October 24th, 1908.

# THE AUTOCAR

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

EDITED BY H. WALTER STANER.

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## The Autocar.

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## Notes.

### Mr. Knight's Paper.

No paper dealing with any motor engineering subject has excited such widespread interest as Mr. Knight's, which was reported in our last issue. This extraordinary interest is undoubtedly due to the fact that the new Daimler engine is the first serious departure from current practice since the days of Gottlieb Daimler and Benz. In the intervening years the car as a whole has undergone tremendous changes, and engines have been vastly improved, but whatever change has been effected in the engine, the mushroom or poppet valves have been retained throughout. Of course, a few departures from them have been made, but only in individual engines. Nothing of the sweeping nature of the Daimler change has been attempted. Mr. Knight's paper was necessarily a piece of special pleading in which he, perhaps unintentionally, exaggerated the disadvantages of the mushroom valve, but he set forth the claims for his own engine most clearly, and they will be found on page 601 of our last issue.

Of the seven main claims, there is no doubt that the two most important are silence under load and greater flexibility. We say silence under load advisedly, because we think when running light some of the very best ordinary engines are practically as quiet, but under load there is no disputing the silence of this engine. As to the claim of greater flexibility, that is the most important one, because it means that, from the same engine without readjustments of any sort, very high power can be obtained at high engine speeds and good pulling at very low, low, and moderate engine speeds—a combination of the best points of a racing and a touring engine. As to the claims for durability and reliability, time alone will prove them, though very sound arguments were introduced in favour of these claims.

All sorts of objections have been raised against the new engine, and critics have particularly dwelt upon the possibility of lubrication troubles and of valve burning—that is of burning the sleeves at or about the port openings, so that compression would soon be lost. Both these objections were well answered by Mr. Knight in his paper. At the same time, as is unavoidable with any innovation, his statement was practically a denial that these objections existed, though he explained why they did not exist. All sorts of criticisms are possible, and, writing as we do before the discussion of the paper, we do not propose to attempt to foretell what additional objections will be raised against the engine by motor engineers, only two of whom were called upon to speak at the opening of the discussion last week. At the same time, it seems to us that whatever the criticisms may be, the only real rejoinder to Mr. Knight is a challenge to a progressive brake test which would deal with the question of flexibility. Let the maker of a mushroom valve engine who disputes Mr. Knight's claims compete against an engine built on the Knight system, and it would be proved at once whether the new engine could pull more slowly and better all through the scale than the ordinary engine.

Of course, it is useless to have a maximum horse-power test alone. The test should start from the lowest speeds and work up progressively. The average motorist does not care in the least what the valves are so long as he gets better results and longer wear and longer periods of running without the need for adjustment, and, although all these things cannot be settled by any test other than that afforded by time, there is no doubt that a properly conducted comparative test on the brake would at least settle once and for all whether any mistake has been made in the claim that the engine has a greater range of power than the ordinary engine of the same size. There is also the question of manufacturing, which, while it does not directly interest the motorist, must be con-

sidered in the long run, because if there are two methods of obtaining similar results the manufacturer will naturally take the one which is the simpler and more uniform in results, and it is claimed that the new engine not only gives better all-round results, but gives them with very little trouble after the engine has once been put together.

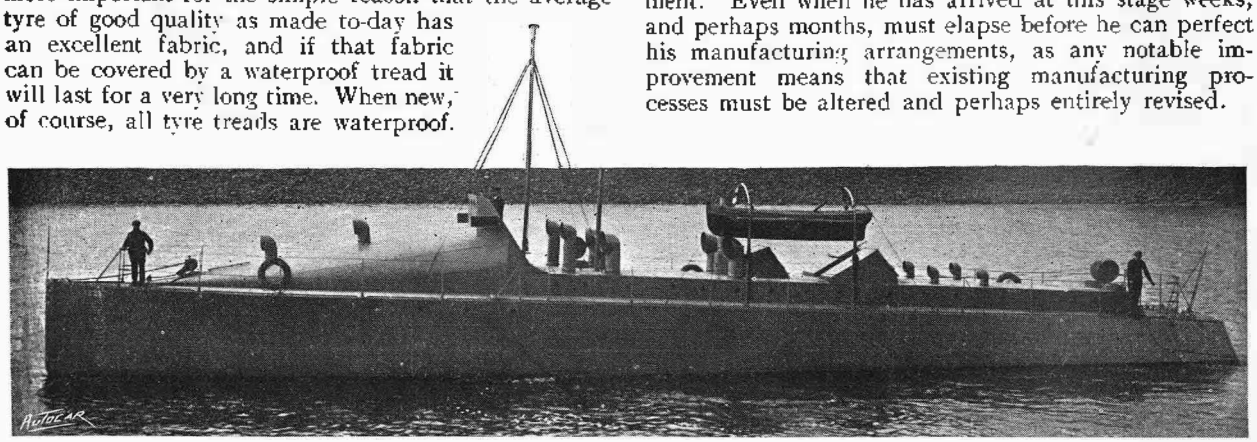
## The Next Step.

Now that quiet engines are the order of the day, very general opinion is being expressed that the next step must be in the silence of the transmission. The best transmissions of to-day are remarkably quiet, but in covered bodies, such as limousines and landaulets, many of these quiet drives become quite noisy, as there is a sort of drumming which is characteristic of the covered car which has yet to be conquered by the designer. On the indirect speeds the noise is very much greater, and in some cases almost distressing. However, with the best gear boxes the noise hardly ever reaches the distressing stage, except when climbing steep hills on the first speed.

Probably gears have been made almost as quiet as they are likely to be made, and Dr. Hele Shaw's remarks at the Institution of Automobile Engineers about the return to prominence of the hydraulic transmission in a greatly improved form brings the matter into the foreground again. Although nothing startling is likely to take place in the near future, it certainly seems possible that, looking a little further ahead, the most luxurious cars will be provided with either electric or hydraulic transmission, not with the idea of providing the equivalent to a set of gears almost infinitely variable from zero to maximum, but simply to ensure absolute silence in the transmission, so that the covered car will be practically noiseless to its occupants. So far as the engine is concerned, the back portion of a covered car at any rate has already reached this stage in the best examples, so that there is only the transmission to quieten.

## Tyre Improvements.

On June 20th, when dealing with the improvements which were being made in tyres, we pointed out that the two great improvements which were wanted were an invulnerable tread and a rot-proof fabric. Opinions vary as to which is the more important of the two, but on the whole we think the invulnerable tread is the more important for the simple reason that the average tyre of good quality as made to-day has an excellent fabric, and if that fabric can be covered by a waterproof tread it will last for a very long time. When new, of course, all tyre treads are waterproof. They become leaky after use because they are cut by stones and so forth, and through the cuts the water and grit penetrate to the fabric. The water sets up rotting, and the grit abrades the fibres of which the fabric is made. The strands are thus gradually rotted and rubbed through one by one till at last a burst occurs. Although the process is a slow one it generally happens long before the tyre is really worn out, though so far as our experience goes a cover which has once burst is never much use again, however well repaired it may be. No better proof of the importance of the invulnerable tread can be offered than that which we referred to last week when describing a new tread of this description. Tyres fitted with this new tread run for much greater distances than the average cover. When they fail it is through rotting of the canvas at the sides which are unprotected. The sides of a tyre do not cut much, but they cut a little, and it is through these leaks in the rubber protection that the water gets to the fabric. Now it stands to reason that if the life of a cover can be approximately doubled by providing an invulnerable tread it would be still further increased if the whole cover could be made invulnerable, sides and all, or if the fabric itself could be made rot-proof. It seems impossible at the moment to make a usable tyre which is invulnerable all over, because the sides would be too stiff, and therefore the next line of improvement should be the rot-proof fabric. We have at least two treads now which are nearly invulnerable, and therefore if we can find a rot-proof fabric we shall have tyres of a durability which is even more extraordinary than that obtained by the invulnerable tread alone. This fact is recognised by all the more go-ahead tyre constructors who are working hard to attain a really rot-proof canvas, and already a large measure of success has been achieved, though at present we are not at liberty to say more than this, as the makers concerned are not in a position to make a definite statement. Nothing takes longer to test and verify than a tyre improvement. Many of the things which appear most promising at the first fail in some unlooked for way when put to the unforgiving work to which they are subjected on the driving wheels of a fairly powerful and heavy motor car, and it is only when a number of covers have been tested under all sorts of conditions that any maker of repute will venture to assert that he has effected an improvement. Even when he has arrived at this stage weeks, and perhaps months, must elapse before he can perfect his manufacturing arrangements, as any notable improvement means that existing manufacturing processes must be altered and perhaps entirely revised.




A smart high speed sea-going torpedo boat or gunboat built by Messrs. Yarrow and Co., Ltd. She is 100ft. long and 13ft. 6in. beam, and is equipped with a 600 h.p. set of six-cylinder Napier engines, driving four propellers. The new boat is 40ft. longer and 4ft. 6in. greater in beam than the famous Yarrow-Napier of 1906, while her engines are double the power of that boat. At 21 knots her radius of action is 300 knots, at half speed 600 knots. The saving in weight and space, as compared with a steam engine of equal power, amounts to some 50 per cent.

# USEFUL HINTS AND TIPS.

### Removing Tar Stains.

If a tar stain is to be removed at all it must be done while the tar is fresh. It is not even safe to wait till reaching home, but after driving over freshly sprayed tar the car should be stopped for cleaning at the next village encountered. Butter is the best solvent for removing tar from the coachwork, while for cleansing the hood or personal clothing a pledget of cotton wool dipped in benzol is as good as anything.

### Motoring Headaches.

A good many drivers suffer from headache after long runs, especially at speed or in cold weather. The cause of this is usually too thin a cap, permitting the head draughts to beat on the temples and upper front of the skull. Some drivers avoid them by reversing the cap and wearing it peak astern, which does not conduce to a decent appearance. Motoring tailors have not yet learnt to make the front of a cap thick enough, but it is an easy matter to line the front of any cap above the peak with chamois leather, which will generally cure any tendency to headaches.

### Some Cheap Clothing Accessories.

Few motorists are as economical as they might be in the matter of clothing. For wet weather use on an open car there is nothing to beat the oilskins sold for motor boat work. Their one fault is that they do not look smart, but they will keep out rain better than any special proofed stuffs costing five or six times as much. Similarly, a three-guinea pair of furred boots are little if any warmer than a half-guinea pair of ordinary snow overboots. A calico dust coat, a suit of oilskins, a pair of snowboots, and a three and sixpenny pair of coachman's waterproof gloves will provide the motorist of moderate means with an outfit for all weathers if he is not too sensitive about appearances.

### Automatic Carburetters.

Many of the best carburetters of the day depend upon automatic air valves for their satisfactory working. That is to say, a certain fixed amount of air is always admitted beneath or across the jet, and then there is some arrangement of spring controlled air valve which is sucked open as the speed of the engine increases. Of course, there are plenty of carburetters in which the additional air is provided positively by some inter-connection with the throttle, but at the moment we are not discussing this type. Properly adjusted the automatic carburetter of the spring controlled type is most satisfactory, provided always that the spring controlled valve is really well made and so designed that when it is shut it is not leaking. There are many variations of this type of automatic air regulator, and all the best have some form of atmospheric buffer or its equivalent to prevent too sudden an action of the valve. The majority of users of automatic carburetters, however, do not realise how very much depends upon their free and smooth working. A good many of the mysterious losses of speed and lack of life, particularly the latter, are simply due to sluggishness in the opening and closing of the spring controlled air valve.

What is not realised is that the proper sympathetic opening of this extra air inlet as the speed of the engine increases is essential to a quick pick up. When the valve is closed the engine speed is low, but if on the opening of the throttle the extra suction of the engine does not instantly commence to open the extra air supply the engine will only respond sluggishly, for the simple reason that it is being more or less choked with too rich a mixture. As soon as the speed gets up the sluggishness of the air admission will automatically check itself, as the suction of the engine will become so strong that the air valve is, as it were, dragged open. At the other end of the scale, if it closes sluggishly, there will be pops back into the carburetter. At least once a week the automatic air valve should be taken out and carefully examined. It should be cleaned, and it should be seen that the valve is perfectly free. Most of the air valves slide on some form of central stem with a spring to keep them in position, and all the moving parts should be most carefully cleaned. It will very often be found on pushing the air piston up and down it is not quite free. It can hardly be said to hang, but there is just a suspicion of a hitch in its action.

It is not enough to see that there is no dust on the valve and its connections, and the best way we know to put everything in perfect order is to clean all the working surfaces with brass polish. This alone will often make a difference between a sluggish engine and one which dances away in instant response to the throttle. If one wishes to gild refined gold, still better results will be obtained by blackleading the edges of the valve and the guide or stem on which it works, and it is equally important that the buffer piston, if an air dashpot be fitted, be carefully cleaned and polished, too. It should be clearly understood that no emery should be used; otherwise air leaks will be set up. All that is wanted is perfectly smooth surfaces, so that the valve can respond instantly to the varying degrees of suction to which it is subjected.

If after this attention the car is not lively or if the engine pops back in the carburetter it is evident that the spring of the automatic valve requires adjustment. Speaking generally, sluggishness of pick-up shows that the spring is too strong, so that the air valve does not open soon enough. If popping back in the carburetter takes place when the car is running at a moderate speed and without any sudden closing of the throttle to provoke it, it may be taken as a certain indication that the spring is too weak, so that the air valve opens prematurely and weakens the mixture too much at low or very moderate engine speeds.

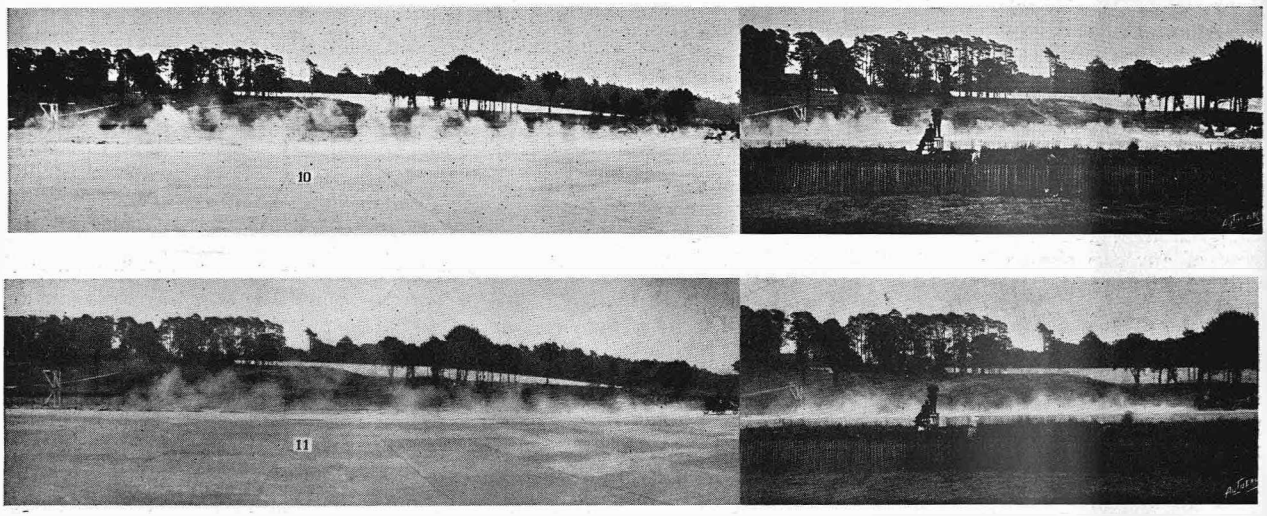
### Stiffening Old Trembler Blades.

We were recently called in to prescribe for an old car which had lost its pristine vigour. Everything appeared to be perfect, but at last we noticed that the trembler blade (De Dion pattern) was so antique and had been bent backwards and forwards so many times in well-meant attempts at adjustment that it had practically no spring left in it at all, and its action was sloppy and listless. We prescribed a new one, and the advice was greeted with wails from the thrifty owner, who had just spent several shillings in fitting a new platinum-iridium rivet to it. So rather than scrap it we procured a piece of old clock spring some 1½in. long, knocked a hole in one end of this, and threaded it over the set-screw holding the trembler blade in such wise that its convex side pressed against the weak blade. The improvement in running was most marked, and no new part was required.

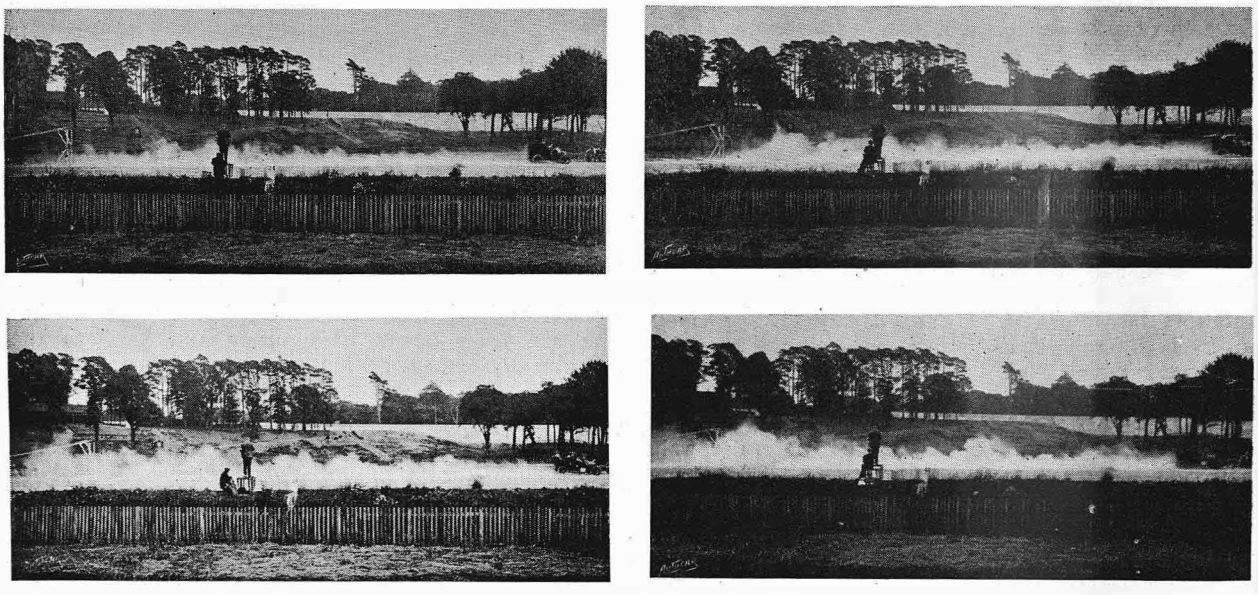
# THE R.A.C. DUST TRIALS AWARDS.

The awards for these trials, which were held on July 20th, 1908, were decided by the comparison of photographs of dust clouds raised by the competing cars whilst passing over a prepared strip of dust. The reproductions of the photographs given below represent the first and second cars in each class travelling at twenty miles per hour and thirty miles per hour over the prepared strip, and are so arranged that comparisons may be readily made.

The competing vehicles were divided into three classes, which were as follow: Class I., for makers' standard cars; Class II., an inter-club competition for amateurs' cars; and Class III., for experimental cars or devices for the prevention of dust raising. In the case of each pair of photographs, the left-hand picture shows the dust raising effect of a car travelling at twenty miles per hour, and the right-hand picture that of a car travelling at thirty miles per hour.




Class I.—Above, the winner of the first prize, a silver cup, a 22·5 h.p. Buick car entered by Mr. Frank Edson. Below, an 18·05 h.p. Reo car, winner of the second prize, the Club's silver medal, entered by Mr. H. Gordon Sharp.



Class II —The team of the West Surrey A.C. which won first prize, two of the Club's silver medals. Above, the 1902 pattern 9 h.p. Clement car entered by Mr. J. F. Ponsford, and below, the 1907 pattern 12·8 h.p. Siddeley entered by Mr R. S. Robertson.

