACT.

[3272].—In view of the new Act coming into force, I would suggest that those who wish it should be able to submit their cars for examination by the authorities, who, on being satisfied that the gearing will not allow the car to be driven beyond the limit, should certify to that effect and place a distinguishing mark in a conspicuous position on such cars, so clearing them of police interference.

It is also possible that in such cases the dimensions of the number plates might be reduced from the sandwich board sizes at present suggested.

Having been trapped twice in one week, I am very anxious to be able to drive free from worry, and twenty miles an hour is fast enough for any

TOURIST.

[3273].—Enclosed I send you copy draft of a scheme for the formation of a motor car owners' protection association, which I submitted to the Motor Union a few weeks ago, and which they now have under consideration.

When the new Act comes into operation some scheme for the protection of motorists will be necessary, and if you think it of sufficient importance to publish my suggestion, it would help to draw attention to the matter and perhaps be the means of forwarding the scheme, or of someone coming forward with one better.

W. MARDEN.

[The following is a copy of the enclosure referred to.]

The objects of the association are:

(A) To provide legal assistance to defend all actions at law against motorists.

To appeal against any conviction if in the opinion of the committee such a course is considered advisable, and to indemnify members for all expenses incidental to the action.

(B) To indemnify members for all fines.

There is the difficulty in the last clause that it might tend to make some drivers less careful than they should be, though it may be expected that many motorists will be persecuted and fined on a mere technical breach of the law, or on very doubtful evidence.

Members to pay entrance fee of ——— per h.p. for car. This would provide working capital.

Accounts should be made up every ——— months, and members assessed proportionately for all claims paid or passed. Example.—Say 500 owners joined the association and their cars aggregated 8,000 h.p., an entrance fee of 1s. per h.p. would produce £400.

During the period 1st January to 31st March, say defending actions, appeals, and motorists' expenses cost £500, an assessment of 1s. 3d. per h.p. would meet the expenses, and the member, owner of a 5 h.p. car, would be called upon to pay 6s. 3d. in full, and on a 60 h.p. £3 15s. in full.

If the policy of paying fines is adopted, the amount of assessment would, of course, have to be increased accordingly.

There is one other point for consideration. Should not the higher powered cars pay more in proportion? In that case it would be necessary to classify cars, say: 0 to 5 h.p.; over 5 to 10 h.p.; over 10 to 15 h.p.; over 15 to 20 h.p.; over 20 h.p.

Auto cycles, I think, should be insured separately.

Members guilty of culpable negligence or reckless driving not to be entitled to recover costs or expenses, but to be liable to pay their proportion of assessment when called upon.

The association would have to be worked on the business lines of an insurance company, and rules and regulations can be framed if the scheme is generally approved.

The expenses of working should not be very heavy. A good accountant would be required as secretary and manager.

AN IMPROVED INDUCTION VALVE.

[3274.]—In reference to the description in your issue of October 24th of an improved induction valve designed by Mr. Robert E. Phillips, M.I.Mech.E., A.M.I.C.E., no doubt the particular valve in question was designed by him and applied to the inlet valve of internal combustion engines, but it is simply a copy of Professor Riedler's automatic valve, used by him in pumping engines and air compressors.

The description fails to claim one of the most important points in the design, and that is the quick and accurate closing of the valve by the *previously* strongly compressed spring, which combined with the easy and full automatic opening, is exactly what Professor Riedler invented. A description of this invention will be found in Unwin's "Elements of Machine Design," vol. 2, page 217, 1893 edition.

The claim that the eight valves of a four-cylinder engine can be worked by four cams in this arrangement can with equal truth be claimed for the ordinary controlled valves.

In a gas or oil engine of the usual type the air valve should remain open for a longer period than the exhaust valves. Having the cam then long enough for the air valve, it is only necessary to make part of it inoperative when taking the exhaust valve motion from it.

It is, however, better to use separate cams for air and exhaust valves in either arrangement.

JAMES VIRTUE.

PRIVATE TOUTING.

[3275.]—For some considerable time we have been contemplating writing to the press upon the above subject.

Every motor manufacturer knows what a lot of "private touting" there is in connection with his business, and he is continually pestered with private individuals and tradespeople, not in any way connected with the motor car industry, for commissions on sales which are made or can be made on their recommendation. We have from the commencement strongly opposed the practice of allowing discounts or commissions to such persons, and we shall continue to refuse to do business except through the proper channels. We consider that it is quite time that the trade came to a proper understanding on this question, as it is not by any means a new difficulty, or one which it is impossible to overcome.

It is also obviously unfair for a manufacturer to publish a net price list, and then take off discounts to individual clients; and this is a matter which might perhaps just as well be settled at the same time.

H. AUSTIN.

ENGINE POSITION.

[3276.]—Mr. R. G. Wells asks, "Why do the majority of makers place the motor on the front of the car?" Doubtless those who so placed it first had their reasons for so doing, but we think we are not far out in saying that the reason of "the majority" who now do it is that the others do, and in many cases because they can buy most of their parts ready made for this arrangement. There can be no doubt, however, that the principle is wrong. The weight should be more largely on the drivers than on the idle pushed wheels, any weight on which, beyond a sufficiency for steering purposes, being a mistake. Any experienced cyclist will tell you how much easier a touring tricycle runs with the baggage over the back wheel than when carried in front of the handle-bar. As Mr. Wells points out, the weight, both of load and engine, should be *between the wheels* and not directly over either, but the major portion should incline to the drivers. Mr. Wells very clearly shows the reasons why. We don't get much deep snow to drive through in this country, but the *reductio ad absurdum* generally makes matters clear to the dullest, and we had the correctness of the principle strikingly exemplified a year ago, when we had 3ft. of snow in Reading (Pennsylvania), upon which occasion Mr. Durvea wrote us, "All forms of traffic have been stopped by the blockade. Our cars are the only vehicles out; those with the engines in front hurr their steering wheels and have not enough weight on their drivers to push them through." The American type cars almost universally place the engine between the wheels—a principle of construction in which they follow us, as Mr. Durvea adopted it as the only correct one when he built his first cars in 1892, and has followed it ever since, and a most striking exemplification of the correctness of the principle was

afforded in the "endurance run"—New York to Pittsburg—this month, which was made during the recent cloud burst in New York State. Railways were washed away and the roads flooded, and in many cases deep in slippery mud. Upon several steep hills on the route, cars built after the European model, with their engines in front, could not make the ascent until rope was wound round the tyres to get a grip, the wheels simply spinning round, and in several instances even this was ineffective, and the ignominious aid of a horse had to be requisitioned. On the other hand, *not one of the American type cars built on our own principles met trouble that way.* This speaks for itself. Need we say more?

THE DURVEA COMPANY.

SIDE-SLIP.

[3277.]—I think it would be of interest to your readers if the users of the Samson-Hutchinson tread would give us the benefit of their experience. It seems to me that the two materials—the outer leather tread which is fixed to the rubber tyre not being of the same elasticity—would come apart after a time sufficiently to let in mud, and so force the two materials further apart.

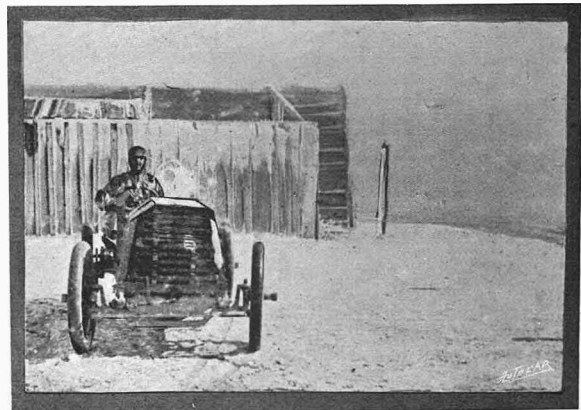
I personally should like to hear from those who have had some lengthy experience of these treads that such has not been the case, and that they are also a complete cure for that great bugbear of motorists who have to travel frequently over greasy macadam and asphalt, viz., side-slip.

A.S.H.

FACILITIES FOR OBTAINING REPLACEMENTS.

[3278.]—Could not something be done by the Automobile Club or a combination of motor manufacturers to get the names of reliable and honest repairers to whom parts might be sent on receipt of a wire? I might say that several times I have wired for parts, and instead of getting them after two or three days waiting I have received a *pro forma* invoice with the usual notice that on receipt of cash goods would be sent. Now this is most annoying to all concerned. I would suggest that the above club, or makers, should get reliable men's names, get business and bankers' references from them, and let every maker have a list, so that on receipt of a wire the goods could be sent, and have an assurance that the money would be forthcoming. I feel sure that this would be a great convenience to users of motor cars, especially those who tour and get away far from the big centres.