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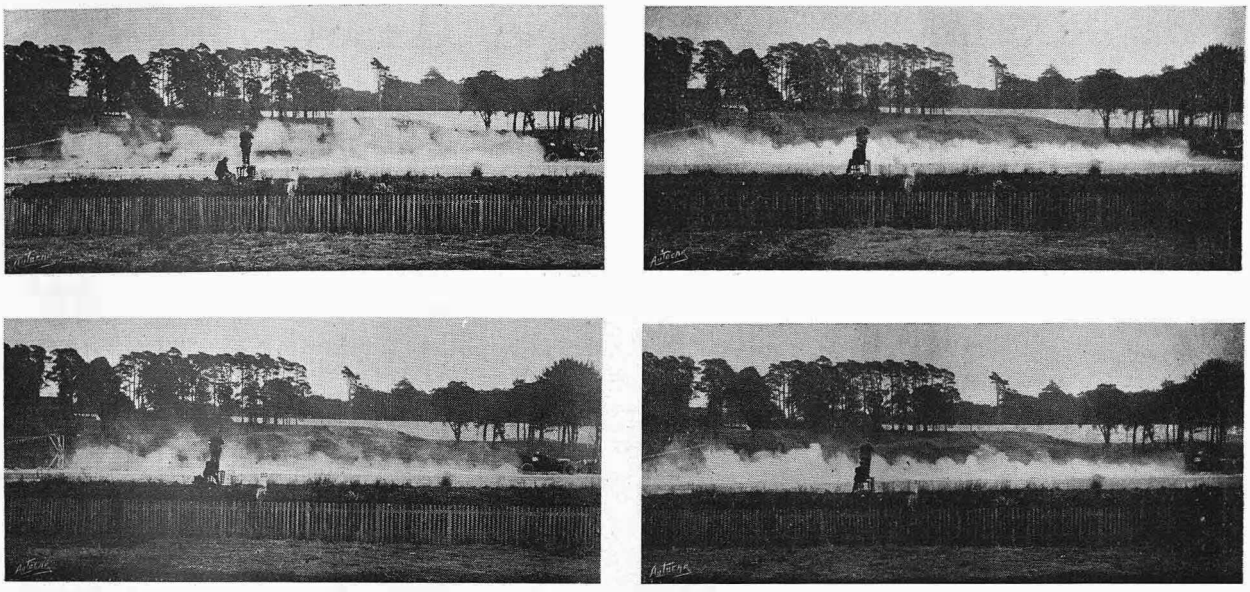
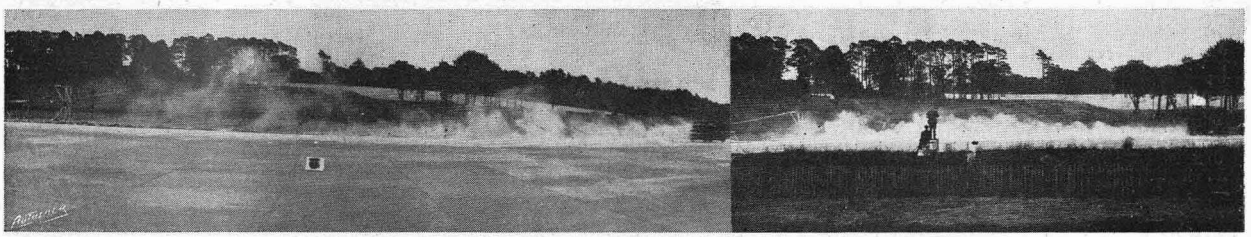
When those well-known topographists, Messrs. George Phillip and Son, Ltd., of 32, Fleet Street, E.C., issued the first of their Finger Post Strip Maps we did not fail to express our approval of the chart scheme of these productions. The London to Exeter map is now to hand, and as we are personally well acquainted with this road, we venture to say that the motorist, advised by this Finger Post Strip and his companion, can drive through each town and past each awkward misleading fork without the slightest chance of mistake. For instance, he can thread the streets and turnings of Basingstoke, Andover, Salisbury, Wilton, Barford, St. Martin, Shaftesbury, Yeovil, Crewkerne, Snowdon Hill, and Yarcombe without error.



The team of the Kent A.C. which were placed second in Class II. The upper pair shows a 1907 pattern 29·4 h.p. six-cylinder Standard car entered by Mr. E. Aldridge, and the lower pair a 1906 pattern 25·6 h.p. Minerva car entered by Mr. Granville M. Kenyon.



Two of the worst cars in the Trials, as regards dust raising, are shown in these illustrations.

# IN THE HOUSE OF COMMONS.

A number of questions relating to motor cars have been asked and answered during the past week. The nature of the questions may be inferred from the replies vouchsafed.

### Inconsiderate Driving.

The Prime Minister said: There can be no doubt that considerable feeling has been aroused in many places by the inconsiderate driving of motor cars, and representations have been made to the Local Government Board on the subject. On the 19th of September last the Board issued a circular to local authorities drawing attention to the provisions of the Act of 1903, and impressed upon the authorities the importance of the enforcement of the law. I hope that the effect of this circular may be to bring about a more systematic enforcement of the law, but the matter will not be lost sight of.

The Home Secretary said: The police are instructed to enforce the law as effectively as their powers permit. I have no authority to bring about by regulation or order any uniform restriction of speed; that, I must repeat, can be done only by the Local Government Board, acting on the application of the local authorities under Section 9 of the Motor Car Act.

### Oil Smoke Emission.

Mr. Samuel, replying for the Home Secretary to a question, said: As my right hon. friend stated in reply to a question on this subject on the 2nd June last, the Metropolitan Police can, and do, take disciplinary action in the case of motor cabs and motor omnibuses discharging oil smoke, since a condition of their licensing is that "the lubrication of the engine or the carburation of the working mixture must be so controlled that smoke is not projected with the exhaust or from any other part." But in the present state of the law legal proceedings cannot successfully be taken against drivers of motor vehicles where the emission of smoke is due to any temporary or accidental cause, which is practically always the case.

### Speed Limit Applications.

Mr. Burns said: During the years 1904 and 1905 forty-eight applications were made to the Local Government Board by local authorities for the reduction of the speed of motor cars to ten miles per hour on certain roads, namely, seven by county councils and forty-one by town councils. Since 1905 there have been fifty-four such applications, namely, thirty-seven by county councils and seventeen by town councils. In a considerable number of cases these applications have been subsequently abandoned or allowed to lapse. No order fixing a speed limit of ten miles was issued in 1904; one was issued in 1905. Since that date twenty such orders have been issued, and another is about to issue.

### The Royal Parks.

Mr. Burns said: The authority for the limitation of the speed of motor cars in the Royal parks in London is the Parks Regulation Act, 1872, and the statutory rules made thereunder. The Act only applies to "the Royal parks, gardens, and possessions"; the powers conferred by it could not be exercised as regards the speed of motor cars in the streets.

# THE RUSHMORE ACETYLENE GAS GENERATOR.

Whether Rushmore lamps by Rushmore Lamps, Ltd., 49, Rupert Street, Shaftesbury Avenue, W.C., be used or no, we are certain, by the light of many months experience we have, that the Rushmore generator is a good thing. Like the cleaning agent of the proverbial cheap Jack, "it is simple in use and certain in effect." Its simplicity is demonstrated and will alike be made patent by the accompanying description and illustrations. In fig. 4 we have a partially sectioned isometrical view of this well-known generator, which taken in connection with the numbered reference

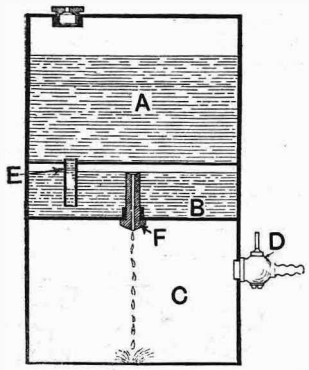



Fig. 1.

A, water tank
B, automatic regulating chamber
C, hydrate of calcium (ash) receiver
D, gas cock

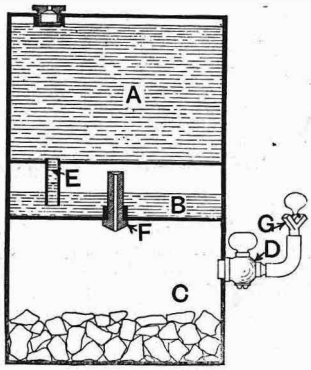



Fig. 2.

E, water riser tube
F, needle valve and drip tube
G, H, needle valve
I, needle valve socket

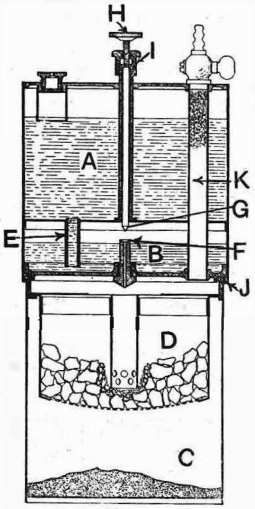


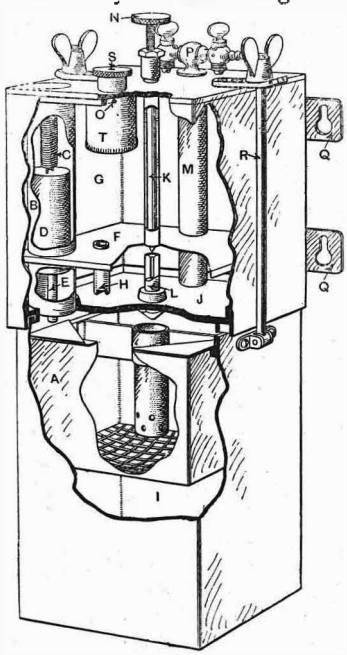

Fig 3.

J, rubber jacket
K, horsehair gas filter or scrubber

is self-explanatory. The generator is made in two halves, the upper part forming the water tank G and containing, as shown, the water valve K and L, the filler and strainer, the spring supported tapping weight D, the automatic regulating chamber J, and so on. In the lower half is suspended the shaking carbide basket A, the space below marked I being the lime dust receptacle. An ingenious feature of this generator is the introduction of the spring suspended tapping weight D which is seen mounted on a stem E and suspended from a spiral spring C. Road vibration causes the shortening and lengthening of this spring, with the result that the end of the stem E taps continually upon the trunnion hung carbide basket A, causing the dry hydrate of lime to shake through the netting into the receptacle I, so leaving the surfaces of the unspent carbide open and clear to the attack of the water. The *raison d'être* of the automatic regulating chamber J and its effect are best understood by the consideration of the accompanying diagrams (figs. 1, 2, and 3).

When water is poured into the chamber A it is obvious it will then pass by the tube E until it rises to the level of the needle valve seating F, when it will descend thereby as shown in fig. 1. If there is atmospheric pressure only in chamber C the water will pass freely thereto, but if, as in fig. 2, the chamber C contains calcium carbide, the water falling thereon will cause the generation of acetylene gas. The pressure produced in chamber C by such generation will, of course, be communicated to and will obtain in that portion of chamber B which is above the water level and acting upon the surface of such body of water will force part or the whole of it back into chamber A by the tube E. This will obviously lower the level of the water in chamber B, so that no more fluid passes to the carbide in chamber C by means of the needle valve orifice F. When the gas is allowed to pass from the chamber C to the lamps by the cock D, then the pressure within C and B is lowered, the water rises again in B, overflows the needle valve, and falls once more upon the carbide below to repeat the operation. As a matter of fact, the water in chambers A and B will take about the positions shown in fig. 2. The difference in water level between A and B, or the "head" of water, is then exactly equal to the gas pressure in B and C if both are measured, say, in ounces per square inch. If the cock D is closed altogether the pressure of gas will hold the water up indefinitely, and no further gas making will take place. Chamber B is called the automatic regulating chamber, and as long as carbide is contained in the carbide basket D (fig. 3) will perform the functions indicated, viz., govern the production of gas exactly in proportion to the demand, or when necessary arrest it altogether. When the tank is full as it should be this height is 4in. or thereabouts, which gives the proper working pressure for the burners.

It will thus be seen that the absolute simplicity of the Rushmore generator ensures its perfect and satisfactory operation, as, indeed, we proved in connection with our late car, a 30-40 h.p. Spyker, with which we used Rushmore lamps since February, 1907, until a couple of months ago. If light was required for only half an hour or so at a time even, the generator could be depended upon to work satisfactorily at intervals of several days on one charge of carbide.




A, shaking carbide basket
B, tapping weight casing
C, spiral spring sustaining tapping weight
D, tapping weight
E, tapping weight stem
F, metal diaphragm dividing water tank from automatic regulating chamber
G, water tank
H, riser tube between water tank and automatic regulating chamber
I, hydrate of lime (ash) receiver
J, automatic regulating chamber
K, needle valve stem
L, needle valve and drip tube
M, horsehair gas filter
N, milled disc on needle valve stem for turning
O, vent holes
P, gas valves
Q, lugs for attaching generator to car
R, butterfly-nut secured suspension rods connecting top and bottom halves of apparatus
S, filler cap
T, strainer and splash tube

Fig. 4.—A sectional view of the Rushmore generator.

# ON THE ROAD.

I had a chat with Mr. S. F. Edge the other day on the objects of motor racing, and I managed to get a happy definition out of him. We were discussing Brooklands, its use and value, the Four Inch Race, and competitions generally. I had been remarking that, for English purposes, 100 h.p. cars were not only of no use but that they had a bad effect on non-motorists, and lent colour to the popular notion that every car went at sixty miles an hour on every possible occasion. In assenting more or less, and agreeing that the late outcry against motors and their drivers seemed quite inexplicable, short of organised and interested opposition, he gave it as his opinion that there was absolutely no use or object in racing cars of such power that the drivers' chief duty lay in keeping their speed within bounds. But, he put it, where the power of the engine is so moderated that the personal element of skill and driving comes in, and consequently the best man and car wins, is a very different thing, and there is no doubt whatever that this new tendency is coming to the front very rapidly. He told me he was tired of pure pace at Brooklands, where at very high speeds what seems a flat smooth track is turned into a rolling bumping series of waves, where the chief art consists in knowing when to curb the car, and where the ultimate winner is probably the man who, letting caution go to the winds, manages to cheat disaster by mixing his coolheadedness with a big slice of luck. Undoubtedly cars could go even faster than they have, and records created at far higher speeds than now exist, but—for what purpose? We know quite well that engines and framework will stand such trials without harm, but that tyres will not, and a possible burst of the latter at a high speed can only have one result, with the accompanying howl against motoring that needs so little provocation. Anti-motorists have no business to point the fingers of terror at motorists for high speed when lessons are being learnt by means of it, but though to me anti-vivisectionists are the most foolish and short-sighted folk on earth, they would be quite justified if vivisectionists were to continue their experiments after the results they were striving for had been attained. Consequently I trust that manufacturers will be content with the knowledge that is common property, that all good cars of high power are capable of high speeds, and will turn their attention to seeing how sufficient power to drive ordinary cars can be confined in the smallest possible size and weight. Which, I take it, is the lesson the Four Inch Race has been drumming into competitors and non-competitors alike.

I know on the Continent it is still the fashion to ridicule English motors and motoring. And yet, at the same time, there never yet was a tendency here that was not sooner or later followed across the Channel. Our Tourist Trophy Race was sneered at in previous years, but—overgrown monstrosities were promptly barred in their own competitions. This year the Isle of Man race was looked on abroad as a *voiturette* struggle—next year, I read, in the Grand Prix, car dimensions will be governed by the capabilities of tyres to stand strain and speed. Which is another way of arriving at the same conclusion, for nothing has ever seemed more ridiculous to me than the necessity of proving the reliability of a car by demonstrating the unreliability of its absolutely necessary tyres. Tyres (I never can bring myself to spell the word in the correct and pedantic manner) are as much parts of the car as are the pump or the magneto, and to my mind the car that wears them out by a speed unsuited to them is wrongly constructed and designed. It is just as aggravating—more so if one is one's own driver—to be delayed by tyre trouble as by bad sparking plugs or a broken valve, and all the labour-saving appliances—bless them—such as Stepney wheels, detachable rims, and the like, do not really cure the evil, but rather postpone the arrival of the tyre that nothing will ever damage. If I were a rich man, instead of giving away libraries and institutions, I would endow a Tyre Research Scholarship, and I should then feel that very possibly my name would live and be honoured as a benefactor to humanity long after more unenterprising and unoriginal philanthropists and all their works had been forgotten. One has only to read in the papers to see how often tyre bursts are responsible for accidents and defeats. Also to realise how many new tyre ideas and patents are announced, never, perhaps, to see the light. One hears rumours of rings and combinations to suppress or buy up innovations and preserve the *status quo*. I do not suppose for an instant there is much truth in them, but popular impressions are very difficult to refute, and certainly covers are just as hard to get on and off as ever they were. I do not say they have not improved; on the contrary, they last much better than they used to, and are less susceptible to punctures. For proof, I have only suffered from one nail in the last 13,000 miles I have travelled; in earlier times I have picked up two in two miles and dozens in the year. But bursts and nips still are common, and no one with sense will deny that nowadays the weakest point of a motor car is its pneumatics. I will even go so far as to say it is the only weak point, and I do not think there are many who will disagree with me about this. Therefore, apart from humanitarian motives, specifications for races which treat tyres as a part of the car are to be welcomed, and, except from a purely spectacular standpoint, I cordially agree with Mr. Edge that the object in motor racing should be for the driver to get as much as possible out of a medium-sized car, instead of, as nowadays, as much as he dare out of an overgrown giant, without a certainty of breaking his neck if he lets the car do all it is capable of.

At the same time, driving round and round the mulberry bush at Brooklands has not anything like the same value as the driving of a car at useful speeds on such a course as the Isle of Man one, and abrupt turnings, hills, brakings, and corners will find out many weak points which hundreds of even and monotonous miles at Brooklands would never discover. The story of the race and the failure of so many good cars to complete the course proves its value as a test beyond a doubt, and now that the R.A.C. has by its success given the world to think furiously on the subject of concentrated power, let it go a step further, determine what measurements make for comfort, and hold a similar race for cylinders of even less capacity than those of the late competition. And, for the sake of the ordinary motorist, let one only spare tyre or wheel take the place of the fuel limit of the late T.T. Race. Then we shall see a very interesting and valuable contest, and one that will be beyond the reach of vindictive and indecent sensational and lying criticism.

OWEN JOHN.

# CONTINENTAL NOTES AND NEWS.

## The Road Congress.

International congresses are not as a rule productive of any immediate results, for the reason that the subjects discussed are of a far too comprehensive character, and the time available is too limited to allow of their being dealt with in anything more than a cursory manner. The usual procedure at congresses is to introduce a number of papers upon different subjects, which are summarised or rushed through against time, or even "taken as read," and as the discussion on each is restricted to twenty minutes or so, it happens that when one subject oversteps the boundary the others have to suffer, with the result that the conclusions only voice general impressions, which are not always confirmed by subsequent experience. Congresses, however, have the advantage of directing enquiry into certain channels by the passing of resolutions, which are amplified by a permanent committee into reports to be presented at future meetings. This was the case with the first International Road Congress, which was held in Paris last week. Inaugurated by M. Barthou, Minister of Public Works, the congress was very largely attended, the countries officially represented being France, Germany, England, Belgium, Spain, the United States, Russia, Holland, Italy, and Portugal.

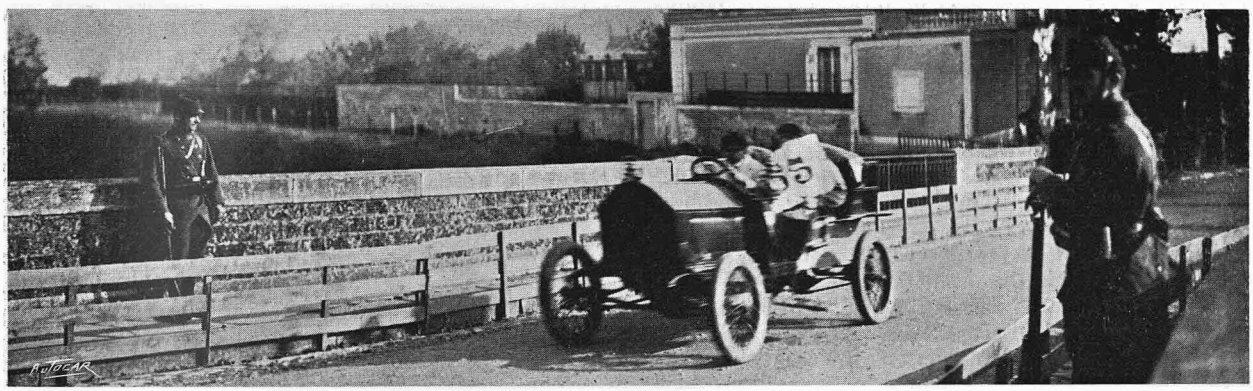
The programme was a very exhaustive one, and was divided into two sections, one being devoted to the construction and maintenance of roads and the other to traffic. Quite a large number of papers were read upon different methods of road construction, in which almost every possible variety of material seemed to be suggested; but in a general way the method preferred in France is the laying of small granite cubes in diagonal lines on a concrete foundation, while Mr. Brodie proposed that further experiments should be carried out with the binding of road materials with tar, heavy oils, or other similar ingredients. M. de Stolpakow stated that experiments were about to be made in Russia with clinkers, and other authors of papers proposed armoured asphalt, steel tracks on which the wheels run, such as exist in some parts of Germany, asphalt macadam, which is based upon the same system as that proposed by the English delegate, tiles, and patented materials of all kinds. Obviously it is easy enough at a congress for each author to bring out the advantages of his system, but in the absence of experience it is difficult to raise objections, for nothing but actual test can prove the duration of any particular kind of road. It would seem as if a far more practical way of dealing with this problem would be to select a road upon which the traffic is particularly heavy, and reconstruct it in sections of a few hundred yards according to the systems which appear likely to produce the best results. At the end of a year there would already be valuable data as to the relative cost and duration of the different systems of road-making, sufficient at all events to eliminate the least satisfactory methods and to extend experiments with those which give the best results.