W. H. JANE.



MOTOR MOUNTAINEERING. On the 24th of October last, in spite of a slippery road and the snow which covered the top of Mount Ventoux, Rougier made an attempt to beat the record that was held for more than fifteen months past by Chauchard on his 70 h.p. Panhard in 27m. 17s. This attempt proved successful, and the time taken by Messrs. Tampier and Hunzicker, official timekeepers of the A.C.F., was only 24m. 50s. We may add, the Ventoux is a mountain 6,269 feet high with a narrow road leading to the top in 22 kilometres, with difference in height of 5,246 feet. The above illustration represents Rougier on his 60 h.p. Turcat-Mery at the time of his reaching the summit of the mountain.

Flashes.

The Wolseley Tool and Motor Co. inform us by wire that one of their 50 h.p. cars will compete in the Gaillon hill-climbing competition, which takes place to-morrow, Sunday, the 8th November.

* * *

Messrs. Joseph Lucas and Co., Ltd., advise us that they have opened their new London office and showroom at 224, Shaftesbury Avenue, W.C., where a full range of Lucas's motoralities and Wells-Lucas Motoils will be on view.

* * *

We can confidently recommend to our readers as motor experts and repairers the members of the firm of the Greatest Wheel Motor Co., King Street, Hammersmith, W., who have not only a competent small staff, but a well-appointed workshop with electrically lighted inspection pit, and excellent storage.

* * *

The Leeds Cycle and Motor Trades Association will hold a cycle and motor show in the Engineers' Drill Hall, Claypit Lane, Leeds, from January 15th to 23rd inclusive. We are informed by the secretary (Mr. Walter Pullan, 68, Albion Street, Leeds) that there is every prospect of the show being a much greater success than even the one held last year.

* * *

On Wednesday last week the Carmarthenshire County Council considered a claim sent in by Mr. W. J. Mayberry, of Llanelly, for £74 17s. 6d. for damages to his autocar caused by the subsidence of the main road near Llandefeilog Hill on October 17th. The Surveyor (Mr. C. Mounsey) stated that he was unaware of the subsidence until the 21st. It was caused by water from the adjoining fields completely lifting the road. A member of the Council said he believed there were similar claims, and he moved that the clerk reply expressing regret at what had happened, but that the circumstances were due to the weather, "for which the council could not be held responsible, as it was an act of God." This was adopted.

* * *

An automobile club is in course of formation for Berkshire, to be affiliated with the A.C.G.B.I.

* * *

The Motor Car Co., Ltd., of Shaftesbury Avenue, W.C., inform us that the six h.p. Pegasus—a new light car which they have recently introduced—is practically a miniature four-seated car rather than a two-seated voiturette. This specification is borne out by the fact that three forward speeds and a reverse are fitted, while four passengers can be carried with ease and comfort, whereas in the voiturette proper only two seats are available, and in many such cars two speeds forward only obtain, with no reverse.

The Begbie Manufacturing Co., Ltd., inform us that they are removing the whole of their business from Willesden Junction to 407, Oxford Street, W., where they will have on view the latest types of Aster engines, the new thermo-syphon Begbie-Austin radiator, Aster three-speed and reverse gears, water circulating pumps, etc.

* * *

We are sorry to learn that Mr. L. P. Mooers, who formed one of the American Gordon-Bennett cup team, has had a bad accident by reason of his racer back-firing. It stopped the car, and, deciding to start up again, he went to the handle and pulled sharply at it, thinking to start up by the heat of the platinum points without the current being switched on. The points proved to be sufficiently hot to explode the charge, and a bad kick back resulted. Mr. Mooers sustained a compound fracture of the wrist, from the effects of which he is not expected to recover for some months to come.

* * *

Appropos of the article by Mr. Barker Lake on "Motor 'Buses for Large Towns" which appeared in *The Autocar* of last week, and as illustrating the heavy initial expense of equipping a tramway system, attention may be called to the case of Brighton. The Tramways Committee of the Town Council here recommend the acceptance of a tender of £10,200 for twenty tramcars, and another tender of £5,692 for rails. This shows a total of £16,162 for two items alone, without taking into account the cost of plant and machinery necessary for the generation of motive power, or the cost of preparing the track and laying the rails.

* * *

The Lancashire Steam Motor Co., of Leyland, are now constructing internal combustion engine vehicles for municipal, freight, and passenger service. Two standard patterns are made—one a two-cylinder 15 h.p. and the other a four-cylinder 30 h.p. Both are so constructed that suitable bodies for the above-mentioned class of work can be fitted with ease.

* * *

The Spyker cars will be made in no less than five powers next year. The lowest power is a 10 h.p. two-cylinder vehicle. Then the 12 h.p., 20 h.p., and 30 h.p. machines have four cylinders, while an entirely new type, with six cylinders, of 50 h.p., completes the set. These cars will be shown in the Paris Salon, and later at the Crystal Palace and Agricultural Hall. The sole English agents are the Elsworth Automobile Co., of Dudley Hill, Bradford, a company managed by Mr. Albert House, who is well known among Northern automobilists. It will be useful to tourists as well as to local owners to know that there is not only very large garage accommodation at the company's new premises in Manningham Lane, but also that repair work of any magnitude can be undertaken.

"THE AUTOCAR" DIARY.

- Midland A.C. Hill-climb (date not fixed).
 Nov. 8. Gaillon hill-climb.
 .. 12.—A.C.G.B.I. House Dinner and Paper. "The Limitation of Cylinder Capacity," by Mr. C. W. S. Crawley.
 .. 13.—Quarterly 100 Miles Trial A.C.G.B.I.
 .. 15.—German War Office Competition for Alcohol-driven Heavy Vehicles.
 .. 19.—A.C.G.B.I. Paper, "Motor Vehicles at the Manœuvres," by Mr. F. J. Ochs.
 .. 20 to 22.—Motor and Cycle Show at Crystal Palace
 .. 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
 .. 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.
 .. 10 to 25.—Paris Salon (A.C. de France).
 .. 31.—Entries close for 1904 Gordon-Bennett Race.

We have to thank those readers who have been good enough to inform us that the Stanley silencer, referred to by a correspondent last week, can be obtained from the Motor Traction Co., Walnut Tree Walk, London, S.E.

* * *

The chief features of interest in the Rex cars for next year are that they will have pressed steel frames, the engine of the 12 h.p. car will have two cylinders, and that of the 24 h.p. four cylinders. The cars will be fitted with three speeds and reverse, the top speed having a direct drive, all the speeds being operated by one lever. Both the engines in the gear box are carried direct on to the frame, and the undercarriage is dispensed with. Both these types of cars have the Roi de Belges body and a new pattern dashboard. The principal mechanical improvements are the length of the bearings in the engines and gear boxes, which have been greatly increased. We hope to give an illustration of these cars at an early date.

* * *

A valued correspondent writes in the highest terms of the kindness and attention he received at the hands of Messrs. Holloway and Sons, of the Shoreham Engineering Works, when he sustained a bad failure of his steering gear on the road between Worthing and Brighton. They made a most efficient repair at a most reasonable figure.

* * *

The Motor Union has just accomplished another useful piece of work for automobilists in connection with the South London tramway system. Many complaints had been made as to the obstruction caused by the placing of men in the roadways armed with long levers for working the point switches, and also of the danger arising from the frequent and indiscriminate watering of the tram-lines. The Union, through the medium of Lieut.-Colonel Mark Mayhew, brought both matters to the notice of the London County Council, with the result that it has now been arranged that wherever possible the switches shall be operated from the footpaths, while orders have also been issued to the tramway officials that the watering of the lines shall be reduced to a minimum. Both reforms will be greatly appreciated by automobilists. It is pleasant, too, to learn that the Union's scheme of local correspondents is now in full working order, and that very useful work is being done in connection with the automobile movement by correspondents all over the country.

A curious charge against an autocar driver was heard at Beaconsfield recently. It was decided that an autocar must not be driven backwards for a greater distance than is reasonable for the purpose of safety. For this alleged offence an automobilist was fined £10.

* * *

The new steam motor coach, constructed at the Cardiff works of the Taff Vale Railway from the design of Mr. T. Hurry Riches, the company's engineer, had its trial trip last week. The coach consists of two compartments and carries 52 passengers. It is very similar in design to the coach used by the L. and S.W. Co., but owing to the fact that some of the gradients on the Taff line are very heavy (one in forty at Cogan being the most severe), the engine is much more powerful. The cylinders measure 9½ in. by 14 in., and the boiler has about 300 ft. of heating surface, and carries 160 lb. pressure. The car is so arranged that passengers can be taken up from the ground without the necessity of a platform. On its trial trip from Cathays to Cardiff Docks the engine negotiated the gradient in fine style. If the car proves a success this means of locomotion will displace on many of the branch lines the present heavy trains oftentimes run for only fifty or sixty passengers.