Pending any definite information about the value of the different systems of road construction proposed, the French members were of the opinion that granite paving was the only practical method, but as this application is limited by its cost it is found necessary to make the most of macadam roads. It was somewhat surprising to see the unanimity with which the French favoured the tarring of roads. It was a great triumph for Dr. Guglielminetti, of Nice, who was the first to advocate the tarring system many years ago, and he has stuck to it, even against hostile criticism, which at one time appeared to be well founded. He was able to prove, however, that the failures were due to an improper application of tar, and now that the methods of using it are understood it is giving satisfaction. On one of the excursions the delegates were taken to the Bois de Boulogne, where the avenues have been tarred, and M. Boreaux, general inspector of roads and bridges, stated that prior to the advent of the motor vehicle the main avenue was only relaid every three or four years at a cost of 24,000 francs. As the result of the motor car traffic, however, the cost of keeping the avenue in good condition was from 24,000 to 35,000 francs a year. It was then decided to tar the road at a cost of 4,000 francs, and from that moment the cost of maintenance was reduced to a quarter. There appears to be no truth in the statements made some time ago that the tar dust has disastrous effects upon the vegetation. In the Rue de Prony the tar was first spread over the loose metals before being rolled, but it has not been down long enough to prove whether this system gives better results than laying the tar over the metals after they have been subjected to treatment by the steam roller. It is believed, however, that the spreading of tar over the loose metals will have the effect of binding them, whereby the surface of the road will be less liable to break up.

The character of the papers and the discussions upon them may be summed up in the following resolutions, which, however, were not approved of unanimously: "The Congress recommends the paving of roads where the traffic is very heavy, and considers that macadam should be abandoned in the immediate neighbourhood of towns; the Congress recommends the extended employment of mechanical means for sweeping and watering the streets, the watering to be done lightly and frequently; the Congress is of the opinion that the various dust laying solutions are only temporarily effective, and should be limited to special occasions; the Congress believes that the tarring of roads offers an efficient protection against dust, and, in a certain measure, protects the surface of the road against the destructive action of motor cars, and it is to be recommended for all roads where the traffic is heavy, especially in the neighbourhood of big towns where circumstances will not allow of the roads being paved.

As the main object of the Congress was to discuss the ways and means of building roads to support any kind of motor traffic, the question of doing anything to restrict this traffic should logically have been kept in the background, but, unfortunately, the perfect road, although it will be made eventually, does not yet seem to be near realisation, and so long as there are many thousands of miles of ordinary roads the traffic must necessarily be regulated to what these roads will support. A good many members of the Congress seemed to overlook the fact that it is by no means necessary to wait for new and costly methods of construction before improving the roads. This will, of course, have to be done in time, but meanwhile the art of road making for heavy traffic is so far improving that even the ordinary macadam road is being made capable of supporting much heavier loads. It seems, therefore, a serious error to limit loads and speeds to what the old

fashioned roads will bear, because, as they are relaid, a better foundation and more suitable binding material will transform them at comparatively little cost, and allow of their safely standing a heavier traffic. By taking the ordinary road as a basis of comparison, those who were responsible for the reports presented to the Congress laid down restrictions which would have seriously hindered the motor vehicle movement had they been adopted. This was especially the case with heavy vehicles. Public service vehicles and waggons, for example, were to be limited to an average speed of ten miles an hour, and the weight over the driving axle was not to exceed three tons. The wheels had to be shod with rubber tyres. For an average speed not exceeding six miles the weight over the axle was not to be more than four tons, and the wheels could have smooth iron tyres. As regards steam waggons and tractors, they were to be restricted to certain routes made specially for them. These suggested limitations were strongly objected to by makers, who saw that it would mean the suppression of a very large number of vehicles already in use, and, finally, the matter was referred to the next Congress, with a proviso that precise official data should meanwhile be obtained as to the speed, weight, width of tyre, and character of tyre suited for particular kinds of roads.



CHATEAU-THIERRY HILL-CLIMB. The victorious four inch Darracq car which made fastest time of all the four-seated cars irrespective of class.

### Resolutions of the Congress.

The following resolutions adopted at the closing meeting summarise the general opinion of the Congress, and are interesting in the sense that they place the problem of road construction and motor traffic on a basis which will facilitate further discussion in the future. In the opinion of the Congress, the road should fulfil the following conditions:

1. In cases where motor traffic is not exceptionally heavy, the existing highways may be made suitable by maintaining them in the way already suggested—that is to say, by treating the surface by tarring or other processes, and improving the foundations whenever the roads have to be relaid.

2. When roads have to be reconstructed, they should be made of a hard and strong material, solidly bound, and of such a character that the vehicles will not slip upon them in wet weather; the width should be proportionate to the amount of traffic, with a minimum of six metres; they should have the minimum amount of camber compatible with the drainage; the gradients should be as slight as possible, although it may be preferable in certain cases to increase the gradient in order to avoid sharp curves; the curves should be as large as possible, with a minimum radius of fifty metres, and should be connected up with the straight stretches by parabolic arcs; the corners may be raised, although not to such an extent as will interfere with the traffic of ordinary vehicles, while on the inside there should be a small pathway on which it will not be allowed to place heaps of stones or other material; the corners, as well as cross roads, should be made very visible; level crossings should be suppressed wherever possible, and in any event should be easily visible at a distance, and be marked with a luminous signal at night.

3. It is also recommended that cycle paths and horse tracks should be made along the side of the road wherever they may be useful.

As regards the effects of motor traffic upon the roads, it is stated that fast cars have what may be described as a grinding effect on the road, in the sense that the tyres tear up small particles of the surface, and this destruction increases with the speed, sudden starting, and braking. In turnings this destruction is increased by the action of the centrifugal force added to the tangential effort due to the speed.

On fast cars it is desirable to reduce the destructive effect of the tyres as much as possible by employing supple treads, or where non-skids are employed the rivets should be rounded off, and should extend from the tread as little as possible. In the case of heavy vehicles, the iron tyres, where used, should be as smooth as possible, except in certain special cases. It is also proposed to limit the total weight carried by waggons and lorries, but upon this point the Congress did not deem it desirable to fix any definite limitations pending the further enquiry upon the effect of heavy vehicle traffic upon the existing roads.

A pronouncement was also made upon the question of road signs. At present the different touring and automobile clubs employ signs of their own, and they have made them as numerous as possible to provide for every possible contingency. It has now been decided to cut all these signs down to four, to indicate: (1) An obstacle across the road. (2) Winding roads. (3) Level crossings. (4) Dangerous cross roads.

The various conclusions arrived at by the Congress are not, of course, intended to be carried into immediate effect. They will be developed by a Permanent International Association of Road Congresses, of which the constitution was decided upon last week. This Association will be administered by a Permanent International Commission composed of the presidents and vice-presidents of the different sections at the first Congress, and this Commission in its turn will be

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administered by a Permanent Bureau, in which each country will be represented by one or two members of the Permanent Commission. The work of the Bureau will be prepared by an Executive Committee in Paris composed of M. Lethier, general inspector of roads and bridges, president; M. Baillif, president of the Touring Club of France, vice-president; and M. Mahieu, engineer of roads and bridges, secretary. The next Congress will probably be held in Brussels in 1910.

The proceedings last week were varied by a number of excursions to inspect samples of roads in Paris and the neighbourhood, and finally the members were conveyed to Nice, where local motorists placed cars at their disposal for an excursion to Monaco, where the Congress officially came to an end. The members are satisfied with the work done at the first Congress, and are more than pleased with the way they were received in Paris and elsewhere.

### Grand Prix Size and Weight.

Everything points to the fact that the meeting of the International Commission being held in Paris this week will be the most important gathering of its kind. The discussion will certainly be a long and arduous one, especially upon the question of rating for the Grand Prix cars. By fixing a maximum bore of 140 mm. for four-cylinder engines and a minimum weight of 900 kilogrammes, the Automobile Club of France finds itself confronted with a coalition of all the other clubs. To put the matter succinctly, France is still in favour of running purely racing types of machines which will allow of the highest possible speeds being attained, while the foreign clubs prefer to identify the racing cars with touring vehicles as much as possible, that is to say, they want to bring down the engine dimensions and weight to within the limits of those practicable for big touring cars. So far as the technical interest of racing is concerned, the results will be the same, and instead of having powerful monsters left on their hands makers would have a very good chance of selling their vehicles, since they would represent what are really improved types of powerful touring cars, although it may be doubted whether the improvement would always be of a practical character. On the other hand, the French fear that as racing is intended primarily to advertise the industry the first thing to be done is to awaken the keenest interest among the general public, who know nothing about motor mechanics and care even less, and the only thing that will attract them is the spectacle of a large number of cars racing at the highest possible speeds. There is no doubt at all that the French point of view is the wrong one, for it is doubtful whether races ever do anything in the way of increasing the sales of cars among the general public, and those who own cars, or intend buying them, are much more interested in the mechanical problems as illustrated in the running of the cars than in mere speed. Nevertheless, the French are determined to adopt their own rating for the next Grand Prix, and will do their best to over-ride all opposition from the other countries who are preferring bores of 120 mm. to 130 mm. with a minimum weight of 1,000 kilogrammes. This is all the more singular because, if the French really place any value in the arguments they put forward to explain their defeat at Dieppe, they have every interest in adopting the smallest bores.

LATER.—It was decided by the Commission that the maximum bore should be 130 mm. and the minimum weight 900 kilogrammes—that is, bore 5⅛in. and weight approximately 17¾ cwt.

### The Chateau Thierry Hill Climb.

The annual hill-climbing contest at Chateau Thierry on Sunday was successful from a public point of view, because the population of Chateau Thierry is quite large enough to line the gradient with a big crowd, but it cannot be said that the meeting was at all interesting, since there were very few performances that were noteworthy, and no records were broken. This, however, does not prevent the organising journal from describing it as a magnificent success, while the rival paper declares it to have been a complete failure. It was at least successful as a means of advertising the organising journal as well as the town of Chateau Thierry. As was the case at Gaillon, the foreign cars again showed up prominently, the best time on the kilometre gradient being accomplished by Joerns on an Opel car in 44⅕s. The Darracqs, with a smaller bore, did the next best time in 50⅗s., and then came the Laurin-Klement with a still smaller bore of 90 mm., which only took 55s. The Imperia cars also did well, their times being 56⅖s. and 58⅗s. An interesting competitor was the René-Legros car, with its two-cycle, two-cylinder engine, which ran with remarkable smoothness, and showed a great deal of flexibility. Its time for the kilometre was 2m. 12s. As is usually the case in meetings of this kind, there were almost as many winners as there were competitors, for the categories were so numerous that most of them only had one car competing.

## SIR W. S. GILBERT IN THE TOILS.

Sir W. S. Gilbert, J.P., the well-known dramatist, author of "H.M.S. Pinafore," "The Pirates of Penzance," etc., has been held up by the police while motoring near Hatfield. Sir W. S. Gilbert has expressed his very natural indignation in a letter to the *Daily Telegraph*. He was stopped, his driver's license examined, and in all he was detained five minutes, during part of which time the police held a whispered consultation, finally informing him that he had been timed over a certain stretch of road, and that if he had been found to have exceeded the legal limit he would be summoned.

Even in Sir W.S. Gilbert's case it is not impossible that the police timing may result in a summons and a fine. That being so the fact of his being a Justice of the Peace, known to have been more than severe in many motoring cases that have come before him, should make his punishment more severe. Regrettable as this will be—for who can doubt Sir W. S. Gilbert's testimony as to his speed?—so dire an experience may serve to temper his judgment and excite his compassion when motorists are in future haled before him on similar trumpery charges. It is within our recollection that there has been at least one occasion when Sir W. S. Gilbert was far from tempering what he imagined to be justice with mercy. This was a case in which he and the only other magistrate on the bench with him at the time refused a polite request for adjournment, and insisted upon hearing the case in the unavoidable absence of principal and advocate. A heavy fine was inflicted, which, had Sir W. S. Gilbert had his way, would have been heavier still.

# SMALL CAR TALK. By Runabout.

### Cars for Medical Men.

I am an ardent motor evangelist, and I make non-motoring medical men my special prey. I was considerably astonished by the last prospective convert I marked down for conversion. The inspiration for my sermon was the confession that, apart from his annual holiday, he never had a moment's leisure or recreation. The text was the admirable service of certain Humbers and Argylls in the hands of his local *confrères*. I sowed good seed on barren ground, and his contentions may be summarised as follows:

(*a*) I don't want to sit side by side with my chauffeur, for it consorts ill with my strict professional dignity.

(*b*) I want to be shut up by myself in the rear part of a closed landaulet, so that I can study my street and call lists and review the case I am going to without being distracted by watching the driving of the car.

(*c*) I insist on being able to dismount on either side of the car. My average number of daily calls is 120. If I used a car which I had to board always on one side I should have to walk about 300 extra miles per annum, and I should often get dirtied, as some of my patients live on muddy, unpaved roads.

(*d*) I want a car no bigger than my Victoria. Dr. —— and Dr. —— are going their rounds in cars big enough to take their entire families and luggage on a month's tour anywhere, with the inevitable results of increased cost in upkeep.

### The Specification.

These remarks made it plain that my convert's desires tended towards a modified type of taxicab, and that there was nothing on the market which quite met his special views. Of course, many doctors prefer a vehicle that will serve their families for touring in holiday time, but it is at least probable that many other would-be medical motorists share his views, and so I venture to give them: A short chassis with big steering lock to facilitate turning in suburban streets; a four-cylinder engine, essential for quietness; driver to sit above the engine, therefore no bonnet; small, closed rear body. It appears to me that the nearest approach to this specification I have seen would be found in some of the earliest taxicabs put on the London streets, except that they had only two-cylinder engines. If a car on these lines could be marketed cheaply, it might draw a great number of the smaller practitioners into our ranks. We have already learnt that the light, four-cylinder, touring side entrance car, with Cape hood and glass screen is not irresistibly attractive to the G.P. as a class. In fact since the Renault cabs gained their popularity in town, I have known several doctors sell their own cars, and perform all their journeys on the little red taxies, and this not because they disliked ownership, but because they liked the taxi type of car, and, owing to the big contracts outstanding for public service companies, found themselves unable to secure duplicates for personal possession.

### The Disadvantage of Two Speeds.

Just as four speeds are better than three on a big car, so are three speeds better than two on a miniature vehicle. The makers of two-speeded cars usually assert that the intermediate gear is not missed in climbing hills, because their transmission is so efficient on the top gear that their car can climb on top gear practically every hill on which a three-speeded car of equal power would call for second gear; this is very often true, especially with an epicyclic gear and a direct chain drive. But as a general rule, when a designer plans a two-speeded car, he sets his top gear ratio at a lower figure than the top gear of a three-speeded car, simply to counteract the absence of a second gear in hill-climbing. Consequently this mode of reasoning is slightly dishonest, for a low top gear ratio means that the engine must be raced to obtain the car's faster paces on the flat, and racing a small engine means vibration. However, in this connection it must not be forgotten that the two-speeded car generally possesses certain compensations of its own. Other things being equal, it is bound to be cheaper than a three-speeded car, and its gear is likely to be epicyclic, which is the easiest type of gear for a novice to change without injury to the mechanism. Thus if we were ready to pay a high price for a small car, we should expect three speeds; but if we were limited to a low price, we should find nothing to complain of in only two. A three-speed gearbox does not carry with it a special ability to surmount abnormal hills; the low gear of two-speeded cars is usually as low as the third gear of a three-speeder.

### The Lubrication of Small Cars.

I always think a small car is twice as interesting to drive as a big one, for the simple reason that one never has much power in reserve, and whether one is climbing Birdlip or trying to coax the car up a long gentle grade on top or on second, one is always necessarily intent upon getting the last ounce of pull out of the engine; the small car driver cannot repair an instant's inattention by making a throttle lever screech lordly around a huge quadrant. This maxim applies particularly to lubrication. He cannot sit at his wheel and scan scenery or flirt with a fair passenger, serene in the consciousness that somewhere in the entrails of his engine an ingenious little pump is forcing a precisely apportioned dose of oil to each working part. He is merely provided with a tank and a pump. Most small car men, I fear, go on the principle of a charge every so many miles, and every now and then an extra pumpful for luck, with the result that the crank case is first flooded for five miles, then accurately supplied for another five, and finally gradually drained down towards starvation for the concluding five. "Little and often" is far away the best principle on which to handle such crude devices as the owner of a cheap car must perforce be content with; and rather than keep the tail of an anxious eye perpetually scanning the nettlesome hedges for milestones, I prefer to lubricate on the time system. My little car clocks off its twenty miles in each hour on all ordinary roads. If I followed the makers' instructions I should supply a pumpful every ten miles. But my notions of distance are rather imperfect, and so are most men's. As a result, upon this system nearly every driver's conscience will occasionally arise and smite him—is it not fifteen miles since he lubricated? Result—over-lubrication. Thus my plan is to fix a clock on the dash, and in ordinary running to feed in one-half charge every fifteen minutes. This undoubtedly suits the engine better than a whole charge every half-hour, and the clock is always in view, whereas the milestone is often missing or obscured by weeds.

# A NON-STOP RUN OF 550 MILES.

## FROM COVENTRY TO LOCKERBIE AND BACK TO LONDON ON THE NEW SLIDE VALVE DAIMLER CAR.

No car in recent years has provoked greater interest in the automobile world than the 38 h.p. (124 × 130 mm.) Daimler fitted with the company's new slide-valve engine, so that when the news came that it was decided to drive this interesting vehicle on a long run in which the engine was to be kept working continuously, we were interested in that a means was to be found towards removing at least some of the prejudice which is now so rife against this unconventional motor. For some time recently the car has been running consistently for about 200 miles daily, and it was almost by accident that someone suggested that a twenty-four hours' run should be undertaken. Originally the idea was to carry out the test privately, and to run from Coventry to Glasgow and back, but happily *The Autocar* was invited to witness the test, and so we offered the suggestion that it would be a good thing to end the journey at that hub of the motoring universe, the Royal Automobile Club, just previous to the reading of Mr. Knight's paper. This resulted in the original programme being modified, and it was arranged to drive from Coventry to Lockerbie—a Scottish village some twenty-six miles north of Carlisle—and back to London, about 550 miles in all. On Wednesday night last week the car stood ready for the road in the Daimler Co.'s running shed. Two Rudge-Whitworth wheels prevented ingress through the sidedoors, and in the space at the back usually called leg room a huge petrol tank was placed, which effectually prevented this part of the body being used for the purpose for which the coach-builder originally intended it. The four running wheels and the two spares were shod with Continental tyres, and on these the success of the run largely depended.

The new engine, without any visible sign of valves, was ignited by a Bosch magneto, and the well-known Daimler synchronised ignition system, and was fed by the company's new three-jet carburetter. The rest of the chassis, which was a 38 h.p. live axle model, presented no other innovation save the fitting of a separate ignition lever, while it is also interesting to note that, beyond a special drip feed to the slide valves, which performs the duty of the old Daimler cylinder wall drip, there was nothing to call for any comment in the lubrication system, which still consists of the three glass bottles on the dash. As regards lamps the usual Daimler practice of carrying two Vandervell electric side lamps and an electric tail lamp was adopted, while two Lucas Duplex headlights, self-contained and with projector lens (one in use and the other as a spare), and a lamp of foreign manufacture, served to light the road. The separate generator lamp soon gave up work, but the two Lucas lamps afforded an excellent light and were not the slightest trouble.