A SOUTHPORT AUTOMOBILIST. Mr. Leonard Williamson and his 16 h.p. Lanchester car, which performed so well in the Southport Speed Trials, proving the winner in Class H, which was for cars costing from £550 to £750. Mr. Williamson is a most enthusiastic automobilist, and possesses quite a stud of cars, for the upkeep of which he has a perfect model workshop, well equipped with all the necessary tools. In addition to this, he has constructed a track around his grounds, upon which he tests his cars, sometimes to the horror of his friends who accompany him for the first time. The illustration above gives a characteristic impression of the distinctive front of a Lanchester car.

Sergeant Jarrett attends either the Guildford or Woking Courts on Saturday mornings, which leaves Ripley free for motorists to travel through until his return between two and three in the afternoon. Those using the road should note this.

* * *

A gentleman who makes use of an Oldsmobile was very much astonished recently at receiving a postcard from an acquaintance addressed in this way: "Old (smo) Billee —, Esq." The latter afterwards explained his boldness by pleading ignorance of the proper initials, so much bad feeling has been happily averted.

* * *

At the Marylebone County Court on Monday Deputy Judge Fitzroy Cowper awarded to Mr. Godfrey M. L. Keham, land agent, 76, Charlotte Street, Fitzroy Square, W., the sum of £12 12s. in respect of an alleged breach of contract or warranty due to a car which he hired not being able to take him to his destination. The Judge, remarking on the fact that the firm who supplied the car also provided a driver, said it was the driver's business to find out and remedy the defect which manifested itself.

* * *

Speaking at a *soirée* given to the employees of the Hozier Engineering Co., Ltd., on Friday evening, one of the workmen, in proposing continued success to the company, said the failure of a number of the trades which had left this country was due to the fact that the masters had not supported their men in providing them with the most up-to-date tools.

* * *

As some seem to imagine that 125 miles is a test for a light car, it may be interesting to mention that one day last week four Oldsmobiles were sent to purchasers by road from Messrs. Chas. Jarrott and Letts's premises. Each machine was driven by its new owner. Two went to Bath (106 miles), one went to Wolverhampton (120 miles), and one to Banbury (which, *via* Oxford, is about seventy-six miles). Wires from all four were sent the same evening to Great Marlborough Street announcing that each car had run through without a hitch. We do not cite this as any sort of feat, but merely to show what a customer expects to do with a car whether it be of light, medium, or heavy weight. That is to say, except in mere speed, the small cars must be as reliable as the large ones, and we are glad to know that a good many of them are.

Mr. A. T. Hennessy writes from Capetown: "I notice it is stated in your journal that the Lanchester car took first place in the Groot Schuur speed trials of the Automobile Club of South Africa. Such is not the case. One Lanchester car took fourth place in regard to speed."

* * *

An electrical engineer of high standing in the North writes: "I should like to say how fully I agree with the view expressed by Mr. Barker-Lake in your issue of October 31st, as this is one of the conclusions I have come to after carefully studying the question for some years past."

* * *

From the *Manchester Evening Chronicle* we learn for the first time on record that an alligator has been killed by an autocar. It is stated that Colonel Joshua D. Schalk was driving his 20 h.p. Winton near Orlando in Florida when he saw the reptile chasing a plump negro child across the road. He drove at the alligator and broke its neck. It is a tale which we accept with reserve, particularly as it is stated that the dying alligator punctured one of the tyres with his terrible teeth. It is stated that the Colonel will stuff the alligator and present it to the Automobile Club of America. It is fortunate that the event did not happen in England, as there is no doubt that Colonel Schalk would have been summoned for driving to the danger of other road users.

* * *

One hundred and ninety-seven and a half miles non-stop was accomplished by Mr. Crawley Williams on a 10 h.p. Decauville. The road wheels were only stopped once for a level crossing, but the engine was kept running. The Motor Car Co., who want to know if any other Decauville owner has beaten this run during October, tell us that the owner is confident that a still better mileage would have been covered had not the run been suddenly terminated from a non-stop point of view by a pair of restive horses unexpectedly encountered in a narrow lane, which necessitated stopping the engine as well as the car.

* * *

It is wondered if the speed regulations will apply to Scotland Yard officials. The Yard has now provided itself with six autocars for the use of its superior officers when reports of serious crimes reach headquarters.



Private Oliver Stanton, of the Motor Volunteers. We have referred already to Mr. Stanton's work in driving the umpires, Lord Grenfell and General Crabbe, in the recent military manoeuvres. Our photograph was taken on the last day of the manoeuvres as Mr. Stanton stood by his highly-tried 20 h.p. Talbot, and particular interest centres upon it, as we understand that Mr. Stanton was the only driver of a car who was referred to by name in the official report. This was most appreciative of the work done by the automobile volunteers, but no other private was referred to by name. A similar distinction was earned in the ranks of motor cyclists by Dr. Brown, of Maldon, Essex.

SOME QUERIES AND REPLIES.

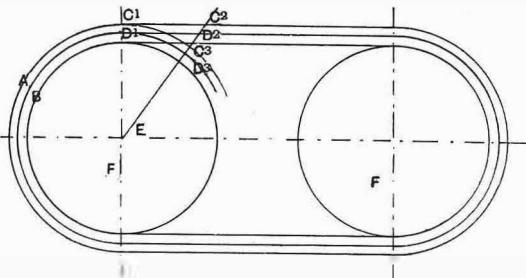
We are always pleased to reply to queries, even if they be of an elementary and untechnical description, under this heading. Only a selection of those which are of general interest will be published, though all will be answered direct through the post, for which purpose a stamped and addressed envelope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

A BELT DRIVING QUERY.

I have had trouble from the belt of my car, an 8 h.p. Belle, failing to grip in this very hilly country (Isle of Wight). The makers advised a thick double belt of two thicknesses of leather sewn together with canvas between. This was no better. I have now put a spare leather belt over the old one, lacing the upper one not very tight. This grips perfectly, with no perceptible slip on the steepest hills, and runs from the loose to driving pulley and back perfectly freely. Another advantage is that both belts can be used slacker than usual, and still the grip is perfect. The upper belt is found to run faster than the lower, and



presents a curious paradox, for though it overtakes and passes the lower belt in the straight between the pulleys, yet on the pulleys it travels the same speed. This I have proved by marks on the belts. The explanation is a lengthy one, and involves considerable mathematics, and is dependent on the change from circular to a straight motion. Thus the upper belt runs faster than its own propelling power. But what is the reason of the largely increased grip? Evidently the two belts sewn together is a mistake, as there must be severe strain on the stitching, with the result of less gripping power.—C. P. D.

In the case of two belts sewn together the pliability of the belt is reduced, hence to get the same grip as a single belt, more power is required to bend it to the surface of the pulley. With equal tensions there would therefore be less grip on the double belt, and to get more grip the tension must be increased, so that the power is lost in two places—(a) by bending belt and (b) by increased friction due to increased pressure on the bearings. With two free belts the inner belt easily works with a good gripping surface on the pulley face, and the outer belt does the same on the outer surface of the inner belt; the weight and tension of the outer belt increase the pressure or grip per unit area of the inner belt on the pulley face, and less total pressure on the bearings or mean tension in the belts follows. It is interesting also to note that both belts must be slacker than when a single belt is used, or they would fail to withstand the slipping action which takes place between the two belts. If the outer belt is not left fairly slack it will invariably break after very short running period.

STEAM CAR QUERIES.

I have a small Locomobile steam car and would be glad if you could answer me the following questions about it: (1.) I am using .720 specific gravity spirit. Is this best to use? Could I get better results from .689? Does the specific gravity make any difference with steam cars? (2.) Ought the car to steam shut off (180 lbs. of steam) on the level all the time, as I find I generally steam at about 150 lbs. pressure? (3.) I was steaming one day with the water about one inch off the top of the gauge glass. I then turned the water

off the boiler by means of the valve operated from the seat, but still the water continued to rise, and I steamed like this for about twenty miles with the water turned off from the boiler and the pump pumping back into the tank. Volumes of steam came out of the exhaust, and I could just manage to crawl up hills which I could otherwise ride up at about fifteen miles per hour. I blew down my gauge glass, which was perfectly clear. The only way I can account for this is that the valve operated from the seat did not shut properly; or would the boiler suck the water over? (4.) The hand brake fitted to the rear axle of the car operates splendidly going forward, but when I reverse it seems to lose all its power altogether. Is it supposed to act both backward as well as forward?—S. NIXON.

(1.) You may possibly obtain better results with .680 s.g. spirit than with .720 s.g., owing to the quicker vaporization of the former spirit, but the results would not be commensurate with the extra cost of the .680 spirit. (2.) We are not at all clear as to this query. Possibly you mean blow off. We come to this conclusion owing to your specifying two different steam pressures. Assuming your normal pressure to be 150 lbs. to the square inch, the boiler would blow off at the safety valve under any circumstances when the steam is over that pressure. (3.) It is highly probable that the by-pass valve was leaking slightly, so that a small quantity of the water was being continually passed through into the boiler. The amount of water so passed is proportionate to the amount converted into steam and used by the engine; therefore the water level would remain constant. The water ejected from the exhaust pipe is partly due to the boiler priming and to wet steam owing to the high pressure in the boiler. A simple definition of the word "priming" is a lifting of water from the boiler by the passage of steam through the outlet pipe, this invariably being due to the water being too high in the boiler. With the steam so saturated, and the water passing through to the engine, there is consequently a low pressure, which would account for loss of power on the hills. (4.) The hand brakes fitted to your type of machine were only designed to operate to their full power with the car running forward; the reverse action has a natural tendency to throw the brake from the drum, hence its inefficiency.

AIR LOCK IN WATER PIPES.

Will you kindly advise me as to the correct quantity of water to put into the tank of a 5 h.p. Renault pattern car I bought? Will it do to fill the tank (thermosyphon circulation)? I believe I get it either air or steam bound, although in the filling cover on top of tank I have a vent hole that I keep open. The symptoms are sluggishness and great loss of power. The last time I was out with it it was very bad for the first twelve miles—only went about six miles an hour; then it suddenly picked up of its own accord, and went sixteen miles an hour. In a long day's run it will do this two or three times.—H. D.

To prevent an air lock in the water circulating system of your car you should place a small vent tap at the lowest point in the circulation. This will serve to draw off the water when necessary during the winter months, and if it be opened while the water is poured into the tank it will enable the fluid as it fills up the pipes to drive the air from them and clear them by means of this tap. As an extra precaution, a tap might also be fitted at another point half-way up the water cooling system; this might be opened after the water has run from the lower one. The second tap is provided because it is not always essential for the water to completely fill all the pipes of the radiator before reaching the bottom, and if the auxiliary tap be fitted it enables the air to clear itself.

GOVERNING GAS AND PETROL ENGINES*.

(Continued from page 561.)

In petrol engine control, although not governing, the variation of ignition had to be considered. Mr. Clerk then projected a set of diagrams taken from a Daimler engine, 3½ in. x 4½ in., the first showing full load, the second about half load (governing by throttle), the third very light load, the fourth half load controlled by retarding the spark, and the last a very light load, also spark controlled. The indicator used was one of Mathot type with indicator cylinder, 3.52 in. diameter. The indicator drum was given a short stroke. The diagrams when compared showed that governing on the spark was not only undesirable, but mischievous, owing to the lack of economy and great heating which ensued under a light load; but full charges fired late, and were only partially consumed.

Another series of diagrams, taken by Mr. Clerk from a four-cylinder 4½ in. x 5½ in. Humber engine at Beeston, was then shown. The diagrams were full load, charge throttle to half load, charge throttle to quarter load; revolutions, 900 by tachometer. Three more cards showed the effect of governing by spark under similar conditions. These diagrams were taken by means of the ingenious and interesting Hospitalier-Carpentier manograph, which overcomes many of the troubles of high speed indication.

Ignition Governing.

The diagrams showed the compression pressure in the Humber engine at full load to be about 125 lbs. and the maximum pressure 400 lbs. per square inch, the engine by brake test giving as nearly as possible 28.5 h.p. By calculation Mr. Clerk found the mean pressure on the pistons equals 73.4 lbs. per square inch. Assuming the mechanical efficiency of the engine to be sixty per cent., the lecturer found the probable mean pressure in the cylinder to be about 92 lbs. per square inch. The first diagram showed this exact mean pressure, with compression pressure of 125 lbs. At half load the mean pressure was 60 lbs., compression 80 lbs., and explosion pressure 260 lbs. above atmospheric. The quarter load diagram showed considerable variation due to ignition troubles, and illustrated the difficulties to which petrol engines are specially liable when governing at light loads, due to varying the character of the mixture, the volume remaining the same. With spark governing, the diagram showed compression 125 lbs., and mean pressure of only 66 lbs., the petrol consumption being the same as with full load, and the maximum temperature not much below that at full load. In petrol engines the maximum temperature of explosion could not on such a diagram as the first be far short of 2,000° C. When this temperature was attained at the very beginning of the stroke, the hot flame was cooled during the full travel of the piston; and at the moment of the opening of the exhaust valve, the exhaust pressure was at its lowest. In the diagram showing result of spark governing the pressure of the exhaust was higher, and the temperature higher, because the higher pressure was attained with a smaller weight of gases just at the point of liberation of the exhaust. In the first full load diagram, the temperature was probably but little over 1,200° C., while with the spark card this could not be less than 1,400° C. This high exhaust temperature was further shown by a spark diagram taken with spark retarded to reduce the engine to quarter load. The exhaust temperature then was clearly very much greater than with full load, or with half load spark governed, so that exhaust valves were in danger of burning. In that diagram the temperature would approach 1,500° C. All this showed the evil of governing for any time by spark variation. Mr. Clerk spoke as to some cases having come under his notice where engines had been run for long periods with retarded ignition, with the result that the exhaust valve spindle guide had been melted away round the spindle. Therefore, as spark control was mischievous, all petrol engines should be designed so that full range of control could be accomplished by throttling alone. Under the latter circumstance, the exhaust gases would be much cooler with light loads instead of being hotter than with full loads, while less petrol was consumed. Speaking of a brake test of his 5 h.p. Wolsley, the lecturer said he found that the actual brake pull re-

quired a mean pressure of 72 lbs. per square inch in the cylinder. Assuming an efficiency of eighty per cent., this required an addition of twenty-five per cent. to 72 lbs., giving a mean pressure of 90 lbs. in the cylinder.

Governing by Petrol Admission.

Mr. Clerk considered that a yet better method of governing would be to keep the compression constant by admitting the air charge for the whole inlet stroke, and varying the admission of petrol, so as to come later and later on in the stroke as the load diminished. But difficulties would be found in maintaining proper proportions of spirit and air, and care would have to be taken in the formation of the combustion chamber, so as to have a mixture of standard strength at the ignition point. Thorough mixing of the petrol with the air was necessary. The advantage would be that at light loads the mean temperature in the cylinder would be greatly reduced, and considerable petrol economy would result. An attempt at so governing large gas engines was at present being made. Mr. Clerk then cited the governing method of the De Dion engine, which is of this type, and referred to the now well-known means by which a portion of the exhaust gases were retained in the cylinder. Compression was thereby kept up to a very considerable extent, but the objection of mixing the hot exhaust gases with the incoming cold charge existed, so that the compressed mixture was very hot to begin with. This contributed to a high consumption at light loads.

Although the governing of the petrol engine was fairly satisfactory, much room remained for improvement. At very light loads throttle governing was apt to be somewhat unstable, and impulse changes occurred in the cylinder independently of the movement of the controlling or governing lever. To produce the best possible governing, the first thing required was certainty of the proportion of combustible mixture at all speeds and loads. This was a question of the carburetter. The second was certainty of ignition as to firing exactly at the same time, and attaining the same maximum temperature at an equal movement of the piston. This required good mixing, and at light loads as little mixing as possible of the combustible charge with the exhaust products in the combustion space of the cylinder. In the event of varying the speed greatly, it also required some accurate mode of retarding or advancing the spark to keep the diagram always rising to a maximum at the compression end of the stroke at all speeds. In most cases this was done by a somewhat haphazard arrangement. The best governing also seemed to him to require constant compression and constant low temperature of the charge before compression. In addition to this, to obtain a governor which did not hurt, the mechanism of the governor must be arranged for stability, and possibly some dashpot arrangement introduced to prevent the governor acting too quickly. He had confined himself, however, to the heat fluid part of the problem, and did not intend to enter at all into mechanical questions.

(To be continued.)

The Thornycroft Steam Waggon Co. have just delivered to Lady Gertrude Molyneux a 20 h.p. Thornycroft, which is presently to go to India for use in the Bombay Presidency. The car, which carries a semi-brougham body accessible from either side, is a fine example of autocar building, and when we saw it on its first trip near Richmond it appeared to be running well and noiselessly. The body is in varnished natural wood, and upholstered in tan leather. The car is fitted with one of Professor Hele-Shaw's ring clutches, details of which were given in our columns in the report of a paper lately read by the Professor before the British Association. The driver spoke in high terms of the behaviour of the new clutch particularly, and the car and engine generally.

* Summary of paper read before the Automobile Club by Mr. Dugald Clerk, M.I.C.E., F.C.S., on Thursday evening, October 22nd

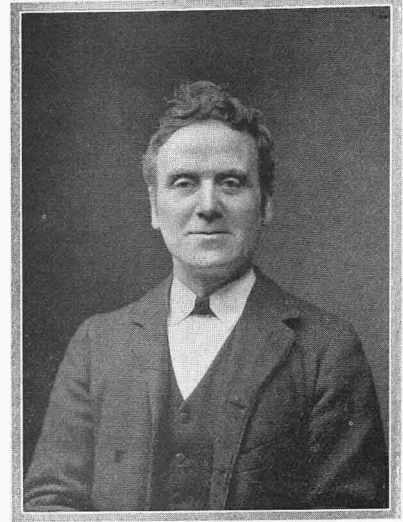
THE FREEING OF MAIDENHEAD BRIDGE.