The car in its sombre coat of workshop grey, with wire wheels, and three headlights (one strapped on the step), the absence of hood and luggage, looked thoroughly suited for its long journey. At the word to go it glided from the brightly lit works out into the silent night. To one who had not heard the engine run before, its sound may be described as a muffled whisper. There is nothing but a gentle murmur almost drowned by the suck of the air into the carburetter. When under load the murmur grew a little louder and the note of the carburetter slightly more distinct; then the rush of air caused by the increased speed devoured all other sounds save the quiet hum of the driving bevel.

THE TWENTY-FOUR HOURS' RACE. A view of the grandstand and the track at Brighton Beach, U.S.A., from the Club House, taken at night whilst the race was in progress.

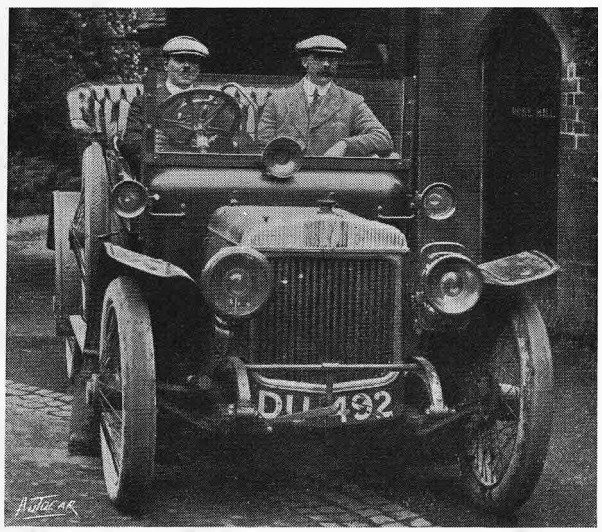
The Birmingham road was soon reached. On into the night we sped, swiftly and silently, through Allesley and Meriden on to Stonebridge, where, turning to the right, we struck that excellent and useful loop road which leads through Coleshill to Lichfield, thus avoiding busy bustling Birmingham, the hub of the Midlands. At times waves of mist floated across right into the eyes of the two skilful drivers, Ison and Bush, who in turn took a two hours' spell at the wheel. Nothing daunted they slowed through the treacherous fog and drove on again when all was clear. Twice in a few miles the road was missed, only to be regained again quickly by the two men, whose bump of locality was clearly well marked. Fortunately, the night was fine and wonderfully warm for the time of the year, and driving was considerably facilitated by a bright moon, which though at times hidden by clouds, rendered it quite possible to maintain the legal limit. Its dim light silhouetted the graceful spires of Lichfield Cathedral against the sky, and leaving that city we

journeyed on to Newcastle-under-Lyme, where, through some unaccountable error, we took the wrong turning and reached ———, thus adding some six more miles to the long journey. Only one individual was to be seen, a worthy policeman, who, stout stick in hand, mounted guard over the sleeping inhabitants. Of him we asked the way, and his instructions seeming somewhat complicated, and on his confessing that he also was going in our direction, he looked carefully round, satisfied himself that no wakeful inhabitant of the place (which for his sake shall be nameless) was watching, seated himself in Bush's place, placed his cudgel between his knees, took a proffered bottle by both hands, and warmed his soul with its invigorating contents. The attitude shown in profile against the moonlit sky was worthy of reproduction in *Punch*. Having brought us to the right road, and enlivened by the ride, and perhaps also made happy by Ison's hospitality, he saluted and bade us good night. One little incident almost spoilt the trip.

A few miles further on Bush, who was driving either through the mist which at times drifted across the road in patches or through the uncertain light of the moon, took the left of two roads, one which, strange to say, led to a railway yard, and, perceiving his mistake, but not the fact that a four-foot bank separated him from the main road, took the former at a leap, made the car stagger, but brought it up skilfully and safely under the railway bridge, doing no further damage than waking the writer, who had just settled himself for the night. One fact which speaks well for the car is that the writer, who, though he has some hundreds of thousands of miles to his credit, and has never before been able to sleep on a car, was able at times to doze quite comfortably. At Holmes Chapel the proper route was joined, and the bumpy roads of Warrington soon brought us back to consciousness. All along the route to Wigan and beyond the mist was exceptionally trying, as the car had to be slowed considerably, and much time was lost.

Once through Preston the objectionable manufacturing district was left behind, and a clear, good road led us farther northward. The worst of the journey was over, and a faint glimmer in the east showed that dawn was approaching, and the terrors of the night and the fog, which made them worse, were over. By the time we had reached Lancaster it was light enough to see clearly, but just dark enough to show up the lurid picturesque glare of the ironworks at Carnforth. On from Lancaster through Kendal and Carlisle right up to Lockerbie the road was splendid, and as the day grew we could learn more clearly of what the car was capable. On the level, straight road, deserted at this early hour, it sped along at a speed which would be more than ample for the average individual, while as regards hills, *experto crede*. Shap, one time the terror of the low powered car, was climbed at a splendid pace on the direct third. None of the other hills counted; they were literally non-existent, and are consequently forgotten. Throughout the journey only the fourth and third speeds were used, the others only being employed at starting. Once through Carlisle it did not take long to cross the border and reach that famous village Gretna Green, now pandering to the tripper with a prominent notice, "This way to the original blacksmith's shop." But neither the car nor its occupants needed the blacksmith, so, true to the words of the old song, that "we left behind," sailing on swiftly and silently through Ecclefechan to Lockerbie, our destination. Here we turned round in the market place, and, pointing the car's nose southwards, stopped for about twenty minutes to replenish the lamps and the Thermos flasks for the return journey.

Throughout the run little or no time was wasted by stopping; rarely did the interval exceed three minutes when the drivers were changed, and meals were taken while the car ran on. The return journey was uneventful, save for Carlisle, where the number of droves of cattle encountered was little short of extraordinary. Preston, Wigan, and Warrington looked their worst in broad daylight. Paved with badly kept cobbles, thronged with poorly regulated traffic, and connected by bumpy roads surrounded by hideous colliery-blackened country, they seemed like a bad dream to the tired occupants of the tireless Daimler. (All this objectionable district can be avoided by those living in Southern, Central, and Eastern England.) This time, in broad daylight and magnificent weather, no mistake was made in the

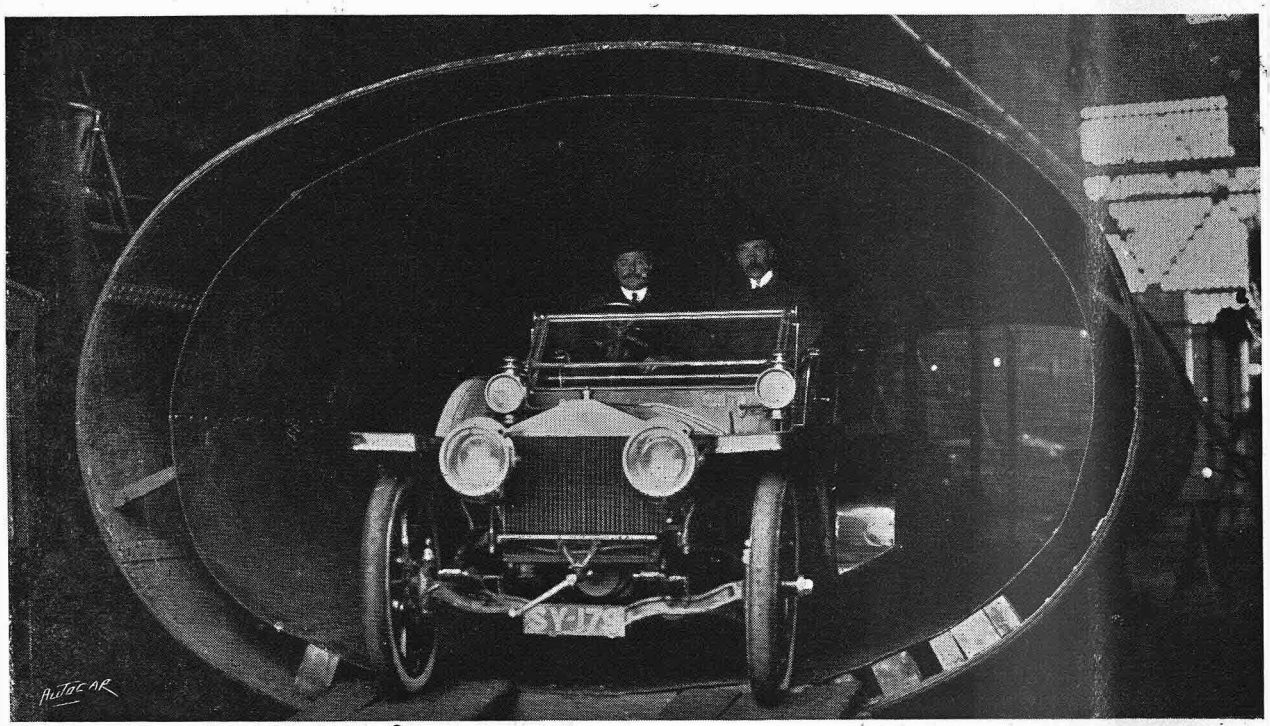



The Daimler car which made the non-stop run. At the wheel is Ison, accompanied by Bush.

route, and the correct road through Holmes Chapel and Knutsford to Newcastle was followed. Coventry was reached again, and there the glorious Holyhead Road was joined; both drivers knew this splendid thoroughfare like a book, and little time was lost during this part of the journey. At Weedon it was too dark to see, and the trusty Lucas headlight was again put into requisition to light the road. From Coventry to London the fourth speed sufficed. Hills we knew so well—Brick Hill, the hill before Hockliffe, Dunstable Cutting, and Ridge Hill—were all taken without a falter. The time passed quickly, the lights of London appeared, and swiftly and silently, guided by the masterly hand of Ison, the car sailed through the traffic and pulled up at 119.

It was over, this glorious ride. Tired, unshaven, and travel-stained, we entered the Club. On his way from dinner to the smoking room to read his paper Mr. Knight himself was in the hall. "Say, Orde," he exclaimed in the Transatlantic vernacular, "here's *The Autocar* man; the car's outside." Orde stared; he looked at us, then looked at Knight, and said, "What car?" "Why, *the* car; it's done its twenty-four hours' non-stop." "What! the car with *the*

engine," replied the worthy Secretary. "Come along, come along, we will all go and see it." Out into the street they trooped, but into the warm and welcome Club premises we gladly stepped to remove the traces of this wonderful journey and enjoy a well-earned dinner. From Wednesday evening until about 8.30 on Thursday evening the silent slide valve (it is not valveless) Daimler engine ran, and not only ran, but ran magnificently and without a falter. It not only worked, it continued to do so, and worked really hard. It did what it was required to do, and did it well. It was never touched—an oilcan even was never used on it—and as regards efficiency it leaves nothing to be desired. The question is, Will it wear? Mr. Knight said it was silent, and he spoke the truth; he said it was efficient, and it was; he said lubrication gave no trouble, and it gave none. He said also it would not show signs of wear, and on this vital point we think Mr. Knight will leave us no doubt as to his veracity.



A six-cylinder Rolls-Royce car in the funnel of Commodore Plant's new yacht *Iolanda*, 1,817 tons. The *Iolanda* is one of the largest steam yachts, and was built by Messrs. Ramage and Ferguson, Ltd. Mr. Ferguson is seen seated at the wheel.

## LATEST HUMBER DEVELOPMENTS.

Our readers have from time to time been informed of the remarkable expansion of the Humber works at Coventry. Enormous buildings have been erected and splendidly equipped offices in the suburb of Stoke, which is within a mile of the old Humber works. Under the roof of this new building the most up-to-date machinery has been installed under the personal supervision of Mr. Walter Phillips. The large works and offices are capable of accommodating the whole of the Humber employees, both the Beeston staff and the Coventry staff having been transferred thither. Under the progressive policy of Mr. Walter Phillips, in conjunction with Mr. T. C. Pullinger, we may look for great developments in the production of Humber cars. For 1909 the company are producing a 30 h.p. six-cylinder car, a 28 h.p. four-cylinder having an engine 100 mm. bore by 150 mm. stroke, and a 22 h.p. four-cylinder car with a 90 mm. by 140 mm. engine, this being practically a new car on the old 20 h.p. lines. On all the Humber models special attention has been paid to the development of a maximum horse-power for the size of the engine, to economical petrol consumption, and lubrication—features which allow of running the engine either fast or slow without the emission of smoke. In addition, we are assured that the material and finish of Humber cars will be better than ever before. A 20 h.p. car will be made which is practically a replica of the old Beeston Humber. Next there is the 15 h.p. car, which has become so popular as to necessitate its production in large quantities in the past; then a 12 h.p. four-cylinder car with cylinders cast in pairs—the only Humber model at present made on these lines. To cater for the man with moderate means the Humber Co. will introduce an 8 h.p. two-cylinder car with a 90 mm. bore and 140 mm. stroke. This will be a two-seated vehicle, furnished with the best type of ignition and 760 by 90 mm. tyres. The chassis of this car can be used for a four-seated cab with the same engine and gear box, but with back axle similar to that of the 22 h.p. car.

# Motor Union Notes.

*(Communicated by the Secretary.)*

Acting upon a suggestion to the General Committee at the Oxford Meeting, the Union has instituted inquiries as to the prevalence of false or unauthorised number plates.

◇ ◇ ◇ ◇

Danger signs and notices have been sent during the past week to Rottingdean (Sussex), Syderstone Parish Council (Norfolk) for the Sandringham Road, the surveyor to Ashbourne Council, and to the surveyor to the Kent County Council. In connection with the latter sign, which is for erection near the school in the village of Nettlestead, the Rev. W. F. Cobb, the rector, writes: "I desire to return my best thanks for all your courteous kindness in the matter." The only access and egress for the school children is on the road, and there is a corner concealing the school from drivers coming from Tunbridge Wells to Maidstone.

◇ ◇ ◇ ◇

Without leaving the court the Reigate County magistrates on October 10th unanimously dismissed a summons alleging that Dr. A. E. Porter had driven his car at the rate of thirty-four miles an hour. Mr. W. Triggs Turner, the Union's solicitor at Guildford, in the words of Dr. Porter, "defended in a very able manner, and convinced the bench that an error had been made in the timing methods." Dr. Porter was fortunate in having by his side a friend interested in speedometers, and who was watching the one fitted to the car throughout the journey. The speedometer was afterwards tested and found correct. A weak point in the police case was that the second man did not wait until the car had reached the end of the distance before giving his signal. The car was carrying the Union's badge, and the case will come before the Legal Cases Committee for grant of half the legal costs. The member proposes to remit one guinea to the Legal and Legislative Defence Fund.

◇ ◇ ◇ ◇

A Grimsby member complains that the level crossing gates on Weelsby Road, Grimsby, are now closed all day Sunday, instead of being closed only when trains are passing. Only two trains in each direction are scheduled, and the crossing is on the main road from the western part of Grimsby to Cleethorpes. It is the main road from all towns to Cleethorpes, the popular seaside resort. The matter will receive attention from the Highways Protection Committee. Motorists are invited to acquaint the Union with instances of delay elsewhere, so that the particulars may be included in the case to be submitted to the Board of Trade on the railway crossing question.

◇ ◇ ◇ ◇

The following is an extract from a letter dated October 15th from a member at Newcastle-on-Tyne, and relates to the purchase of a car for use in his medical practice:

> "I am glad to say that the firm has settled the matter on the terms you recommended me to offer. I am very much obliged for all the trouble you have taken and the valuable advice the Union has given me."

◇ ◇ ◇ ◇

The Motor Union medal voted to the A.C. of North Wales, and won by Colonel Sandbach, has been duly engraved and forwarded. The medal awarded to the Blackpool and Fylde A.C. for to-day's gymkhana was despatched last week for exhibition.

Mr. A. A. Jones, of Swansea, acknowledging the receipt from the Union, under the badge scheme, of a cheque for half of the expenses he incurred in defending an unsuccessful summons, writes:

> "The advantage of being a member of such an excellent organisation as the Motor Union is exemplified by the consideration shown me by your committee, and will not be forgotten by me in doing at all times what I can to further the cause of automobilism in general and the Motor Union in particular."

◇ ◇ ◇ ◇

An additional port of entry for motor cars and cycles on the western coast of France has been sanctioned by the French Government, namely, La Rochelle-Pallice, situated about midway between St. Malo and Bordeaux. La Rochelle-Pallice is a port for the mail steamers of the Pacific Steam Navigation Company, Liverpool. In the course of a few days the Union will announce the arrangements made for the passing of cars for members by one of its agents.

◇ ◇ ◇ ◇

The "Digest of Motor Traction Cases," published by the Legal Committee of the Union, is thus referred to by Dr. E. F. Bindloss, hon. sec. of the Cambridgeshire and Isle of Ely A.C.:

> "At a meeting of the club I submitted a copy of the recently-published 'Digest of Motor Traction Cases,' the utility of which was at once recognised, and I was instructed to order fourteen copies, and supply each member of the committee with one."

An application was received last week for a copy from a solicitor at Perth, Western Australia.

◇ ◇ ◇ ◇

The Secretary represented the Union and the Sussex County A.C. at the Newhaven speed limit inquiry recently. He stated that the application was of a more reasonable character than those usually put forward, and he was prepared to agree to a ten-mile limit for about half a mile of road through the town. He strongly objected, however, to the proposal for an eight-mile limit. The view of the Union is that the introduction of varying limits of speed is not desirable.

◇ ◇ ◇ ◇

Many provincial readers may not be aware that at the offices of the Union a room is set apart for the use of members. Motoring periodicals and facilities for writing are provided. Members may dictate their letters to a shorthand typist, and have their correspondence addressed to the offices. There is also the nucleus of a library, to which the Cable Printing Co. has made the latest addition with a copy of "The Car to Buy."

◇ ◇ ◇ ◇

Additional contributions to the Legal and Legislative Defence Fund were received as appended between October 8th and 16th:

£5.—H. B. Winterbotham, Esq., J.P.
£1 1s.—J. Hastings Brown, Esq.
10s.—S. MacLean, Esq.

The first mentioned contribution is from a member of the Bristol and Gloucestershire A.C., whose driver was recently successfully defended by Mr. W. A. Roberts, solicitor, instructed by the Union. Non-members may be reminded that from this fund grants are made for appeals and cases of importance to motorists generally. The two sums of £2 1s. which appeared in the last issue should read as two of £1 1s.

◇ ◇ ◇ ◇

*The Motor Union. Chairman, W. Joynson Hicks, M.P*
*1, Albemarle Street, London, W. "Speedway, London" 9090 Gerrard.*

## NEW NON-SKID APPLIANCE.

A very simple and at the same time inexpensive non-skidding apparatus which bids fair to be most effectual in use is about to be put upon the market by Messrs. A. W. Gamage, Ltd., of Holborn. It takes the form, as shown in the accompanying illustrations, of a double leather sling, slung from the carriage springs by two spiral springs, and carrying at its lowest point a stiff bevelled leather shoe, which is practically a section of a non-skid tyre cover. The operation of the apparatus is obvious. At the slightest side-slipping or swaying of the rear portion of the car to the right or left, the left or right slung skid swings outward, thrusting the bevelled edge of the non-skid shoe beneath the rubber tyre, which tends to mount thereon, effectually arresting further slip. We are informed that this apparatus has been for some time fitted to a small motor brougham with plain tyres, the property of a friend of Messrs. Gamage's General manager, and since this has been done this vehicle has been used over the greasy London roads with absolute safety.

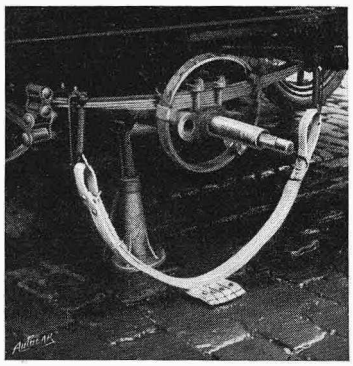


Fig. 1.—Non-skid sling in position with wheel removed. The facility with which the sling can be attached and detached is obvious from the illustration.

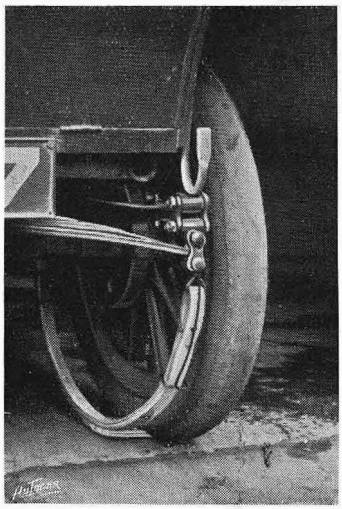


Fig. 2.—Shows the non-skid appliance in position on a car. The non-skid shoe is here shown underneath the wheel in the act of arresting a side-slip.