The agitation which had arisen from time to time, and which was revived some three and a half years ago, for the freeing of the Maidenhead Bridge from tolls, culminated at midnight on Saturday last by the breaking down of the barriers and the enfranchisement of the highway. An announcement was made in the local press of that morning of the intention of the Corporation to remove the gates; but just before midnight a large crowd collected, and took the matter in hand themselves, pulling down the gates and throwing them into the swollen River Thames, so that when the Corporation officials came to cart away the obstruction, the gates were already gone. The first vehicle to cross the freed bridge was a motor car containing Mr. Joseph Fullbrook and Mr. Joseph Taylor (whose portraits are here reproduced), the prime movers in the agitation, which at that moment was so dramatically crowned with success. Legal proceedings against the Corporation for the wrongful levying of tolls are still pending, and we are asked to invite subscriptions towards the cost of fighting the case. The amounts already promised are: Auto-

mobile Club of G.B. and I., £10 10s.; Mr. Bruce Porter, £1 1s.; Mr. J. Colman, J.P., £1 1s.; Mr. J. Cooper, £1 1s.; Mr. Maurice Egerton (two subscriptions), £10; Hozier Engineering Co., 10s. 6d.;



Mr. Joseph Fullbrook.



Mr. Joseph Taylor.

Mr. G. Leman, C.C., £3; Mr. Luxmoor (Cookham), £2; Mr. Mark Mayhew, 10s.; Mr. Thomas, J.P., C.C., £5; W. W., £1 1s.; A Working Man, 2s.; Disgusted, 2s. 6d.

THE THERMAL TREATMENT OF STEEL.

As the majority of designers and makers of motor cars have been greatly interested in the papers read before the Iron and Steel Institute at Barrow this autumn upon the thermal treatment of steel, it will probably be interesting to them to know that the first firm to announce its readiness to supply ordinary carbon steel in bars, plates, and forgings in which, as the result of such treatment, sorbite is fully developed, is Messrs. J. Beardshaw and Son, Ltd., of Sheffield. No doubt other steel manufacturers are moving in the same direction, but we think Messrs. Beardshaw deserve credit for being the

first to announce to the motor industry that they are prepared to follow up the lines suggested in the papers referred to, which are probably the most important that have been read before the Institute for many years. The question of a metal which has been improved by thermal treatment is a very vital one to the automobile constructor, as many parts of the machinery for which he is responsible are subjected to far more violent strains than, and almost equally trying concussions to those which obtain in railway work, and the life of a railway axle is greatly increased by the thermal treatment.

A SPEED RECORDING INSTRUMENT.

Realising the necessity for an instrument which will tell the driver of an autocar the speed in miles per hour at which he is travelling, Messrs. S. F. Edge and Co., Ltd., 14, New Burlington Street, W., have been carefully considering and trying such instruments as are obtainable from every quarter of the globe. After extended experiments they have decided to adopt the Jones Speedometer, which they have found to be accurate within the very small margin of one per cent. The instrument, which is made to suit wheels of 24in. to 36in. in diameter, advancing by steps of two inches between those two measurements inclusive, consists essentially of a very simple motion controlled by a centrifugal governor. This mechanism is contained in a dustproof and moistureproof case, which is attached to the dashboard in such a position that the dial is easily readable by the driver. On to the hub of

the wheel is clamped a ring, upon the periphery of which engages a small rubber faced friction wheel. Connected to this friction wheel is a piece of flexible shafting which communicates the necessary movement to the centrifugal governor. The instrument is easily attached to any type of car, and in view of the coming Motor Cars Act should prove a great acquisition to the automobilist, as it will enable him to keep within the speed limit to a certainty.

In the London Motor Garage Co.'s establishment at 33 to 37, Wardour Street, W., may be seen two very fine examples of the latest 18 and 60 h.p. Mercedes cars. The smaller is finished in a taking-looking red, upholstered to match, and the body of the 60 h.p. is finished in cream. The carburetter fitted to the engine of the latter car is provided with an exhaust jacket, which greatly improves its action.

FUTURE MOTOR VEHICLE TRIALS.

Discussion by the Society of Motor Manufacturers and Traders.

On Tuesday evening last a number of the members of the above society together with guests sat down to the first of the winter monthly dinners, under the presidency of Mr. Fred. Simms. After the dinner had been disposed of the toast of "The King" was honoured, and the Chairman then introduced the subject of the evening's debate—"Reliability Trials"—by a lengthy address, in which he traced the evolution of motor trials or displays from the early days when Sir David Salomons promoted a demonstration in a field near Tunbridge Wells. At the close of his remarks he submitted a resolution to the effect that no trials be held in 1904 except motor van trials, to be organised by the Automobile Club. Mr. Simms then called upon Mr. Chas. Jarrott to open the discussion. Mr. Jarrott said that from the moment he had read the conditions of the recent 1,000 miles trials he had regarded them not altogether as reliability but rather as eliminating trials. Cars were eliminated for a number of reasons not necessarily connected with reliability. The features of the trial largely depended upon chance, and it did not follow that the car that actually came out on the top was really better than some other cars. He thought that, now the trials of pleasure cars had served their purpose, they might be given a rest. The original 1,000 miles trial was inaugurated with a view of educating public opinion, and by the results of the trials they had held since he thought they had got as far as they could in showing the public which was or was not the best car.

Mr. A. C. Hills thought that if trials were necessary in the future they should be so arranged as to mark as to allow cars to attain a general average of excellence, and vehicles falling below that average should not be reported.

Condition after Trials.

Mr. H. Burford said that, speaking personally, if he could always come out on top he would agree to trials, but if not he would not approve. He did not think it advisable in the best interests of automobilism that any more trials should be carried out on the lines of those lately concluded. The great value of such trials would be the careful inspection of the engine and gear of the cars concerned after the completion of the distance. But properly to examine seventy to eighty cars under such circumstances should occupy the judges at least three weeks, whereas the inspection had only spread over two or three days. As a practical man he contended that opinions arrived at in so perfunctory a manner were valueless. He was, however, of opinion that the trade should not organise trials, or any other person or body, save such

an unbiased association as the A.C.G.B. and I. He was keenly opposed to the running of motor trials by the motor press. In the matter of van trials he would not support the idea thrown out from the chair as to July and August. Van trials should be held at a period when the presence of snow and frost would make the results valuable. The first question put by customers with regard to motor vans was, how would they perform their work in the winter? The Automobile Club was in his opinion the best body to conduct such trials.

Some Forthcoming Events

Mr. S. F. Edge said he was an enthusiast on the question of trials. He thought they had past trials to thank for the position which automobilism occupied to-day, but he would read them a letter from Mr. Austen, of the Wolseley Tool and Motor Co., which he believed put the matter very concisely. Mr. Austen thought that for the present they had had enough of pleasure car trials, at least for a year or two. Such trials as those of this year had quite lost their value for proving the capabilities of motor vehicles to the public at large. But in view of any proposition for further trials he (Mr. Edge) would submit to them a list of fixtures which would occupy the attention of the industry until well on into next year. First there was the French Show; most English constructors would desire to put in a few days there, say fourteen. Then there was the show in February, another fourteen; then in May was the non-stop run from Glasgow to London; later would come a Land's End to John-o'-Groat's go-as-you-please run for vehicles costing under £200, say fourteen days for that. Then some of them would like to devote some time to the Gordon-Bennett race, after which in the autumn would be the Marine Motor Race for the Harmsworth Cup. The van trials, as proposed, would conclude a very full programme, and he thought that in such trials automobiles carrying ten or more passengers should take part. Much interest was being taken in the performances and capabilities of such vehicles. In that case they could drop trials of purely pleasure vehicles and work out such fixtures as he had referred to, which altogether would swallow up from sixty to eighty days. Further, the club had agreed to appoint an official to act on non-stop runs, and these could be prolonged indefinitely if desired. Then, too, the club's quarterly trials could be further developed if needed, and so he had great pleasure in supporting the Chairman's resolution that a meeting should be held to consider the advisability of dropping the pleasure car trials.



THE SPEED OF TRAMCARS. The case which Mr. Moffat Ford has brought nominally against four tramcar drivers in the employ of the United Electric Tramways Co., and which was adjourned for the evidence of a Board of Trade expert deputed to test or to see tested the maximum speed at which these tramcars can be driven, came on for hearing again at the West London Police Court on Saturday last. Mr. Moffat Ford and Colonel Crompton, R.E., were present at the trials, held in the previous week, and are depicted above on the front seat of the former's car. Mr. Ford, acting on the advice of his expert, objected to the method in which the trials were made, and retired from any participation therein. According to the Board of Trade representative the speeds varied from 12.29 to 14.8 miles per hour.

Trials of Transmission Gears and Carburetters.

Mr. Critchley agreed that no good purpose would be served by further pleasure car trials, but he thought that trials of horse-power at the road wheels of cars, transmission gears, and carburetters might be held in this country with advantage to the trade. They would thereby obtain proper data upon which to work. Inventors and manufacturers were paying much attention to carburetters and other details now, and all knew how essential a good carburetter was to an engine. Silencers, too, might be tested, as well as ignition apparatus.

Mr. Letts said that they had had trials arranged by representative bodies for the trade, and for unauthorised persons to seek to arrange further tests for light cars was an effort to pull the leg of the manufacturers and to get free advertisement for themselves or their paper. Trials were very serious things, and he did not think they should be asked to go in for such events two or three times a year. He thought the trade should make a bold stand, and say definitely how many exhibitions and how many trials they would stand in the year.

Mr. Astell thought they had had enough of reliability trials for a time.

Mr. Burls supported Mr. Critchley's proposals with re-

gard to technical tests. At present they were in a lamentable position with regard to reliable information on such points. It was impossible to find really reliable figures. There was at present no interchange of opinion amongst automobile engineers similar to that obtaining amongst other branches of engineering.

Mr. J. W. Stocks agreed mainly with Mr. Letts, but not in regard to his assertion that in the late trials the small car had been asked to cope with the big car. On the other hand, the big car had been required to bring itself down to the average of the small car. He strongly disapproved of the attempt by certain parties to run a further so-called trial, and explained the circumstances under which he had found the car he represented entered as a starter in such a trial. His car had never been entered, nor had he said he would enter it.

Mr. Buckea agreed that only one set of trials should be held, and Mr. Ewart-Hall supported the objection to the holding of trials by unauthorised persons.

Mr. Cohen, who supported Mr. Critchley's suggestions, proposed that a committee should be formed to select cars which should assist in elections with a view of impressing legislators with the capabilities of the motor car, and bringing influence to bear on future automobile legislation.



THE AUTOCAR IN WEST AFRICA. As an adjunct to the equipment of the mining engineer, the autocar is doing useful work in West Africa. The above illustration is from a photograph taken on the Faute Mine, and depicts a Century tandem which is in constant use by its two occupants, Mr. E. O. Beususar (in front), manager of one of the most important groups of mines on the coast, and Mr. O. L. de Lissa, electrical engineer to the same group. This is the first machine to make its appearance in that part of His Majesty's dominions, but, seeing that it has proved so successful, it is not unlikely to be followed by others in the near future. We are indebted to Mr. A. W. Light, who has recently returned from the Gold Coast, for the loan of the photograph we reproduce.

THROUGH THE FLOODS ON A NEW CAR.

Had I realised how much rain had fallen overnight I should have hesitated before becoming a passenger on a motor car for a run from Horsham to Coventry on Tuesday, October 27th. Starting at 9.45 a.m. four up and luggage, we soon saw from the state of the roads and ditches that we might have difficulties with water *en route*, but on rounding a corner within three miles of the start I was aghast at the sight of some seventy yards of road under water with a good stream running across the centre and the water half-way up the parapet wall of the bridge which we should have crossed. There was nothing for it but to try another road, so we backed sadly away from the water and started out in a fresh direction. After a detour of some eight miles, mostly down narrow lanes newly laid with unrolled flints, we were stopped by a man, who asked if we could get through three feet of water which covered the road just ahead. Again we had to retrace our steps, but within a few miles of Cranleigh the floods were out again. We watched a miller's van splash through; and, as the water was up to the axles, concluded it was no road for motors. A discussion with some bystanders led us to try a byroad to Baynards Station, which joined the road to Guildford, *via* Bramley, and although in many places the water was flowing over the road to a depth of a few inches, we had no difficulty in getting through. All this manoeuvring, however, had delayed us nearly two hours, and our destination began to look very far off. Between Guildford and Aldershot we had several warnings from well-intentioned locals that

we could not get through, but the water was nowhere more than a few inches deep. Between Aldershot and Reading, however, we suddenly came across a lake, the further end of which was hidden by a bend in the road. Here we waited for something to go through and show us the depth, and before long a telegraph boy on a bicycle turned up, and after looking at the water for a minute or two, mounted his machine and rode boldly through. The water covered his feet at every turn of the pedals, but we were relieved when he shouted back from round the corner that he was on dry land, and we started cautiously to drive through. Although the Thames Valley was very full of water, we found the roads dry, and we ran through Oxford to Banbury, where we arrived shortly after six o'clock, congratulating ourselves on the prospect of completing our journey after all. However, we learned that three cars had come back during the afternoon, being stopped by floods between Banbury and Southam, and the water was reported as being three feet deep, so not caring to take the alternative route over Warrington Hill, we put up for the night at Banbury, and finished our journey the following morning. As to the car, which was the Standard Motor Co.'s new two-cylinder vehicle, with the unique dimensions of 5in. bore and 3in. stroke. This is described as 10 h.p. nominal. Its hill-climbing power with four up and luggage, however, suggests that the actual power is largely in excess of this, which, I understand, is the case.

CHARLES STUDMAN.

UNOFFICIAL TRIALS.

On Monday evening last the proposed run round London for small cars, promoted by a contemporary, was discussed by the General Committee of the Automobile Club. The matter was gone into very fully, and the club policy towards all unofficial trials was made perfectly plain, as the letter we print below will show. The Society of Motor Manufacturers, too, discussed and settled the same subject a few days earlier, and arrived at what are practically identical conclusions. It will thus be seen that the representative body of the sport and pastime, as well as the society which represents a large proportion of the most important manufacturers and traders, are both agreed that in the interests of automobilism, trials should, as we have laid down more than once of late, be organised and controlled only by a body which represents adequately the user and the producer, and should not, in the best interests of the pastime, become common property for any person or firm to exploit as may seem good to them.

119, Piccadilly, London, W., 3rd November.

Dear Sir,—I beg to inform you that at a club committee meeting held here last night, the following resolution was passed in connection with the run for light cars which is being organised by a certain journal.

The resolution is: "That it is not in the interests of automobilism that road trials should be held except by the Automobile Club of Great Britain and Ireland, affiliated clubs, and recognised bodies, and that no permits be given for any events which disregard this principle,

and that all persons taking part in such unauthorised trials be disqualified from club competitions."

Yours faithfully, for the Automobile Club,

BASIL H. JOY, technical secretary.

Norfolk House, Norfolk Street, Strand, W.C. Nov. 2nd.

Dear Sir(s),—In reference to a motor car run round London being organised by a certain journal to take place shortly, I am directed to forward you the enclosed copy of a resolution passed at a meeting of the council of this society on the 29th ult.

The letters addressed to the society by well-known automobile firms, who may be considered to be specially interested in this event, and which are appended to the copy of the resolution in question, do not require further comment. Numerous representations have been received to a similar effect from other members of the trade less directly interested.

I may add that amongst the members present at the meeting, at which the resolution in question was unanimously passed, were: Mr. Frederick R. Simms (president), Mr. H. G. Burford, Mr. J. S. Critchley, Mr. A. C. Hills, Mr. E. M. C. Instone, Mr. Chas. Jarrott, Mr. W. M. Letts, Mr. J. M. MacLulich, Mr. Henry Sturmev, and others representing every branch of the industry. Yours faithfully, T. F. WOODFINE, Secretary the Society of Motor Manufacturers and Traders.

The letters referred to are to the effect that the writers are not entering, and in some cases the opinion is volunteered that further trials are undesirable this year. The firms are: De Dion-Bouton, Ltd., Motor Manufacturing Co., Ltd., Star Engineering Co., the Locomobile Co., Ariel Motor Co., Ltd. (Swift cars), John Marston, Ltd., Hozier Engineering Co., Ltd., Speedwell Motor and Engineering Co., Ltd., Eagle Engineering and Motor Co., Ltd., Charles Jarrott and Letts, Ltd., and S. F. Edge, Ltd. (Gladiator cars).

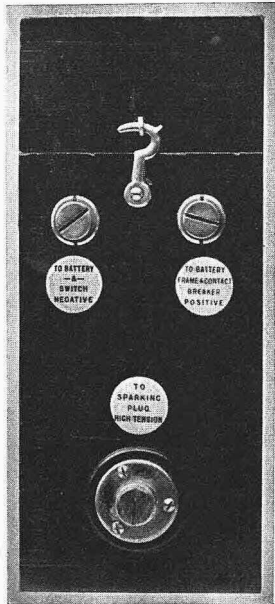
AN AID TO WIRING.