## SPEED LIMIT APPLICATIONS.

Darwen magistrates have forwarded to the Town Council a recommendation to fix a ten-mile speed limit for all motor cars running within and through the borough, with the further recommendation for a five-mile speed limit for cars approaching the immediate neighbourhood of the Circus.

The Conway Corporation has applied for a ten-mile limit for a number of streets.

The Ilkley Council has asked the County Council to apply for an eight-mile limit within a radius of one mile of Brook Street.

The Northallerton District Council has requested the County Council to make application for a ten-mile limit for cars passing through the town.

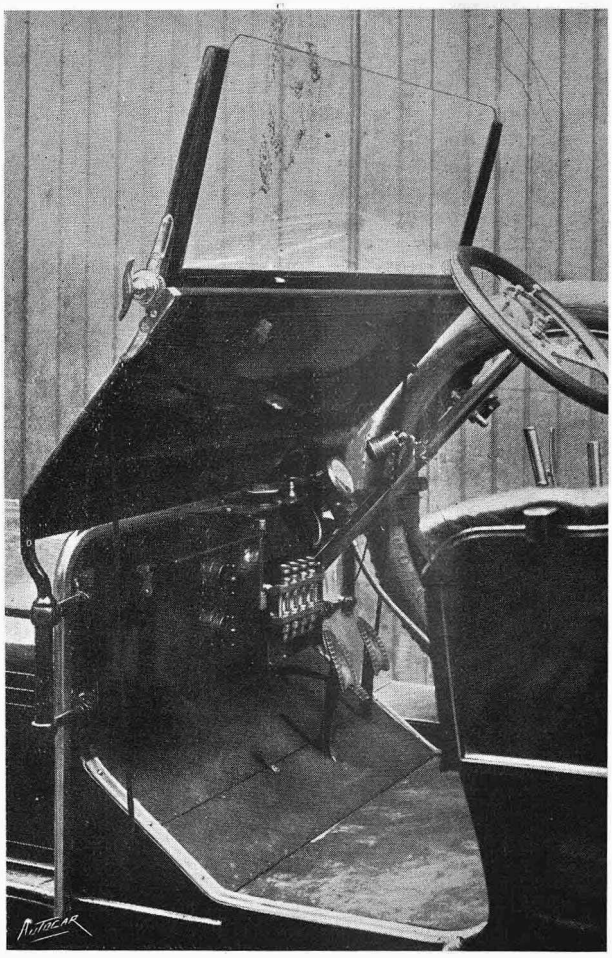
The Guildford Rural Council is drawing up a memorandum to the Local Government Board in support of a speed limit in a number of villages.

## R.A.C. ASSOCIATES DEPARTMENT.

The next meeting of the R.A.C. General Committee will be held on Thursday, 5th November, at four o'clock at 119, Piccadilly.

The secretary of the Club (Mr. J. W. Orde) reports that further communications have been received from provincial clubs notifying their adherence to the scheme devised by the Club for the suppression of inconsiderate driving, whether amongst members or not.

The secretary further states in his weekly report that for some time past a need has been felt for the provision of motor car accommodation for associates in the West End of London in proximity to the headquarters at 112, Piccadilly. It has been impossible to afford accommodation at either of the R.A.C. motor houses, as the resources of both have been entirely taken up by members of the Club, who have a prior claim. Special arrangements have now been made for associates with the Motor Supply Co., Ltd., which has opened a large motor house in Brick Street immediately behind the associates' headquarters and adjoining the Club's premises.



The above illustration shows an inexpensive and efficient wind screen constructed by Messrs. Melhuish and Co., motor body builders, 108, High Street, Camden Town. Unlike some cheap screens which have come under our notice, it does not rattle, and is soundly constructed. The lower portion consists of a mahogany frame to which patent leather, enamelled on both sides, is attached. By means of adjustable screws the upper part may be set to any angle to suit the driver's convenience. The appearance of the screen is by no means unpleasing.

# THE N.E.C. SPRINGING.

**A UNIQUE FORM OF SUSPENSION WHICH MAKES THE RIDING OF THESE CARS MOST LUXURIOUS.**

N.E.C. stands for New Engine Car—a distinctive title which in no way conveys the least appreciated attribute of what we have no hesitation in describing as one of the most luxurious self-propelled vehicles we have ever ridden in or driven. But, having regard to the fact that the engineering genius of the New Engine (Motor) Co., Ltd., Mr. Mort, has from the earliest moment of designing this car set himself the task of producing an automobile entity which should combine the maximum of luxury with every attribute of a practical road carriage, it would have been hard indeed not to have succeeded. And that he has succeeded, and succeeded to the uttermost, is forced upon the admission of anyone who, like ourselves lately, has made a trip of some two hundred odd miles over all-round give and take country in a 30 h.p. N.E. double phaeton similar to the handsome carriage shown in fig. 1. While quite the acme of comfort as a town carriage, the N.E. car makes one of the most delightful touring vehicles of which we have any experience. Mr. Mort had long threatened us with a week-end trip in a 30 h.p. N.E. car, with certain premonitions of what might be expected, but let us say at once that the performance throughout far outran the promise.

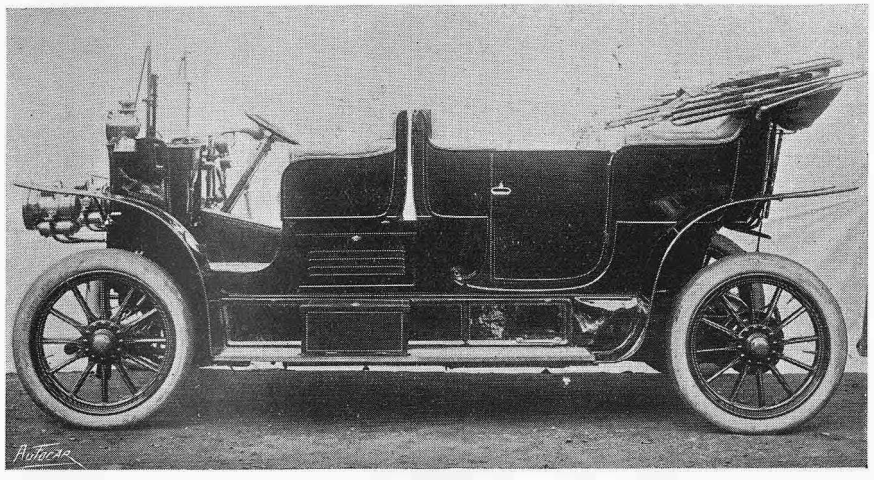


Fig. 1.—A handsome N.E.C. double phaeton.

The mechanical scheme of the N.E. car has already been illustrated and described in our columns, and we do not now contemplate touching thereon at any length, as the whole chassis as it is now being turned out at the Acton Hill Works, Acton, W., will be dealt with in detail at no distant date.

The route taken from London to Broadway and back was *viâ* Rickmansworth, Aylesbury, Bicester, Banbury, and Shipston-on-Stour, while on the return journey the same itinerary was followed as far as the junction of the old Worcester road, south of Sturdy's Inn, when the Oxford-avoiding line through Bletchington and Islip to Wheatley was followed. The main Oxford-London Road was then held until London was reached. In addition to the numerous sharp, twisty bits met with on many parts of the route, the car's hill-climbing qualities were well tested up Fish Hill, Broadway, and Aston Rowant, the southward coming climb over the Chilterns. The manner in which the car sailed up these ascents was satisfactory in every way.

The deliciously soft running of the N.E. car is, of course, primarily due to the interesting form of springing, which is clearly and comprehensively shown in fig. 2, and hereunder described, but this springing is aided and complemented by the mechanical arrangement of the chassis, which permits the total load being carried centrally and divided between the front and back wheels. The reproduction of the bodied car given herewith shows this distinctly. Moreover, Mr. Mort has undoubtedly succeeded in producing a four-cylinder opposed horizontal engine which is not only so perfectly balanced that no engine vibration is felt, but which is, moreover, as quiet as any engine we have handled this long time past. At the same time, the engine is powerful enough to satisfy any but speed maniacs, for whom the N.E. (Motor) Co., Ltd., have no regard. While the gondola-like riding of this car delights the passengers on both front and back seats—for, as a matter of fact, the rear seats are even easier than the front—the control quite fascinates the experienced motorist so soon as he gets into it, which is a matter of very little time. The throttle pedal, which is most conveniently placed, is also the hand brake pedal, and in order to accelerate the engine it has to be permitted to rise. When depressed to throttle down, it is thrust still further, and the foot brake (which was alone sufficiently powerful to bring the car down Fish Hill at a walking pace all the way) is applied. This reversal of the general throttle pedal movement wants a little habitude, but when realised it is thoroughly appreciated. The throttle is also controlled by a lever set beneath the steering wheel, which moves all round the steering column, and operates equally well on either side. From either the left-hand side or the right-hand side the throttle lever is moved forward to open up the throttle, or drawn back to close it. Then the steering wheel is made to tilt up and forwards to give easy access and egress to or from the driver's seat from either side. A point which considerably impressed us when on the trip under review was the very small amount of dust thrown by this car in comparison with other cars encountered and passed on the road. The designer ascribes this

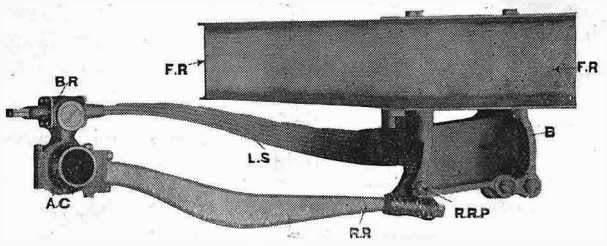



Fig. 2.—N.E.C. system of springing.

AC, axle casing
B, box bolted to frame and carrying inner end of spring.
BR, bracket encircling axle casing and carrying rear end of spring.
FR, channel steel side frame member
LS, laminated spring
RR, radius rod
RRP, radius rod pivot

valuable feature to the fact that by his scheme it is possible to keep the whole of the body inside the wheelbase. This also appears to induce tyre longevity, for Mr. Mort assured us that in the case of one client, Mr. Rutherford Harris, who employs a 30 h.p. N.E. landaulet solely for touring, he gets from 4,000 to 5,000 miles out of single sets of Michelin tyres before failure occurs. Upkeep, too, is found to be considerably reduced by the fact of the road shocks being so completely dissociated and cut off from the mechanism. With a 10ft. 6in. wheelbase, it is possible to get the rear pair of wheels so far back that the side door can be set in the centre of the rear portion of the body.

The exquisite comfort, the absolute annihilation of road shock, and the isolation from engine vibration are due to the ingenious method of springing adopted by the N.E.C. It is at once simple and effective, and can be readily grasped from the illustration fig. 2. The springing is alike both fore and aft. A stamped steel box or shoe B is strongly bolted to and through both flanges of the side member F R, this shoe being formed to take and secure the inner end of the laminated spring L S. The outer end of this spring, formed of the two lower plates, rides and is free to slide in the upper portion of the bracket B R, which is mounted and is free to move upon the live axle casing tube A C. The axle is attached to the frame by the radius rod R R placed immediately below the spring. This radius rod is pivoted at its forward end, as shown. The radius rod is of very stout section, in order to take the driving thrust and relieve the spring from all end strain, which it most effectually does. Should any accident occur, it will be seen that the radius rod can be easily removed and straightened if desired. The outer end of the spring can be fixed at the correct height in relation to the centre of gravity with the object of obviating the tendency to roll otherwise unavoidable with flexible springs of this character.

Another refinement, and one which will be particularly appreciated by drivers and those passengers who occupy the seat beside them, is the capability of tilting the steering wheel upwards, permitting the easiest possible access to the driving position from either one side or the other. In obtaining this convenience, it has been found necessary to place the control lever below the wheel (as shown in fig. 3), and in so doing the ingenious designer of this car has found means of endowing the throttle lever with the comfortable attribute of operation from either side of the pillar. When the lever is right back towards the driver, the throttle is quite closed; when right forward, the throttle is fully open. The lever can be pushed forward or drawn back for variation of throttle opening on either side of the steering column, so that it can be operated by either hand with the same effect.

Then, with regard to the body (which is made by the New Engine Co. themselves in defiance of certain fiercely asserted coachbuilding tenets), the points with regard to seat widths and heights, upon which we pronounced in a recent issue, are found to be complied with.

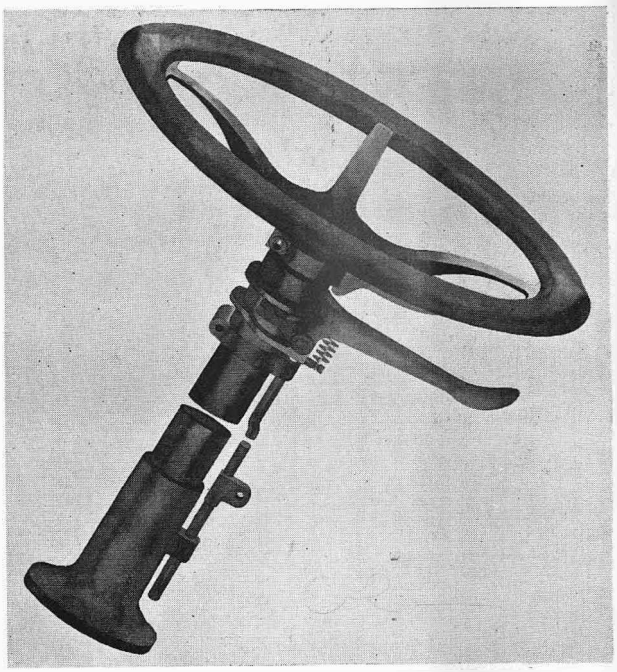


*Fig. 3.—N.E.C. tilting steering wheel showing all round throttle lever.*

"Luxury on Wheels" is perhaps the best phrase by which to describe the sensation of riding in this car; such characterisation can be applied with truth to this softly running vehicle. The very shortest trial will convince the most sceptical that in striving for ease, ease all the way, the N.E. (Motor) Co., Ltd., have assuredly attained their end.

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The Talbot engines have never been noisy under load, but when running light they are not quite so quiet as some engines, such noise as they make proceeding from the valve gear. This noise Mr. C. R. Garrard has overcome in an extraordinarily simple way. We are not at liberty at the moment to disclose his method, but we may say that he showed us a 15 h.p. car the other day the engine of which he had "doctored." The alteration, slight though it is, has rendered the engine almost noiseless. There is only a faint purr from the front, made by the gear wheels which drive the valve shafts, the pump, and the magneto. In fact, to all intents and purposes he has rendered the engine noiseless, and that, he assures us, without detracting from its power, or, indeed, affecting its working in any way. The great point about the alteration is that it can be made to any existing engine with very little difficulty, and, of course, all new Talbots will in future embody the improvement.

Sometimes tyres which perform well in races are not found to be very satisfactory for ordinary touring cars. In other words, the racing tyres are not fair specimens of the average output. This is certainly not the case with regard to the Dunlop tyres, as we have been using them during the last twelve months on two cars which are rather hard on their tyres—one owing to a fault in construction which causes a large amount of needless snatching at the tyres when running over rough ground, and the other on account of the power of the engine. In both cases the tyres have been bought with the car without any knowledge on the part of the tyre makers that they were for our own use, so that they were evidently the ordinary product of the firm. We are informed that the tyres which have been so conspicuously successful in various trials, competitions, and races during the past summer have been precisely similar in material and construction to those which we have been using.

# THE NEW RUDGE-WHITWORTH WHEEL.

Several improvements have been effected in the design of the latest pattern of Rudge-Whitworth detachable wire wheel. The principle in general by which the wheel is held in place, and also the method of transmitting the drive by means of feathers, remain the same, the difference being merely in the application of the principle. If fig. 1 is referred to, it will be seen that the outer hub shell A is provided with an extension piece D, the overturned lip of which has cut on its edge the ratchet teeth G. The retaining ring K is held in place on the end of the shell A by means of the lipped ring J, which, together with K, engages the lip G.

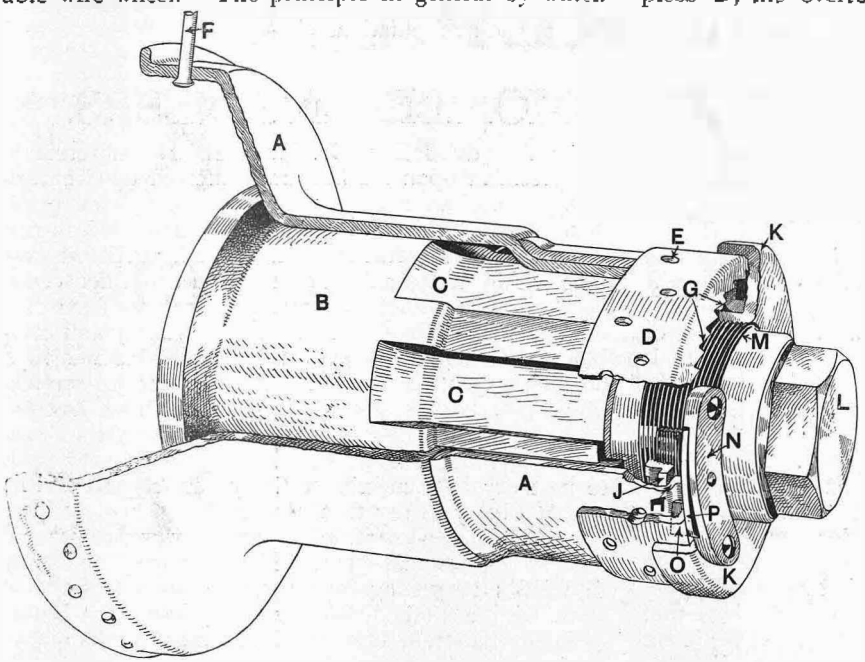
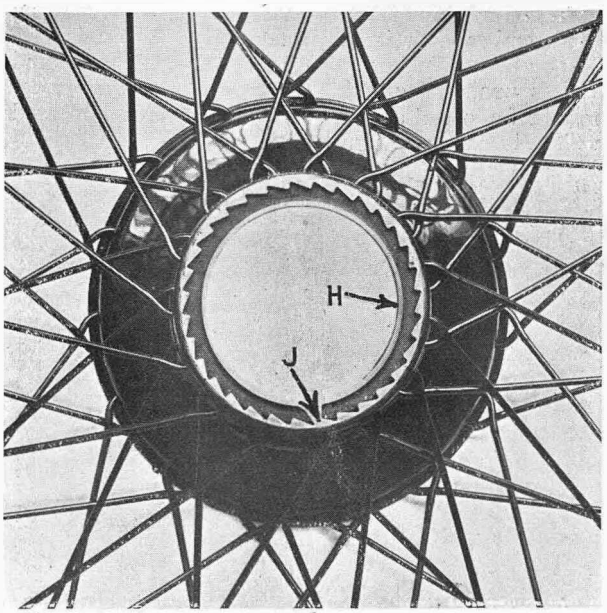



Fig. 1.—The Rudge-Whitworth wheel in section.

A, outer shell of hub, carrying wheel
B, inner hub shell, permanently running on bearing
C, driving keys
D, extension piece
E, spoke holes
F, spokes
G, ratchet teeth
H, inturned lip of D on which are cut the teeth G
J, ring screwing on to ring K holding it in position
K, retaining ring
L, hub cap
M, thread on inner hub shell on to which K screws
N, pawl-box
O, pawl
P, plate on which is formed the pawl O and which is controlled by a spring

From this it will be seen that when the retaining ring K is screwed on to the thread M of the hub proper B the extension piece D, and with it the hub shell A, is forced home on to the hub shell proper B, and there held in position.

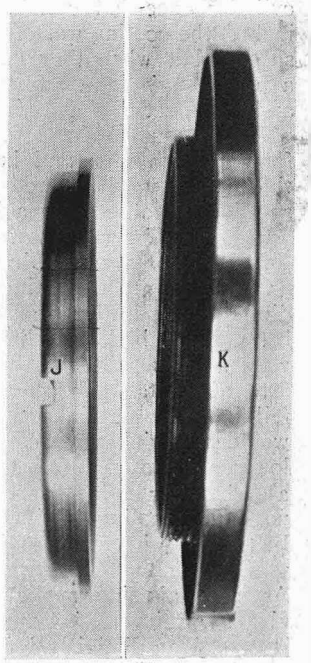
The pawl O engages with the ratchet teeth G, and allows the retaining ring K to be screwed up tight, and there holds it in position. When it is required to withdraw the wheel, a special spanner is used, which encircles the ring K, and is provided with a small trigger, which depresses the plate P, which in turn depresses the pawl O out of engagement with the ratchet G, thereby allowing the retaining ring K to be unscrewed. The pawl O and the plate P are carried in a small box N on the outer face of the ring K. The ring spanner engages two notches cut in the ring K, and is held in position on the ring by means of the small trigger which depresses the plate P, this depression being sufficient to allow the end of the trigger piece to add to the slot in the box N through which the plate P protrudes.