A remarkably high percentage of the letters we receive from correspondents who seek advice in connection with their autocars have reference to electric ignition matters. Predominant among these are queries as to which wires are to be connected to certain terminals on the induction coil, the indicating marks on which are somewhat confusing, owing to the fact that there is no universally recognised method of indicating these terminals. The Electric Ignition Co., of Highgate Square, Birmingham, have definitely settled all troubles in this direction in their new coils. Reference to the illustration will show the very simple and effective manner

in which they aid the users of their highly efficient coils. Small ivoryine discs are sunk into the coil box beneath or above, as the case may be, their respective terminals, which are thereby clearly indicated. In addition to these there will be found in the lid of the box a similar disc, upon which are inscribed concise directions for the adjustment of the trembler. The trembler in question is of entirely novel design, and the coil we have under inspection is tested to a speed of 3,000 breaks per minute. Briefly, the trembler has two platinum contacts instead of one as usual. The end of the trembler

is extended somewhat in the form of a butterfly thumbscrew, the wings of which carry the platinum contacts. One of these contacts is adjusted in the ordinary way. The second is not permitted to make actual contact in a normal state, a distance of about one-sixty-fourth of an inch being allowed between the two. If the trembler is gently snapped with the finger its action is very clearly seen. The first contact is absolutely made; and, owing to the thinness and the tension of the trembler, the second contact comes into operation immediately after the first. So that practically the speed of the trembler is doubled. Naturally, a somewhat fine adjustment is required for this type of trembler, but this is very easily attained by the simple method employed of setting the position of the trembler blade and the adjustment of the tension by means of an ivory-tipped screw. We have made a very careful test of the single-cylinder coil illustrated herewith, and can speak highly of its performance from a practical point of view.

Lord Russell, it is announced, will, after Christmas (probably on January 21st, 1904), read a paper before the members of the Automobile Club dealing with the legal aspects of the new Motor Car Act and the Local Government Board's regulations framed under it.



POLICE TRAPS.

Mr. J. A. Milne, of West Norwood, S.E., writes: With reference to your notice about a police trap at Streatham on the London to Brighton road, some further information as to its exact location would be welcome. I drove slowly along the route yesterday, keeping a sharp look out, but did not notice any indication of a trap in the neighbourhood of Streatham Station. It may have been that the roads being very muddy, and there being few cars about, the police had retired from their duties. I could not, however, see that there is a suitable place for a trap at the position indicated, the road being a winding one with houses on each side. A little further on, just before reaching Norbury Station, and for a considerable distance past it, there is every opportunity for a successful trap being laid, the road being partly wood paved and there being hedges and wooden hoardings on each side where the trappers could easily hide themselves. I trust that your informant will kindly furnish some further particulars of the trap mentioned for the benefit of the persecuted motorist.

[When a police trap is mentioned in a particular locality it must be taken as an indication that the whole of that police district is an infected area, and that the traps are moved about within the limits of that area.—Ed.]

New Patents.

This department is conducted by Mr. G. Douglas Leechman, consulting engineer and registered patent agent, 13, Hertford Street, Coventry, 32, York Street, Dublin; and 9, Exchange Chambers, New Street, Birmingham; from whom any further information respecting patents, designs, and trade marks may be obtained.

1902.

The following specifications were printed and published on the 29th of October, 1903. All notices of opposition to the grant of patents on the several applications should be filed not later than the 14th of December, 1903.

23,671.—H. Parsons. Anti-skid device, consisting of chains across the face of the tyre, which can creep over the tyre.

23,702.—T. H. Massey. Friction clutch having corrugated faces.

24,069.—J. W. Seal. Oil engine with inverted cylinder.

25,374.—W. D. Sainsbury. Anti-skid device, consisting of radial spring plates carried by the wheel, which dig into the ground.

26,731.—S. T. Richardson and R. Price. A solid or other tyre having recesses on its inner periphery engaging projections on the wheel rim.

26,816.—C. Barnes. Self-starter by compressed air or other gases.



One of the Roots and Venables motor mail vans which have recently been supplied to the Post Office authorities by Sir W. G. Armstrong, Whitworth, and Co., of Elswick, Newcastle-on-Tyne.

MARINE MOTORING.* By Bernard Redwood.

The Harmsworth Cup Rules.

Marine motoring is a sport of scarcely a year's growth. The season of 1903 saw motor launches racing on an organised basis for the first time. The author's attention had long been occupied with the problem of launch-building, mainly in connection with launches for transport. He had constructed a 227 tons steam yacht, 25ft. over all, 6ft. beam, 2ft. 6in. depth, built of two skins of teak, and engined by Mumford with small compound engine capable of driving it in average weather at a mean speed of seven miles. Steam at 180 lbs. was supplied by a water tube boiler. The boat had been in use for three seasons without giving trouble. Better results could be obtained by an internal combustion engine in the matter of weight, as the steam engine, etc., weighed some 18 cwt. for 6 h.p. He had visited the States in 1899, and had been much struck with the strides the internal combustion engine had made in public favour. All, or nearly all, were of the two-cycle type—very heavy for horse power obtained, working at a low number of revolutions, and not very efficient. In consequence of this, and difficulties in manufacture, the four-cycle motor was rapidly displacing the two-cycle. A diagram was then thrown upon the screen showing the arrangement of a Daimler launch made seven years ago fitted with the old two-cylinder 6 h.p. four-cycle tube-ignited motor. A slide then showed a Daimler launch belonging to Mr. E. Campbell Muir, and used constantly by him on Loch Awe, Argyllshire—dimensions 22ft. over all, 5ft. 3in. beam, 2ft. 6in. depth, engine 6 h.p. (Daimler car pattern), working at 640 r.p.m. Electric ignition is fitted, and the boat does eight miles per hour. As a contrast, a launch of exactly equal dimensions by the Lifu Engineering Co. was shown: engine 10 i.h.p., best speed 8½ m.p.h. This launch and the Daimler make a good race. Electric ignition had made the internal combustion engine possible for marine work. In America, motor launch racing had long been popular, the favourite propulsive agent being petrol, used both in an internal combustion engine and in lieu of water in a steam-jacketed boiler, and thence taken to engine precisely like steam. High speeds were said to have been attained, but he did not think the Americans possessed a really high-speed steam launch. In the spring of this year his father had proposed the formation of a Marine Motor Sub-committee of the A.C.G.B. and I., and thereupon came Mr. A. Harmsworth's generous donation of the International Cup for boats not over 40ft. Mr. Redwood then recalled the details which led up to the race in Ireland, and commented upon the competitors. Heats were resolved on, as it was thought that the wave making of these fast launches would be excessive, and would prevent a number of boats from competing at the same time. But a 40 h.p. boat at nineteen knots made very little wash. Mr. Redwood then drew attention to the designs of the Napier lent him by Mr. Linton Hope, and recalled many items of her construction. Her best speed shown at Cowes was 18.8 knots.

The other competitors were the Durendal, designed by Mr. E. Wort, and built by Saunders and Goring of three skins of mahogany, sewn together with copper wire. She was so stiff that her builder claimed to be able to suspend her by both ends with machinery in position without sagging. Her engine had eight cylinders, by the M.M.C., and was said to develop 50 h.p. On the screen this boat was shown attaining a speed of over 19 knots off East Cowes Castle, but she had never since approached that speed. The other boat, the Scolopendra, built of wood by Maynard and engined by Thornycroft with a four-cylinder motor of 20 h.p. This launch did very well, particularly in the matter of consumption.

In the first heat the Napier did 18.8 knots, the Scolopendra, in a bye, 15 knots, and the final was won by the Napier doing 18 knots in slack water.

Mr. Redwood, in referring to the rules formulated by the Marine Motor Association for assessing the power of motors' "motor power" and thence ascertaining the rating of the boats, mentioned the fact that the American Power Boat Association had practically adopted the M.M.A.'s rules for motor power and rating. The next thing was

to prepare a time scale which should pit boats of various ratings equitably together as done by the Y.R.A.'s time scale for yachts. As tabulated speeds were unobtainable here, the time allowances of the A.P.B.A. were tentatively adopted, and excepting for the Harmsworth Cup all other races in this country had been based thereon. Mr. Redwood recounted the difficulties surrounding the matter, and gave some illustrations of the difficulty of dealing with the speeds of boats running with and against the tide. He also referred to the trouble and complication arising not infrequently from the presence of weed in salt water, the stoppages to clear which upset recorded results. With regard to clearing, he preferred the solid-bladed type of propeller, with reversing clutch inboard, as preferable to reversing blades, as the reversal of rotations was what was wanted to disengage the weed.

Particulars of the heats for the "Yachtsman's" Cup were then given, these being held under the time allowances of the M.M.A. In this race Scolopendra beat Napier by 1m. 25s., and Durendal beat Napier by 2m. 50s., but Scolopendra only beat Durendal by 1s.

In the race held at Cowes on 7th August, it was very difficult owing to the tides to arrive at the actual distance covered—probably 20½ miles. There Scolopendra beat Napier by 1m. 55s., and Wolverine by 19s. The results as between Scolopendra, Durendal, and Wolverine were about as perfect as could be expected. Wolverine was a 40ft. Saunders boat, built of four skins, engined by 12 h.p. Wolverine motor. The race for Capt. J. Orr-Ewing's Cup was unfortunately a walk over for Napier, and the race fell through, the cup being again offered for a time race. Owing to accidents Napier was left in alone.

Generally speaking, the rating and time scales of the M.M.A. had worked out very well for big speed boats, and it was best they should remain as they were.

The dimensions of the Scolopendra, given by Messrs. Thornycroft, were—Length 30ft., beam 5ft., depth (extreme) 2ft. 1in. Hull plain carvel of cedar, with American elm timbers; turtle deck forward, and light pine deck aft. Two bulkheads were fitted. The bottom of the boat was flattened like a Thornycroft torpedo boat, and the running was excellent, with hardly any water disturbance. This boat was shown on a slide.

Some interesting weight comparisons of steam engine and boiler with petrol engine of equal power were given from particulars supplied by Messrs. Thornycroft. Weight of 20 h.p. petrol engine, complete with reversing gear, batteries, etc., and petrol for sixty miles, equals nearly 5 cwt. Weight of 20 h.p. double acting condensing steam engine and boiler, complete with coal and water for sixty miles, equals 3 tons 3 cwt., or over twelve times more than the petrol engine and fuel. The petrol engine also compared most favourably in regard to space. A last slide showed an interesting steam launch belonging to Mr. E. Campbell Muir on Loch Awe: Boat built and engined by Saunders and Goring, the hull being of four skins of mahogany sewn together with copper wire, length 40ft., beam 6ft., depth 2ft. Machinery locomotive boiler, pair of h.p. cylinders 3½in. by 5in. Steam supplied at 200 lbs. pressure sq. in. This boat is capable of a spurt at 17 knots, and with a petrol engine of the same weight, and therefore of far larger horse-power, would have made a good show for the Harmsworth Cup.

THE DISCUSSION.

Mr. Arthur F. Evans thought enquiry ought to be made and conclusions come to as soon as possible to find out whether the rules governing time allowances in motor boat racing were as perfect as they could be. Referring to the American two-cycle engine for motor boats, he said American engines were being supplanted by English, just as the two-cycle was being supplanted by the four-cycle. The latter was, perhaps, due to faulty workmanship of the American engines adopted in the early stages of marine motoring in this country.

Mr. Linton Hope said they had all been trying different types of motors, and the only thing clear was that, so far, the boat with the petrol motor was far ahead of a similar steam launch in point of speed, as they could get about nineteen knots out of a smaller and lighter boat.

* Abstract of a paper read before the Automobile Club, Thursday, 29th October, by Mr. Bernard Redwood.

He believed that for speed the petrol boat had far greater capacity than any steam boat, as the weight of the mechanism was so much less.

Mr. S. F. Edge asked Mr. Redwood whether the weight of the Simpson-Strickland motor mentioned by him was that of its weight with water. With regard to reliability trials for motor boats, there was no reason why the club should not control the development of what he might call the motor car on water, as well as on land. Before they took that matter up, they would have to put their house in order with regard to the rules governing the contest for the Harmsworth Cup. The club had laid down rules for that contest which made foreign owners of motor boats think they could not enter, and had ordained that unless the entry was received within a month of the previous race a boat could not compete. Indeed, under the rules as they stood at present, it seemed almost impossible that there could be a race for the Harmsworth cup at all next year. They should put themselves right with the foreigner, and the matter wanted speedy attention, for articles had appeared in the Continental papers saying that the Automobile Club of Great Britain and Ireland, having won the Harmsworth cup, meant to keep it. He thought the club should get 40ft. fixed as the standard length for racers. The 40ft. boat was the fastest at present, and as competitors for the Harmsworth cup have to build new boats, there could be no hardship in fixing a 40ft. standard. The forty-footer could be more readily transported than the fifty-footer, while the latter was nearly twice as costly to build. Mr. Yarow, who had lately taken up the question of motor boats, was co-operating with him in building a boat to compete for the Harmsworth cup next year and to compete abroad.

Dr. Boverton Redwood said, with regard to the rules, that they were necessarily of a tentative order. In the drafting of the deed of gift of the cup, it was felt scarcely possible to frame the deed that it would withstand such criticism as was expected. The Marine Motoring Committee, he thought, would be interpreting the sportsman-like spirit of Mr. Harmsworth in presenting the cup when everything was done to make the character of the contest fully international. He thought Mr. Edge might reassure his Continental friends on the point he had raised with regard to the rules. The Marine Motoring Committee had not acted unwisely in fixing the 40ft. limit, but if ultimately too restrictive, no difficulty would be experienced in modifying it. With Mr. Linton Hope, he thought there was a very great future for the petrol boat in Admiralty work. Recently they had heard much of liquid fuel in the case of foreign Governments, but he could assure them that the British Government were not lagging behind in their attention to this matter. During the past year he had looked into the question of whether, in view of the existing supplies of petroleum, there was any possibility of its replacing coal as fuel in battleships, and he had come to the conclusion that they had not even in sight such supplies of petroleum as would justify them in

anticipating the replacing of coal at an early date. But, when they looked to the greater economy of fuel in the internal combustion engine, they must be convinced that its use on warships would be possible of great extension with advantage. There was great waste of coal in feeding with the marine motor. It was far better they should err the small auxiliary engines in use on a modern battleship, and these engines employed so great a head of steam that he thought the internal combustion engine would soon be largely substituted for the steam in these departments. Once the Government realised that petrol was safe, it would soon be used. Too great precautions could not be taken to guard against the risk of accidents rather on the side of being over cautious.

Mr. Wallace, in moving a vote of thanks to Mr. Redwood for his paper, said, as chairman of the club, he would guarantee that the Marine Motoring Committee would be called together at once to see what could be done towards arranging the matters to which Mr. Edge had drawn attention. Now that they had the petrol engine to do the work not only of driving launches, but as auxiliaries for larger crafts, he hoped for great developments in marine motoring, and the club would do everything that was possible to assist that development.

Mr. Redwood, in reply, said with regard to the failure of the two-cycle engine being due to bad workmanship, he would like to point out that this engine was only suitable for very small craft, as it was impossible to make it run satisfactorily at an increased number of revolutions, owing to the occurrence of an unexpected reversal, while the motors were also very heavy. With regard to the Harmsworth cup rules, the Marine Motoring Committee had always known they were tentative. They had adopted the 40ft. length limit on the score of cheapness. They knew that the rules would have to be set in order later; indeed, it would not be long before they were altered.

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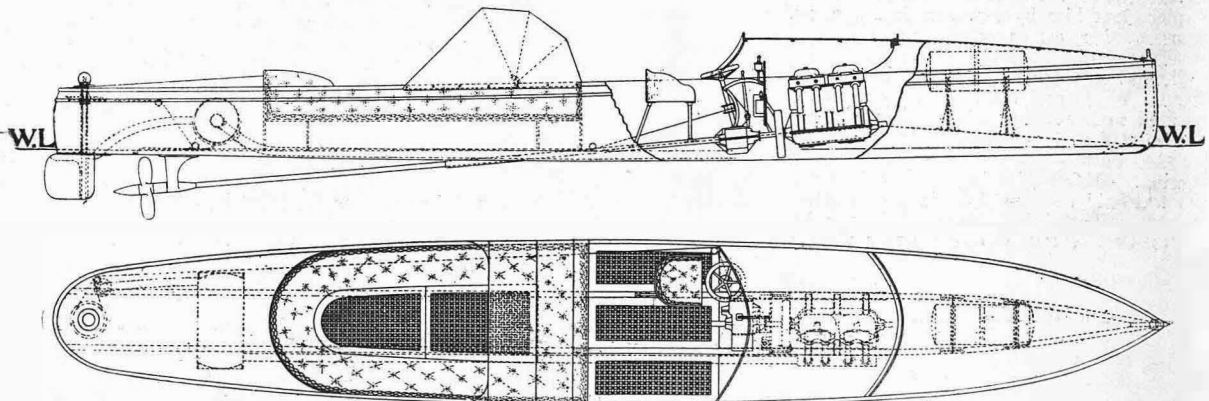
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MARINE MOTORING. A plan and elevation design for a 45 h.p. Napier launch which can comfortably accommodate fifteen persons, but which, when occasion arises, may be stripped down to the form of a 20-knot racing boat. The leading dimensions are 35ft. long, 5ft. beam, and 4in. draught. The boat is engined with a 45 h.p. four-cylinder Napier motor such as is used in the Napier makers' racing cars. There is the usual starting and reversing gear, which is under the control of the helmsman. Forward the boat has a turtle-backed deck, beneath which is placed the petrol tank, etc., the silencer being in the stern, which is also decked. The design, it may be said, originated from suggestions made by Mr. J. A. Holder, of Birmingham.