The new R.-W hub with the retaining ring removed, showing the ratchet teeth J, and the hub shell H.

The great advantage of this improved design lies in the fact that the wheel can be taken on and off without disturbing the cap L of the hub proper, so that the adjustment of the bearings is never affected, and the grease contained therein not lost.

Another detail improvement is the double thickness of material which the extension piece D provides for the spoke holes E on the small end of the hub, while the bearing surfaces between the inner hub and the outer shell are almost twice as much as in the




The outer retaining ring K, and the inner ring J which screws on to the boss on K.

old design. The chance of mud and water getting in past the retaining ring K has also been satisfactorily reduced to what is now a minimum. One advantage of the open end which, of course, makes it possible for the wheel to be put on over the hub cap is the fact that two spare wheels can be carried on a dummy hub, and the dummy hub can be made long enough to allow of a second wheel being screwed on after the first has been screwed into position, the second one, of course, being placed with its retaining ring facing that of the wheel put on first.

In conclusion, the device, as a whole, has been considerably simplified both in point of easy manufacture and manipulation.

# INSTITUTION OF AUTOMOBILE ENGINEERS.

The first meeting of the session 1908-9 was held on Wednesday last week, when the President, Mr. Dugald Clerk, read his presidential address, as reported in *The Autocar* last week, with one or two additions. The chief of these was upon the question of controllability and flexibility. He said there was only one qualification that must be made to the printed statement, and that was as to the effect of mean pressure at very low speeds. At 1,200 r.p.m. the exposure of the flame in the cylinders to the relatively cold walls was only one-twentieth of a second. Now, in the twentieth of a second there was very little time for the heat to pass away and the pressure to be lost. Experiments had been made on that point. He himself had been making a great many experiments recently on the loss by cooling of the cylinder, and he found rather a good rule which roughly expressed what happened in an ordinary engine cylinder. If they introduced a new heat unit and called it a cubic foot degree, that would represent the heat which a cubic foot would lose in cooling the mixture through one degree. What was found in gas and petrol engines was that the average temperature was somewhere about 1,000 degrees Centigrade. In one-twentieth of a second it would lose 20 cubic foot degrees, or 400 degrees for every square foot of surface exposed. That meant that in petrol engines having a small cubical capacity and a large surface the rate of cooling was very rapid. Whenever a cylinder exceeded certain dimensions (ten or fifteen inches) the cooling was of no great moment at ordinary speeds, but when they came down to 200 r.p.m. in a petrol engine the cooling was very rapid relatively, and the effect of that cooling was to cause a reduction of the torque at low speeds. Every motorist was familiar with this, and knew from experience that if the engine were allowed to drop below a certain speed of revolution on a hill it would never pick up again, and if it were tested on the brake it would be found that at a certain low speed the twisting moment or power capable of being given by the explosion was diminishing. There was a certain intermediate speed between the high and low extremes where the torque was at its maximum. The engine was to a large extent in a state of unstable equilibrium, and if it once fell below a certain speed the motorist knew that it would not pick up, and he at once dropped to a lower gear to enable it to pick up. There was also a carburetter action apart from this, so that there was no doubt cooling had a great effect on the engine. In that way it could not be said that a petrol engine would give the same twisting moment at all speeds. At a certain intermediate range of speed it would give a certain twisting moment, but if that speed were increased or diminished unduly that twisting moment was lost. The petrol engine was thus placed at a disadvantage as compared with steam. The loss in a petrol engine could not be made up like it could in a steam engine.

In the discussion Dr. Hele-Shaw congratulated the president upon the honours conferred upon him in being elected a Fellow of the Royal Society and president of the Mechanical Science Section of the British Association. He further stated that he believed they were within measurable distance of a car which could be stopped and started in traffic without the need of a clutch, or on any steep hill with the certainty and combined advantages of steam and petrol. He was in a position to state that it was possible that in one box would be contained a substitute for the clutch and the brake without a single bolt or nut and without a single gear. Mr. Hall's name would always be handed down to posterity in connection with hydraulic gear, and he was at liberty to say that Mr. Hall had made a most important development. The reason why he was not successful earlier was that he experienced so many difficulties in getting over the pressure necessary to work with a limited number of cylinders. Multi-cylinders had now been used successfully, and were being used. He hoped they would shortly have a full account of the developments that had been made in this direction. He (the speaker) had seen one of the gears taken apart after being closed for two years and nothing done to it, after having been working continuously all that time. Although in two years' running it had covered 30,000 miles, there seemed to be no appreciable wear whatever. Other speakers who joined in the discussion were Mr. J. S. Critchley, Mr. R. W. A. Brewer, Mr. T. B. Browne, Mr. Max Lawrence, Mr. P. L. Renouf, Mr. F. L. Martineau, and Mr. Hutchinson. The President gave his reply on the points raised, and stated that at the next meeting on November 11th it was intended to deal with the report of the Society of Motor Manufacturers and Traders upon the question of rating and horse-power formulæ for petrol engines, a digest of which appeared in *The Autocar* of August 29th.

**A NEW ITALIAN CAR.** The Marca which is being introduced into this country by the Rusholme Motor Works, of Rusholme, Manchester. It has a four-cylinder engine, with a bore and stroke of 100 × 120 mm., rated at 18-24 h.p., high tension magneto, four forward speeds, and chain drive. The cars are manufactured by a well-known Italian gun firm—Fratelli Bertolds, of Forno Rivara.

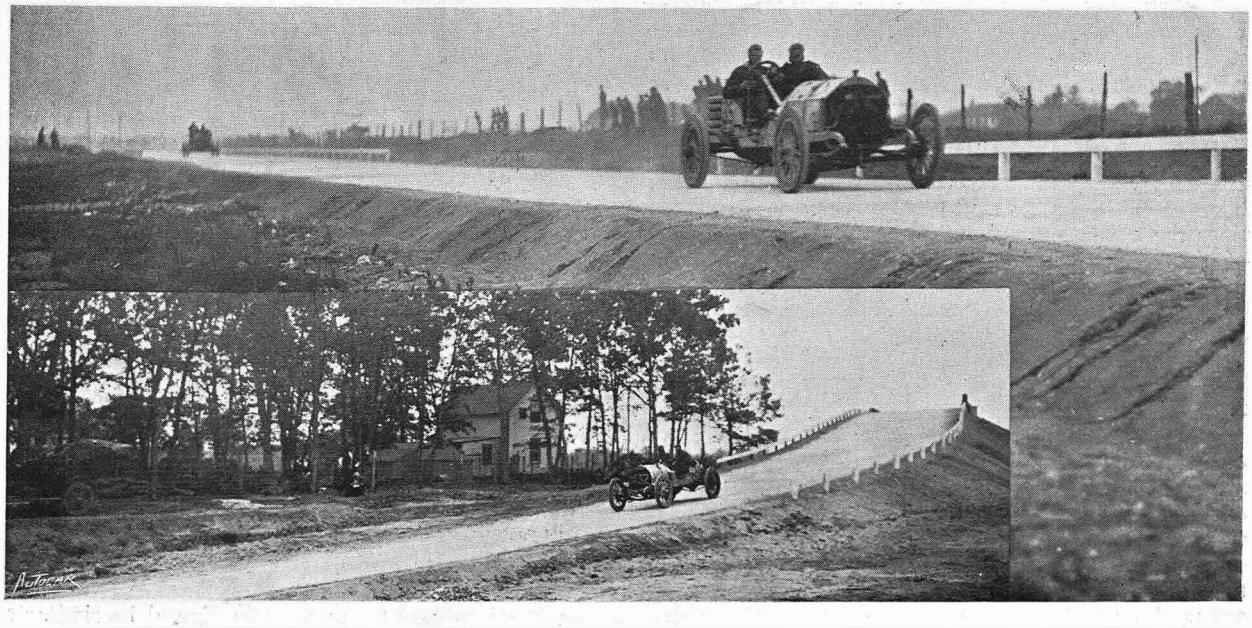
# THE NEW SIDDELEYS.

**IMPROVEMENTS IN THE 14 H.P. A NEW 20 H.P. SIX-CYLINDER MODEL. DETAILS OF LUBRICATION AND CARBURATION SYSTEMS. A NEW CLUTCH ON THE 20 H.P.**

Although the 14 h.p. Siddeley car for 1909 can hardly be described as a new type, and would not be expected to exceed the promise and performances of the 1908 14 h.p., which has earned so gallant a name for itself, yet it presents certain detail differences which cause us to accord it place amongst the new Siddeleys. These, then, are the 10 h.p. two-cylinder, the 14 h.p. four-cylinder, the 20 h.p. six-cylinder, and the 50 h.p. six-cylinder, the last an outgrowth of the older 45 h.p.

Starting with the lowest-powered car, we shall proceed to give a few of the more interesting points of that neatly-designed vehicle, the new 10 h.p. two-cylinder Siddeley, which should make an ideal all-round car for the motorist of moderate means. The frame is of standard channel steel pattern of ample strength to take a four-seated body if required, and inswept forward of the dashboard to afford a good lock. The wheels are all four 760 by 90, the wheelbase 8ft., wheel gauge 4ft. 0¾in., length overall 11ft. 7in., and width overall 4ft. 11in. The body space is 6ft. 11in. by 2ft. 6in. The engine, two-cylinder, 4in. by 4½in., is, like the gear box, carried directly from the frame, is fired by high-tension magneto, has thermo-syphon cooling, and is fitted with the Siddeley standard lubrication and standard Siddeley carburetter, which is referred to in detail in connection with the 14 h.p. The drive passes from the leather-faced cone clutch to the gear box through an easily detachable double universal joint. The gear affords three speeds with sector change, direct drive on top speed. The propeller-shaft has universal joint forward and non-torsional plunging joint where it connects with the driving bevel shaft, as in the 14 h.p. The details of the live axle and the brakes are also similar in every way to those on that chassis. The control is by throttle lever on the steering wheel and throttle pedal interconnected. The ignition is fixed. The brakes are rod applied and standard Siddeley throughout. The petrol tank is placed beneath the front seat, and is gravity fed to the float feed chamber.

Next in order of power comes the 14 h.p. four-cylinder Siddeley referred to in our introductory remarks. Its pressed steel frame is of the standard type, inswept forward of the dashboard and upswept over the rear axle. The cross members are of similar section, suitably splayed and gusseted. The engine and gear box are supported directly from the side members of the frame. The engine has its cylinders cast in pairs (bore $3\frac{3}{16}$in., stroke 4in.), all the valve chambers being on the left-hand side, so necessitating but one camshaft. Valve tappets and valves are very accessible. The crankshaft is carried in three long bearings, the two outer bearings being oil fed by gravity from the dashboard drip and the centre bearing by splash. The lubrication system is, however, rather unusual in its scheme. The lower half of the crank chamber is formed with a sump of ample dimensions, into which the oil percolates, and is efficiently filtered through a gauze sheet. At one side of the sump is formed a pump chamber, accommodating a toothed wheel pump worm driven off the camshaft above. This pump raises the oil to the sight drip feeds on the dashboard. Right across the interior of the crank chamber in the path of the four big ends are formed deep, narrow gutters, into which oil continually flows and stands, even when the car is well inclined. Drilled beaks on the lower half of the big end dip into and pass through the oil in the troughs at each revolution, with the result that oil is fed to the big end bearings and splashed to the cylinder walls, gudgeon pins, and central crankshaft bearing. This is now the standard Siddeley scheme of lubrication as fitted to all cars, and has given the greatest satisfaction in practice.



INAUGURATION OF AMERICA'S FIRST MOTOR RACING COURSE. As a curtain raiser for the Vanderbilt Cup Race, which is to take place to-day (Saturday), a race meeting was held on October 10th, over the 9 miles of Long Island motor parkway and the 14 miles of roads in Nassau County, N.Y. The top illustration shows one of the many straight stretches, and the lower one where the course passes over a road by a specially constructed bridge

The carburetter, which is on the valve side of the engine in this type, is now standard for all models, with one or two slight differences. The float feed chamber and jet chamber are set fairly low down, a gas lead passing from the latter to the mixing chamber below the automatic air valve, which is also the horizontal throttle chamber. In all but the 10 h.p. Siddeley a choke cap works over the jet, in consonance with the throttle valve, this cap governing the amount of air admitted to the jet chamber, which is exhaust jacketed. The automatic air valve is governed by a dashpot arrangement, the piston of which works in an entirely enclosed chamber and cannot get stuck up with dust or wet. Although the extra air supply is automatic and self-governing in operation, the lift and play of the air valve can be adjusted, and the area of the air ports increased or diminished at discretion with the engine running. The H.T. magneto is set as in the 1908 14 h.p., but the ignition is not fixed, as the firing of the cylinders can be advanced or retarded from the dashboard. Thermo-syphon cooling is still retained, but the out and inflow pipes have been increased in sectional area. The leather faced coned clutch fitted is now provided with three nodule headed, spring-actuated plungers, which raise the leather in their neighbourhood into three first intention points. The height of these nodules can be adjusted from without. A double universal joint connects clutch and gear box. In this joint all the pins work in bushes and are drilled right through for lubrication. The well-known pivoted change speed lever, with a very neat form of gate change operating the three changes of speed, is provided. The selection bars and locking device are wholly contained within the gear box. All gearshafts run in ball bearings, the shafts being short and stiff. The V torque rod is now carried at its forward end by a ball joint in a swinging link. The drive passes entirely through the springs. The back axle is as before, and the bevel driving wheel shaft has a tail ball bearing. Both front and back springs have been lengthened, and all brake drums and brake shoes are lined with cast-iron.

The steering segment is of phosphor bronze, working with a steel worm. The front axle has been strengthened, and is fitted in section. Altogether the coming 14 h.p. four-cylinder Siddeley will be remarkable for detail improvements all round.

The 20 h.p. six-cylinder Siddeley. This car is, notwithstanding the heightened attractions of the 14 h.p., likely to compel more attention than any other of the Siddeley models. With slight modifications the frame and chassis generally are on the lines of the 1908 18 h.p., save that beneath the bonnet is concealed a most admirably proportioned and cleanly designed six-cylinder engine. The frame is carried on semi-elliptical springs fore and aft, with an inverted semi-elliptical transverse spring at the rear, carried by a stiff, far-reaching bracket. The cylinders are cast in pairs ($3\frac{9}{16}$in. bore and $4\frac{1}{2}$in. stroke), with crankshaft carried in four bearings. The valve chambers are all on the left, as in the 14 h.p., so one camshaft only is employed. The lubrication is effected exactly as in the case of the 14 h.p., with the exception that the two central bearings of the crankshaft have oil fed to them under pressure, while the two outer ones are drip fed. Pressed steel pistons are used, and, in order to keep down weight to the uttermost, the little ends of the connecting rods are not bushed, but hardened. The carburetter is of similar design in every way. The distribution gear is contained in an independent gear case, with forward cover formed on the fore part of the crank chamber. The high-tension Bosch dual magneto is placed most accessibly on the right of the crank chamber. The water circulating system includes a Marston radiator with centrifugal pump on the right of the engine.

The radiator fan belt, driven off the end of the camshaft, has its spindle eccentrically mounted to allow of belt adjustment. A sheet steel under-apron encloses crank chamber and gear box.

The clutch is of new design, being formed of thirty-two plain discs. A cardan form of joint connects clutch sleeve and gearshaft, this being readily detachable. The gear box includes gearing, affording four speeds forward and reverse, with direct drive on third speed—to our mind a most commendable feature. The secondary gearshaft runs in three ball bearings. The lever is made with the special well-known swing over lever, and operates in a neat and simple gate. The propeller shaft has a universal joint forward and a sliding rocking joint in rear. The driving bevel pinion runs in a large ball bearing forward and a long tail ball bearing with thrust bearing as usual. The back axle is particularly well designed, and is fitted with ball bearings throughout. The pedal brake drum and brake blocks are all carried upon the gear box. Brake blocks and segments, together with brake drums, are lined with cast-iron. Brake connections are by rods throughout. This chassis will be made in two wheelbases and gauges, viz., 10ft. and 4ft. $3\frac{1}{2}$in. and 10ft. 6in. and 4ft. 6in.

The 50 h.p. six-cylinder Siddeley is like the 45 h.p. chassis. The cylinders are cast in pairs, and the whole engine forms a remarkably fine-looking job. The lubrication and the carburetter are as described in connection with the two preceding types, the general details of the engine coinciding; bore $4\frac{5}{8}$in., stroke 5in.; high-tension dual Bosch magneto ignition. A metal to metal cone clutch enclosed and working in oil is fitted. The gear box affords four speeds with direct third, and the union between clutch and gearshaft is by double universal joint. Other details are similar in design to the chassis previously described, save that this car is side chain driven.

The other models for next year, which, with the exception of detail improvements, are unaltered, are the 18 h.p. four-cylinder standard model with three speeds and gate change, the 18 h.p. de Luxe with four speeds, and the big 40 h.p. four-cylinder model, which normally has a direct drive on the third speed, but which will be provided with a direct fourth if desired at an extra change. In fact, to put the whole of the models in order, they stand 10-12 h.p., 14 h.p., 18 h.p., 20 h.p. six-cylinder, 40 h.p., and 50 h.p.

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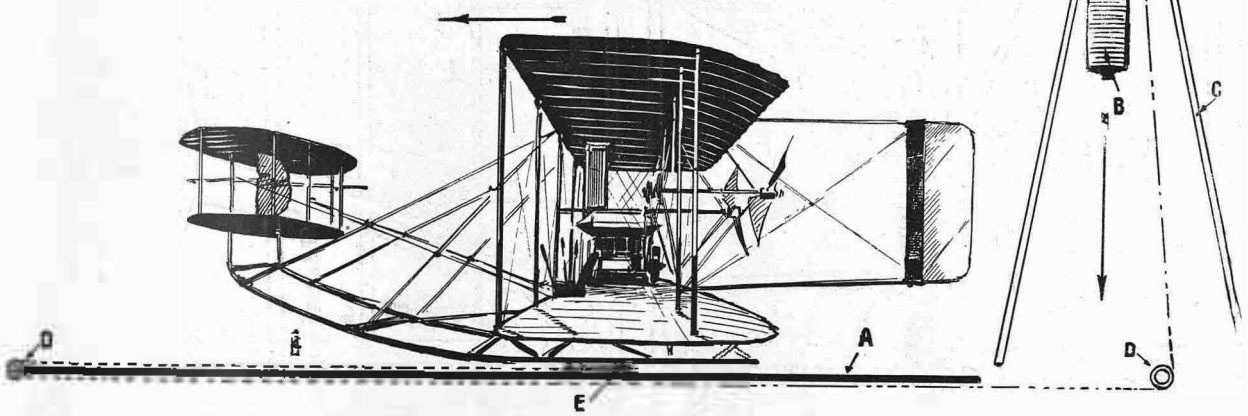
"Should the State Take Over the Cables" is the title of a communication which has been addressed to the Commercial Intelligence Branch of the Board of Trade by Mr. Radford Cooke, the secretary of the Stepney Spare Motor Wheel, Ltd. In his communication Mr. Radford Cooke refers to the precedence afforded by State ownership of the telegraphs and telephones, and he urges as an assistance to the export business of the country that cables should be similarly purchased by the State, so that cable charges might be standardised and reduced and codes simplified.

# DETAILS OF THE WRIGHT AEROPLANE.

The first complete details of what has been described as "the greatest purely mechanical invention of the generation" have just been published in the *American Machinist*, the article being illustrated with photographs which render the construction and operation of the Wright machine extremely clear.

As will be seen from our illustrations, the machine consists of two main planes of curved cross section connected together by frame members. Projecting forward of the main frame so formed are the supports for the horizontal rudders, which determine the elevation of the machine. Projecting rearwardly are the supports for the vertical rudders, which determine the machine's direction, and are used for steering.

Near the centre of the main frame is arranged the engine, which is a four-cylinder one working on the two-stroke cycle; this drives a pair of propellers 8½ft. in diameter, revolving in opposite directions.




Side view showing the track upon which the aeroplane runs at starting, and also the starting weight hoisted upon the four-legged tower.
A, track B, weight C, weight tower D D, pulleys E, trolley

These are driven by chains, one of which is crossed. The chains run through guide tubes, the propellers running at from 350 to 400 revolutions per minute, the engine developing about 30 h.p. and weighing 170 lbs. The ratio of speed reduction between the propellers and the engine is 9 to 32.

The great feature of the Wright aeroplane is the ease of balancing, and this is accomplished by making the rear corners of the two main planes adjustable in angle The adjustments are coupled together to a control lever, so that by a movement of the control lever the left-hand corners can be depressed and the right-hand ones raised simultaneously, or *vice versa*. The control lever for effecting this is arranged beside that for varying the vertical rudder. These two levers can be worked simultaneously or separately, so that the balance can be varied without varying the steering. When the machine is steered, however, it is also caused to tip up in the proper manner by the tilting of the corners of the main planes. It thus happens that when the direction is changed the machine tilts almost automatically.

It will be seen that between the front small pair of planes, which act as horizontal rudders, a D-shaped vertical plane is fitted. This damps the steering action, providing steadiness whilst turning.

Near the middle of the frame is arranged a seat for the driver, who sits to one side so as to balance the engine. The control levers are arranged at each side of the driver, that on his left being the lever for varying the altitude, whilst on the right are two levers, one for steering by the rear rudder and the other for tilting the corners of the planes. Should a passenger be carried, he sits alongside the operator, but on the central line of the machine, and so does not affect its balance.

The method adopted for starting is very ingenious. The aeroplane is mounted upon a small truck, which runs on a track. Coupled to the truck is a rope passing over a pulley on a pedestal and attached to a very heavy weight, so that when the weight is released it falls, dragging the aeroplane along the track, which is 75ft. in length. Before reaching the end of the track the aeroplane is in flight, and leaves the track. The aeroplane is provided with a pair of skates or rudders, which glide along the ground when the aeroplane alights.

The complete aeroplane weighs about 850 lbs., but little attempt has apparently been made either to cut down weight or to obtain a powerful engine for its weight. The large planes are 40ft. long, 7ft. wide, and 6ft. apart. The framework is chiefly of wood with wire trussing.

These particulars apply to the machine in America, but they presumably apply also to the machine which has been performing such wonders in France with the exception of the engine, which is of the four-stroke variety.

## UNSUPPORTED PROSECUTIONS.

A correspondent enquires whether any of our readers can inform him if it is a recognised practice of the police to prosecute motor car drivers upon any frivolous charge which a pedestrian may make against a particular car without witnesses to support the complaint?

"My experience has led me to understand (he continues) that the police always require a written and signed statement from the person making the complaint, together with corroborative statements from witnesses, otherwise the police refuse to prosecute. This is as it should be, for if not any maliciously disposed person could put a motorist to considerable expense and trouble without any fear of retaliation from the motorist, the fact of the charge being a police prosecution entirely precluding any chance of a counter action for false prosecution."

# "THE AUTOCAR" LECTURES.

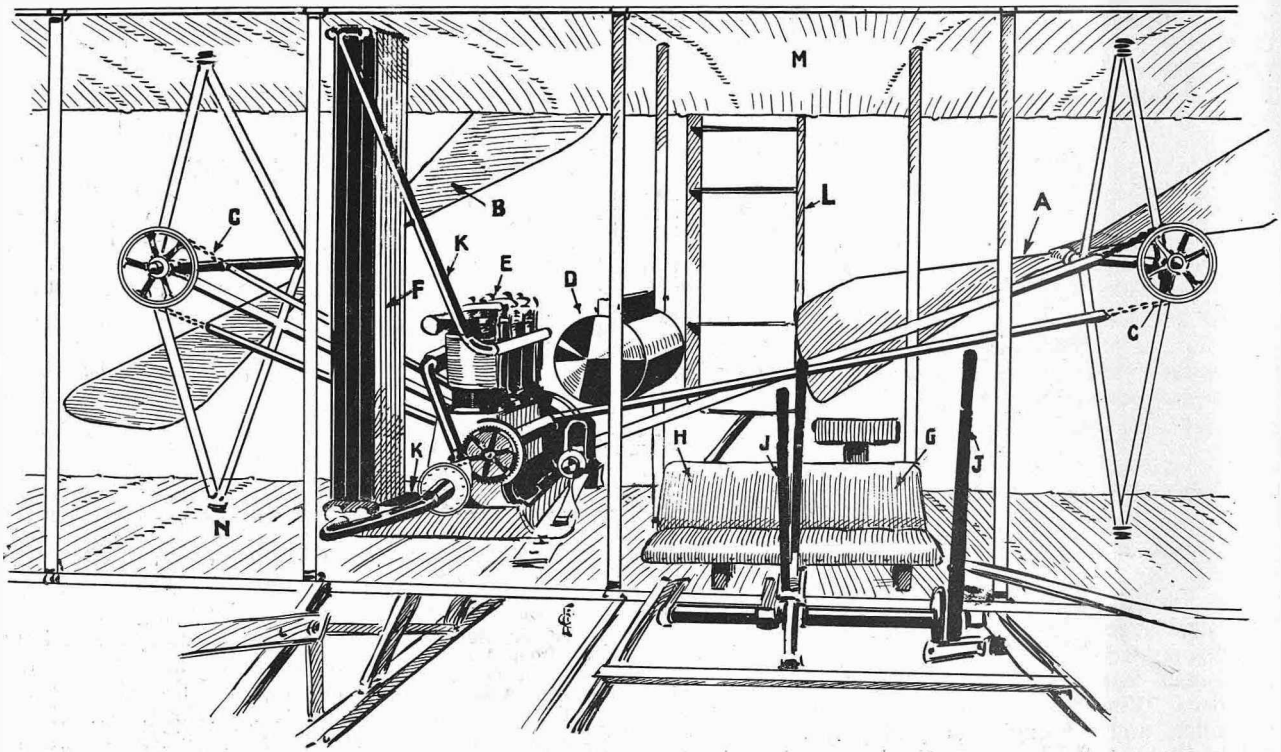
The second lecture of the course for the London centre was given at the Queen's Small Hall, Langham Place, on Tuesday, the 20th inst. Dr. Ormandy first dealt with liquid fuels in their application to modern steam cars, with particular reference to the various types of boilers and generators employed.

The Stanley, Turner-Miesse, White, and Fawcett-Fowler engines were briefly explained, and the ingenious system of wire-wound generator coils developed by the Sheppee Co. was also referred to.

The White generator and regulating elements gave rise to an interesting discussion in the course of the evening.

Liquid fuels regarded from the point of view of suitability for internal combustion engines were explained at some length, the relative claims of alcohol, benzol, and petrol as motor fuels being advanced by the lecturer. The cycle of operations in the four and two-stroke motor engines was fully explained, the development and meaning of indicator diagrams was made clear, and reference made to the importance of brake h.p. tests taken at the road wheels.

The next lecture will deal with petrol engines and their various component parts, cylinders, pistons, connecting rods, valves, and so on, until the whole of the mechanism has been described during the lectures.




THE WRIGHT AEROPLANE. Front view of the operator's seat, showing on his right the levers used in steering and balancing, and on the left that used for rising and falling. The peculiar type of radiator used will be seen by the side of the engine.

A, left-hand propeller
B, right-hand propeller
C, driving chains
D, petrol tank
E, engine
F, radiator
G, driver's seat
H, passenger's seat
J J, control levers
K K, water circulating pipes
L, rear vertical rudders
M, top plane
N, bottom plane

## MOTOR CAR RIGHTS ON THE HIGHWAY.

A legal correspondent, "A. M.," writing in controversion of "A Barrister's View," which appeared in *The Autocar* of October 17th, that "motors have no common law right to be on the road," says: "The only theory upon which, as I imagine, this view could be based would be that the user of roads is by common law limited to such modes of locomotion as have always been in ancient use. For custom is the life of the law. Now, as motors are new, it follows on this theory that they must (apart from statute) be illegal. But whence does the gentleman get this doctrine? What case can he cite in support of it? I know of none. Moreover, the absurd consequences which will follow if this theory is adopted seem to render it very improbable, for common law is not very far removed from commonsense. Steam boats would be illegal on all rivers, unless you could show that some statute had legalised them. Not only motors, but bicycles, would be illegal, not to speak of perambulators, of which there is no evidence that they were used in the ancient days when 'custom' began.

"The true use of a road is for the purpose of locomotion of any kind, which must be practised reasonably and without undue annoyance to the public or undue injury to the road.

"This is the legal, as well as the commonsense, view, and I protest against the introduction into motor law—a law already sufficiently complicated—of 'common law principles' which have apparently no origin, save in the brain of their ingenious inventor."

# CORRESPONDENCE.

EDITORIAL NOTICES.

No letters from members of the motor industry will be published when they deal with subjects which may be regarded as advertisements for the writers' or their business interests. At the same time as many of the most practical suggestions come from those engaged in the motor industry, their letters will be inserted when possible, though the names of the firms they represent may be expunged, and the initials of the writers substituted.

Letters of a personal nature will be withheld.

The Editor, although accepting no responsibility for the opinions expressed by correspondents, reserves the right to publish a portion of a letter and to omit any part which he does not consider interesting or essential.

All communications under a nom de plume should be accompanied by the name and address of the writer, not necessarily for publication, but to assure the Editor as to good faith.

Enquirers who ask for the experiences of private owners with specified cars, parts, or accessories, are requested to enclose a stamped addressed envelope, so that replies which space will not permit us to publish may be forwarded to them. Circulars or letters from interested parties will not be forwarded.

## MOTORISTS AND HOTELS.

[13516.]—When I first motored to Malvern, three or four years ago, I was not so much surprised to find the hotels averse to what was then a more or less "new fangled" monstrosity. I should have thought that the dislike to motors would have disappeared by now, but on driving over recently, I was refused a night's accommodation for the car at a posting establishment in the Wells, although I have taken a house here for the winter, and am likely to be a regular customer to the tradespeople. As it was, I went back to the old Hornyhold Arms, where no such prejudices prevail.

AB 437.

## REGISTRATION OF CARS.

[13517.]—There is a quaintness about the methods of car registration which is somewhat amusing. You have registered your car and obtained a certain number at the cost of £1. This is not excessive, for if you choose you may keep this number until your car has become scrap iron, and pay not a cent more.

But mark this, you sell your car and get a new one and ask civilly to be allowed to register the new one with the old number—no great trouble to those in authority—but you have to put your hand in your pocket for another sovereign.

On the other hand, if you pass on your old number with the car you have sold, the purchaser, who may never have had a car before, pays only 5s.!

W. H. ROTHERY NUTT.

## TESTING PETROLS.

[13518.]—I have read with much interest an article in *The Autocar* of October 10th (pages 550-551) entitled "A Simple Method of Testing Petrols," and whilst I agree with the simplicity of the method and the comparative accuracy of the results, I am quite sure that the dangers are very much underestimated. In the hands of a chemist it may be safe enough, but if the author had any experience of the terrible results of petrol burns on the hands or exposed parts of the body he would not recommend inexperienced persons to play with boiling petrol in the vicinity of a naked flame. If the petrol does catch fire, that which remains in the tumbler may be extinguished easily enough, but it is a very different matter with that which has been spilt over the fingers, and "a yard" from the flame should read more like ten to be anything like safe.

E. O. B. VOISIN, M.R.C.S.

## TAKING CORNERS.

[13519.]—I read with interest and some little amusement the letter [No. 13488] of Mr. John Campling in last week's *Autocar* in answer to mine [No. 13452] *re* motorists and the public. I have carefully studied his diagrams, and in dealing with a corner from left to right (see his fig. 1) he says it is fortunate for me that the cars I met were on their wrong side. Would it have been as fortunate for them if I had taken the corner in the manner in which the approaching car takes it in his diagram (fig. 1)? Any reasonable man looking at the diagram will see at once a collision would have been inevitable.

Under the above circumstances, in order to have avoided a collision, both cars would (had they had time) have been obliged hurriedly to turn outwards and hug their respective banks, and if they had adopted this position from the outset no such collision could have taken place; but because motorists will not take the trouble to slow down at near side corners (which they are compelled to do if they wish to take them on their own side) they swing into the middle of the road, only avoiding disaster by what they call "luck," but what I call a merciful dispensation of Providence.

I made no allusion to cars overtaking me, for none did so, and in turning such acute corners as those I mentioned I prefer to give audible warning of my approach, even if I do render it unnecessary for others to do so. It was not my intention that the anti-motorist should "score," but it was my intention to show that there is more than sufficient reality in the abuse of the rule of the road.

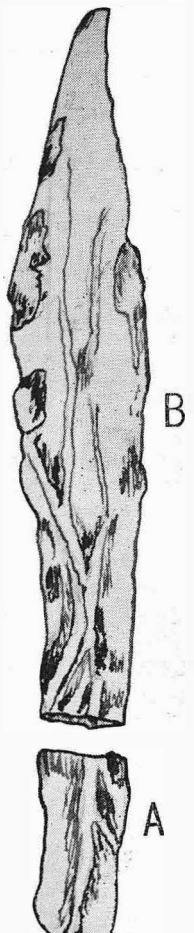
I leave Mr. Campling and his diagrams to the judgment of your readers, merely adding I sincerely trust I may never meet him rehearsing them, but if I do I hope that my "legally correct attitude" may even then avert a collision

TAL-Y-LLYN.

## AN EXTRAORDINARY PUNCTURE.

[13520.]—The following appears to me to be a most unusual experience, and possibly worth recording. I was returning from Cordoba one day on my 18-24 h.p. car, and on a bad stretch of road, about thirty miles from here, found the off driving wheel tyre was flat.

The wheel was jacked up, and the outer cover carefully examined, but no sign of a burst was discovered. The cover was an 880 × 120 square tread Continental, and had run 805 miles, and was in first-rate condition. My man proceeded to take out the inner tube. This was examined, and found to have a cut about half an inch long on the tread. I then ran my hand round the inside of the cover, and was astonished to find in the chalk powder a hard, heavy, metallic object, of which A is a life-size sketch. I then examined the inside of the cover more carefully, and found the inner layer of canvas, just opposite to where the damage occurred to the inner tube, was badly abrased, but was not cut through. There was absolutely no hole in the cover, so it seemed inexplicable how the object A could have got into the tyre. A new tube was inserted, and with the object in my pocket the journey home was completed without further incident.




The next day the cover was entirely removed from the wheel and again examined, but no light was thrown on the mystery. A few days later my man was doing some vulcanising. He presently came to me and said, "There is something inside that tube, sir." I found he had already vulcanised the puncture, but on proceeding to fold up the tube had felt something inside it. It was no doubt heavy, and about the size of a penknife. I immediately cut open the tube, and pulled out the curious looking object B, which is also a life-size sketch. At one end there was a clean metallic fracture, which exactly fitted a similar though soiled fracture on A.

The object is no doubt a tool of some sort, probably a small rasp; it looks as though it has undergone a strong acid bath and then been well rubbed. It has a rough, almost jagged surface showing curious striations, and is reddish in colour. It strongly resembles some prehistoric implement.

The tube is a Michelin, No. 562286, and had certainly run 805 miles in that cover. It may have run several thousands more, as I do not keep track of my tubes, but I have never bought new 880 tubes since the ones I got new with the car in July last year.

A small puncture was subsequently found in the tube on the opposite side to the larger one. This was, of course, perforated by the sharp end of the object when circumstances conspired to tilt it into such a position in the inner tube, and enabled it so effectively to assert its presence.

I certainly think Bibendum owes me a new tube.

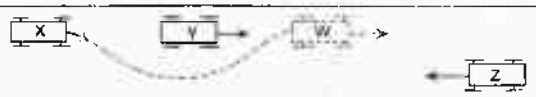
Linares, Spain. ERNEST R. WOAKES.

*Correspondence.*

## INCONSIDERATE DRIVING. A THOUGHTFUL SUGGESTION.

[13521.]—There is one frequent want of consideration in driving shown by motorists that to my knowledge has been the cause of accidents, viz., not slowing down when a faster vehicle wishes to pass and shows a capacity to do so.

I think it fair to premise that from the moment that a car X turns outwards to pass an obstacle Y until it arrives at a safe position W in front of Y it must traverse twenty yards —more or less according to the length and breadth of Y. Now roughly one mile an hour is half a yard per second, and if Y is stationary the process of passing will occupy forty seconds at 1 m.p.h., or two seconds at 20 m.p.h. X will block the road to approaching traffic Z during these times and over a distance of twenty yards. If, however, Y is moving, X only gains upon it by the difference in their speeds, and if these are respectively 18 and 20 m.p.h. the difference is only 2 m.p.h., and the time occupied in passing is twenty seconds. But in this time X has traversed 200 yards and has blocked the road to Z over this distance. If Z is a motor car approaching at 20 m.p.h., it follows that though Z be 400 yards from X at the commencement it will hardly clear it before the passing is complete. In other words, there is a danger zone of nearly a quarter of a mile created on any road that is not broad enough for three cars to run easily abreast.




I personally always go dead slow when another car wishes to pass so as to reduce this danger zone as much as possible, and when passing I put on a spurt so as to make the difference of speeds as great as possible. I once had the misfortune to do the latter on a measured distance, but the magistrates adopted the view that I had acted for the best and only imposed a nominal fine, though my speed was 30 m.p.h., because the police testified that immediately before I put on the spurt my speed had been well under the legal limit.

When passing the driver's attention is directed principally to the object to be passed and away from other objects, and it would be well if our authorities insisted that it is dangerous not to slow down when overtaken. Cyclists are worse sinners than motorists in this respect, but I have met dozens of motorists who seem to delight in making a race with a faster car.

SURREY CAR.

## FRONT TYRES.

[13522.] -Frequently I hear motorists say that as soon as a certain tyre has "done a bit more" on the back, they will put it on the front. Therefore, is it a matter for wonder that we hear of so many accidents resulting from burst front tyres?

I am very careful of my neck, and therefore always put my best tyres in the front, and when they begin to look doubtful they go on the back to be driven there as long as they will last.

A. DUCKHAM.

## HOW IS THE WHEEL SUPPORTED IN A PNEUMATIC TYRE?

[13523.]—I think it is not desirable in the interests of anyone to take seriously the letter of your correspondent, "Cyclo Maniac," in your issue of October 3rd. In his third paragraph he denies that the earth exercises an upthrust against the tyre which it carries, showing that he has not grasped the simplest physical fact, while in the same paragraph he interprets my letter in terms which indicate that he does not understand it, and which completely misstate my views.

The letter by "Cantab." is quite another matter, and forces me to admit I was probably in error in my suggestion that the wheel is hung from the tyre above it, and not supported by pressure from below. The crux is not that a half tyre pumped up below a wheel would not, on my theory, as "Cantab." suggests, raise the wheel at all. Such a half tyre obviously raises the wheel by pressure from below. So does the air in the lower half of the complete tyre press the adjacent rim of the wheel upwards from below. The difficulty is that the air in the upper half of the complete tyre also presses on the upper half of the rim with an equal force from above downwards, so that pressure alone considered there is no resultant free force on the rim at all.

This can be shown practically as follows: I jacked up the front wheel of one of my cars, which supports 600 lbs. Turning the wheel to place the valve in the lowest position possible my chauffeur applied to it a tested pressure gauge. The index marked 70 lbs. The wheel was now allowed to stand on the ground. The pressure rose to 72 lbs. To support therefore a weight of 600 lbs. the pressure against the under surface of the bed of the rim only rose by 2 lbs. per square inch, which is absolutely inadequate, when distributed over the whole under surface of the rim, revolved horizontally to support 600 lbs. The wheel was again raised and turned round, so that the valve was above the wheel, and looking downwards. The pressure was 70 lbs. as before. The wheel was now lowered on the ground, when the pressure in the tyre above the wheel rose to 72 lbs. The rise of pressure produced in a tyre by resting the wheel on the ground is therefore the same in its upper and lower halves, and inconsiderable in amount.

I should like to ask "Cantab." what is the fallacy in the following: A hollow metal drum is suspended horizontally in the centre of a round football by two cords hanging from the football above, the ball standing, say, on a table. Air is compressed into the ball; the drum will remain suspended by the strings. Imagine the drum lengthened into a cylinder long enough to just reach the walls of the ball. It still will require to be suspended by the threads whatever the pressure inside the ball, as the pressure affects equally and in opposite directions its upper and lower curved faces. Suppose the flat ends now adhere to the ball. If the strings were cut the walls would take their place in supporting the cylinder adhering to them. If lead be run into the cylinder it would merely become a heavier cylinder, with its mode of support unchanged.

But we have now constructed a wheel inside a pneumatic tyre, in principle exactly the same as on a car, and the tyre seems to carry the wheel. Perhaps, however, when the cylinder ends adhere to the wall and take through themselves the tensions previously in the adjacent wall of the ball the conditions change, but I do not see how or why.

None the less, I am inclined to agree with "Cantab." that the old fashioned view that the wheel must be considered as supported from below is the correct one, otherwise I cannot resolve "Cantab.'s" final objection.

What happens, therefore, is apparently this. When the earth thrusts up the tyre resting upon it it does not appreciably increase the pressure of the air on the bed of the rim above it, which is already amply sufficient to lift the rim and wheel if the pressure can be set free to act. By pressing up the tyre it relieves the downpull on the rim of the adjacent tyre walls, which was counteracting and balancing the uplifting thrust of the air within them.

The earth therefore acts by relieving tyre downpull by supporting directly and independently the pressure which caused it, and not by increasing intra-tyre pressure.

D. W. SAMWAYS.

## PRIVATE OWNERS AND THEIR DRIVERS.

[13524.]—I think what your correspondent [13455] says on this subject is very true. But one must not be too condemning in one's conclusions, as it must be remembered that a great number of owners are obliged to limit the amount of wages they pay a chauffeur, owing to the great expense of the upkeep of an automobile in tyres, petrol, police fines, and such like accessories to the car. Then again, money is scarce just now with everybody more or less, and many people are running cars when really it would be wiser for them to lay them up or dispose of them altogether.

I think that could one investigate these affairs more closely that one would find the owner was paying his chauffeur as much as he conveniently could in most cases. I am a driver myself, but confine my services to Americans, who engage me on the Continent solely for extensive touring, where a man of experience is an absolute necessity. But this last year Americans have sought cheaper labour, paying less than half the wage I demand for short engagements. The result of this cheap labour, I regret to say, has been many serious accidents, and in some cases death to the owner. Now, I may ask, is it worth the American's while the saving of a few pounds, at the cost of a serious accident, or an expensive machine wholly ruined, when he has been used to paying high wages at home, and so ought not to mind doing so abroad, more so especially as the chauffeur he hires is not required for a permanency?

I must add that every time I hear or read of a serious accident I feel a certain amount of pleasure when afterwards I learn that it was so and so from the States who had hired a cheap chauffeur. Were I so disposed I could give absolute proof of these accidents through incompetence.

CHAUFFEUR-COURIER.

## OIL SUPPLIES AT BROOKLANDS.

[13525.]—Our attention has been called to your well-intentioned but erroneous statement about Vacuum Mobiloil in your issue of the 10th inst., in an article headed "On the Track."

Members of the Brooklands Club, as such, have to obtain their supplies of Vacuum oil through the same source and at the same price as any other users of private motor cars. For the convenience of competitors (whether members of the club or not), and by permission of the Brooklands Automobile Racing Club, we have tanks of oil installed near the track, from which they may take their oil requirements for racing, but it is emptied into the oil reservoirs on their cars, and not supplied in cans, so that they can only take away the oil remaining in the tanks after the races.

We thank you for the kind reference to the lubricating value of our oil, but ask you to be good enough to publish our explanation of what might, from your statement, appear to be a case of giving one section of consumers preferential terms, which is not the case. Our business is done solely through agents, except for important competitions, and in these most of the competitors are interested in the automobile business.

VACUUM OIL CO., LTD.

## LONG STROKE ENGINES.

[13526.]—Referring to Mr. D. Yzelen's letter [13471], do I understand your correspondent to suggest that, apparently to equalise cars in races and to be fair to both four and six-cylinders, the four-cylinder engine should be 8.45 per cent. smaller than a six-cylinder? If this is so, how is it that the six-cylinder Napiers seem always to beat four-cylinder cars of the same size? Does it mean that the cars which they beat are not only less efficient, size for size, than the six-cylinder, but actually the amount less efficient that they are beaten by, in addition to 8.45 per cent. owing to their being this amount larger than they ought to be to meet the six-cylinder on an equality?

S. LEWIS.

[13527.]—The article in your last issue seems to me most timely. As you state, "The importance of the long stroke must not be over-rated," and as a manufacturer I would add the public must not be misled.

So many people have already got it into their heads, because the 4in. bore engine of unknown stroke is said to develop 90 h.p. (or is it 190 h.p.?), that it therefore follows that no larger bore is necessary for touring purposes, but it may be well to pause and enquire the horse-power of these same engines at 3,000 revs., at 2,000 revs., and at the reasonable speed of 1,000 revs. per minute. The last number of revolutions will give a very different figure. And again, if those who are enamoured on paper with the small bore × long stroke will listen to such an engine running, further disillusion will come to them. A first-class object lesson can be learned by examining any of the 4in. racers which may be shown at Olympia next month, when it is to be hoped they will present the same appearance as they did on the day of the race!

As far as the Ariel is concerned, we shall not allow ourselves to be swayed by the temporary interest in abnormally long-strong engines.

In your ideal of 4in. × 5in. and so on, it seems to me that you have struck about the right proportion, with the implied further proviso that it is well to begin limiting the stroke before limiting the bore. Therefore, though it would have been quite easy to make a change for 1909, the engines in our 30 h.p. cars will remain at $4\frac{5}{16}$in. × $5\frac{5}{16}$in., and in our 40 h.p. cars $5\frac{5}{16}$in. × 6in., because we are certain that the purchaser who is so ill-advised as to buy a small bore × long stroke engine, and put it in a car with a covered body fully equipped and loaded with about two tons (as all do, in fact), will meet with nothing short of serious disappointment. Fancy touring behind a 4in. T.T. engine all day, or doing a little shopping with this same engine in front of one!

CHAS. SANGSTER.

## THE TRIAL OF THE R.R.H. MOTOR CAR WHEELS.

[13528.]—Referring to the article on the long-distance trial of these wheels in your issue of the 10th inst., we would point out that the length of this trial was determined on the advice of the Scottish Automobile Club, by whom it was considered that such a trial was a reasonable test of the stability of the wheels. The trial was most carefully observed by the S.A.C. observer, and, owing to this and to the conservative attitude adopted by that Club with regard to the issuing of reports, considerable value must be attached to its certificates. It was known that a test of 1,000 miles could not be considered one to prove durability, but it was considered impracticable to test the wheels to destruction. The present test was undertaken to demonstrate that these wheels fitted to a car did not:

*(a)* Interfere with the speed of the car on hills.

*(b)* Interfere with its capability to climb steep gradients.

*(c)* Increase the petrol consumption.

Also that they were so far reliable that they could be run for 1,000 miles without attention.

With regard to life, a pair of experimental wheels have run 17,000 miles over all sorts of roads, after which the inside pneumatic tyre showed practically no signs of wear, although the outer tyres were almost done. These wheels can be shown to any of your readers if so desired. The makers have faith in the life of the wheels, in so far that they are prepared, under certain circumstances, to give a guarantee for 15,000 miles.

We think that after this explanation you will see that the writer of the article has been under a misapprehension as to the purpose of the trial, and trust that in fairness to the R.R.H. Syndicate, as well as to the Scottish Automobile Club, you will see your way to publish this letter or to insert some explanation in your next issue.

TURNER AND HOUSTON.

## INCONSIDERATE DRIVING.

[13529.]—*Re* the letter [13502] in last week's issue of *The Autocar*, I am interested to see this point raised, as exactly the same thing happened to me on the road between Market Harborough and Kettering about twelve months ago, when travelling at rather a high rate of speed. The only difference was the absence of the cyclist. I put the action down to a misjudgment of speeds on the part of the driver, but was unable to overhaul him and say what I thought, owing to having to swerve on to the grass side of the road (which was crossed by frequent drain ways and covered with piles of stones), this necessitating a "pull up" and careful return to the roadway. I looked upon the incident as a good test of the axles, and was thankful to get off with only a small tear in a front tyre, where the hub of the rear wheel of the offending car bumped me.

G. V. V.

## THE NEW 15 H.P. NAPIER.

[13530.]—On opening *The Autocar* of October 17th one could not help being struck with the similarity of the new 15 h.p. Napier to Lanchester practice; in fact, from the illustrations and description in *The Autocar*, one could almost imagine it was a Lanchester design. The worm drive, flywheel in front of engine, gear box bolted direct to crank case, and all enclosed and oil-tight, is what Lanchesters have been doing for some years back; and, whilst agreeing that they are all good points, and that imitation is the sincerest form of flattery, I think it only due that attention should be drawn to the car in which all these good points and many others were first embodied.

I may say I am in no way interested in the Lanchester Co., otherwise than as an owner and satisfied user of their cars.

J. H. CRAVEN.

[13531.]—I am much interested in the description of the new 15 h.p. Napier car in your issue of October 17th.

It interests me specially because the chassis has such a likeness to the Lanchester car. This, of course, may be an accident, but is, in any case, only another instance of the many points in the Lanchester car that have been taken up by other makers.

In the 15 h.p. Napier, the worm drive, the inclined engine and gear box, the two latter bolted rigidly together, the flywheel in front, and the change gear lever carried on the gear box case by a self-contained bracket, make a strong likeness to the Lanchester 20 h.p. engine and gear box.

There are two other points which have been incorporated in the Napier cars, which are so characteristic of the Lanchester cars, namely, wire wheels, which were "re"-introduced by the Napier people a short while ago, and the special method of spring suspension which has been fitted to the rear wheels of a Napier racing car.

I have no wish to say anything against those responsible for the Napier cars—in fact, I think they are very clever people, and know a good thing when they see it—but as a user of Lanchester cars for seven years it gives me pleasure to see their special designs admired and adopted by others.

CHARLES W. DIXON.

*Correspondence.*

## THE WORK OF THE A.A.

[13532.]—Many statements, more or less inaccurate, concerning the work of the Automobile Association have lately appeared in the press. [Not in *The Autocar*.—ED.] My committee therefore thinks it advisable that I should officially indicate the policy of our Association, in order that misunderstanding may be removed from the public mind.

The Automobile Association has never wavered in its antagonism to certain methods of enforcing the speed limit. Moreover, it is of opinion that in many instances this section of the Act has been exploited for the purpose of replenishing the local exchequers rather than from regard to the safety and comfort of the general public.

The Automobile Association's Committee of Public Safety has been in existence for a considerable time, and so long ago as May last it was hard at work. It cannot then be said that its genesis was due to an anti-motorist press campaign, conducted during the Parliamentary recess. This committee deals with cases of inconsiderate and reckless driving, a large proportion of which are reported by the Association's patrols from all parts of the country. Complaints are also received from motorists themselves, many of whom are members of the Association, as well as from cyclists, pedestrians, and dwellers near the main roads. In no single instance is a complaint allowed to remain uninvestigated, and it is encouraging to find that in the majority of cases frank acknowledgments on the part of car owners and promises of amendment have been the result of our representations. In other cases the committee has been called upon to point out definitely where the offender has, in its opinion, been to blame, and in a small minority of cases it has been deemed necessary for the Public Safety Committee to advise the General Committee that offending motorists should be expelled or prosecuted.

A corps of point-duty men and timekeepers has for a long time past been engaged at a very large weekly expenditure, and it is a special source of gratification to us that letters are frequently received from prominent residents in villages where patrols have been told off to regulate traffic, thanking us for placing our men amongst them, and expressing the hope that we should continue to do so, because of the marked improvement in the behaviour of motorists, who were previously a cause of annoyance. In one instance a gentleman offered to find accommodation for the village patrol as a mark of his appreciation of the man's services.

In addition, our patrols constantly assist the police by giving evidence in court in cases of reckless behaviour witnessed by them whilst on duty. Our experience is that when accidents in which motorists are implicated occur on the roads patrolled by our men, one of the first things the police do is to appeal to A.A. patrols for assistance in tracing cars, the numbers of which, whether owned by members or non-members, are carefully recorded, together with the place, time of occurrence, colour of vehicles, etc. In future it should be extremely difficult for any motorist, so lost to every sense of humanity as to drive off without stopping to render assistance, to escape the punishment he so richly deserves, because he most almost inevitably will pass some of our patrols, who will certainly take his number, and so be in a position to put the police upon his track.

W. J. BOSWORTH (COLONEL),
Chairman of the Automobile Association,
Prince's Buildings, Coventry Street, London, W.

## BREACHES OF THE HIGHWAYS ACTS.

[13533.]—In no case can it be expected that two wrongs make a right. How oft the sight of means to do ill deeds make ill deeds done! And although the case of "hen slaughter," described by "Runabout" on page 557, was doubtless sad for the farmer, I can discover nothing in the paragraph which comments upon one section of the breach of the Highways Acts committed by the farmer in allowing his live stock to stray upon the highway. Is it not time that motorists should be less apologetic for being on the earth, and a little more energetic in pressing for the observance of laws made for the benefit and comfort of all users of the highway?

I once offered to take a county superintendent of the police (since retired) round with me for two days in my car, and promised him he would see enough breaches of the Highways Acts to fill his Court for a week, if he would press home his charges with equal vindictiveness to that shown to motorists. He frankly told me, however, that he would be "up against" too many people if he did take such an action.

J. SMALLWOOD.

## THE 1909 DAIMLER ENGINE.

[13534.]—There seems a lot of adverse criticism about this new engine, but why not wait and see the results in actual practice? Provided that there are no mechanical defects in the design, I can say that it is the most perfect flexible and silent running I have ever witnessed. It is now more than a year ago since I met the Silent Knight in France, and concluded that it was either steam or electricity until I looked under the bonnet.

W. TIMSON.

[13535.]—Referring to Mr. Laurence Bell's letter on the above subject, it raised many points against the above type of engine which appeared to be sound from an engineering point of view, and I have been wondering why the company have not dealt with these points, as your footnote suggested they would do, but since that date a number of other letters have appeared, some for and some against, and if I might take up the space in your columns I would like to ask one or two questions which I think are pertinent to the subject.

In your issue of the 10th Mr. Spinney asks some questions which I think ought to be answered, as I fail to see how the Daimler Co. can justify such an unmechanical change as this American engine seems to be. Why do they drive their half-time shaft with a chain? I also cannot imagine why splash lubrication is used for the engine. This alone seems to me such a retrograde step that it is impossible to understand a company like the Daimler adopting it. I cannot understand Mr. Coldman's letter saying that the engine in question approaches a steam engine. What is meant by this? And if he has never suffered from pre-ignition on his Daimler car I would suggest his taking it to any long hill and running it really fast, when this occurs very rapidly. I remember being at the first race meeting at Brooklands, and it was most extraordinary to see the Daimlers run then when the ignition was switched off, apparently running quite fast by pre-ignition only. I do not suggest that this was detrimental: I merely mention it as a noticeable point which apparently has never been seen by Mr. Coldman.

Mr. Wilson White's letter, in which he asks for enlightenment about the unmechanical parts of this engine, is one that possibly someone better qualified than myself can give, but certainly the method of moving the sleeves seems to me most unmechanical. To take hold of a large piece of metal like this and move it up and down at a great number of times per minute from a very small lug at the side seems to me very unmechanical, and bound to lead to trouble in the end.

Mr. De Freville's remark that the 71 h.p. developed by this engine does not impress him is, to say the least of it, curious. I would like to know another engine of the same R.A.C. rating that would develop more power. Can the writer of this letter tell me? I think the horse-power developed is one of the best points.

With Mr. Hutchin's letter I entirely disagree. He gives the Daimler staff credit for arranging a perfect lubrication system. I totally differ from this. I think it is a most crude system to depend on splash, and I think the authorities would do well to absolutely prohibit motor cars on the road which are not lubricated with a positive feed lubrication, and thus prevent the emission of smoke. Splash lubrication always means smoking engines, and I do not consider any motor manufacturer has a right to supply his clients with engines which will smoke under normal running conditions, and until the Daimler Co. use a modern system of lubrication I think their engines cannot meet with the success that such an innovation, if successful, deserves.

J. W. BARBER.

[13536.]—I am much interested in Mr. Knight's paper on the new Daimler engine, and while it explains several points that have been raised, it does not answer the enquiry I made in my previous letter to you, viz., "How can the combustion chamber help becoming encrusted with carbon from the burnt oil which must be drawn into the engine through the inlet port?"

In fact, Mr. Knight's paper strengthens my ideas that this does occur to a considerable extent, because he makes a great point of the easy detachability of the cylinder head for cleaning purposes, and speaks of this operation in a way that seems to show that it so commonplace as to be frequently necessary. This contention is further supported by the abandonment of the auxiliary exhaust port on the first type of engine because the oil was expelled, and to be expelled it must have been present.

Mr. Knight says, "There is always a film of oil between the seat of this segment"—the wide ring at the bottom of the cylinder head—"and the surface of this sleeve," and as

the surfaces of the sleeves are lubricated where they slide on one another, oil must be squeezed out between the lips of the inlet ports and drawn into the cylinder on that side to be discharged at the exhaust port as the carbonised products of combustion.

Mr. Knight's picturesque argument that the exhaust ports disappear "out of range" at the moment of the extreme heat of the initial explosion, is very ingenious. But surely the mushroom valve has just the same advantage. The face and seat of this valve are no more exposed to the initial heat of the explosion than are the ports in Mr. Knight's engine.

The exhaust port openings of the Knight engine appear to me to be exposed to exactly the same burning effects as the face and seat of the mushroom valve with the added disadvantage that the oil which is squeezed from between them will burn and pit their surfaces. Let us indeed be thankful that the face of the mushroom valve is not lubricated—a fact that Mr. Knight seems to regret. Mr. Knight seems unaware that the most conscientious makers of the ordinary type of engine take steps to ensure that the compression in all the cylinders of an engine shall be equal. The Westinghouse Co., I know, and probably other leading firms, test each cylinder on a gauge and adjust the compression by means of exhaust valve caps of different depths (which are stamped with the number of the cylinder to which they belong), so that the compression in each cylinder is equal and exact.

Once more, may I ask why is the eccentric shaft on the new Daimler engine driven by a chain, when it could be driven as easily, quietly, and more satisfactorily by pinions?

G. P. H. DE FREVILLE.

## LEGAL RIGHTS TO THE HIGHWAY.

[13537.]—Surely a "Barrister's View," page 611, of the legal rights of motor car owners to use the roads is altogether wrong.

The common law right to use the King's highway for passage is a right of the individual, and owners of motor cars are entitled to exercise it as much as any other of His Majesty's subjects. No vehicle, as such, has any right to be on the highway. It is the occupants, or person in charge of it, who have any rights there are. For the safety and comfort of the public in exercising their common law right to pass along the highways, whether on foot, or riding or driving in vehicles, it is necessary that regulations should from time to time be made.

The Motor Car Act provides for the regulations, which persons in charge of that class of vehicles must conform to when on the highways, but it no more deprives those who use that mode of travel of their common law right to the use of the roads than does the Lights on Vehicles Act those who travel in other kinds of vehicles. Motorists must, of course, respect the rights of other users, but so must other users respect the rights of motorists.

SOLICITOR.

[We reproduced the remarks in question solely on account of the extravagant nature of the views propounded, not because we thought they were in the least tenable.—ED.]

## SOMETHING FOR NOTHING FIRMS.

[13538.]—I should like to express my views concerning the non-exhibiting, or "get something for nothing," firms, on what I consider the gross abuse of the Motor Show by not only the sprats of the trade, but firms whose reputation I should have thought would have at least prevented them from trying to procure orders by such undignified methods.

The scandal is getting more pronounced every year, for now, not only many representatives, but the proprietors themselves, not exhibiting, patrol the show day after day, not for the purpose of education and enlightenment, but for the object of soliciting orders from buyers who would otherwise place their business with the heavily taxed exhibitors.

Their *modus operandi* often takes the form of obtaining prices and particulars (and in some cases they have the effrontery to take measurements), then diverting business from its legitimate channels by underquoting, in some cases under the very eyes of the exhibitors, thus using the stands of those who have incurred the very heavy expense of showing to sell their own manufactures, saying in effect, doubtless, "Those goods you see on Blank's stand we can do at 'so and so,'" naming a price lower than the exhibitors.

It was really pitiable last year to see so many representatives in the accessories trade department who were not exhibiting parading up and down day after day like so many policemen, trying to pounce on any would-be buyer who came along.

Now this suing *in forma pauperis* seems to me, and I am sure to many other exhibitors, to be a very mean and underhand proceeding, and I really think the matter should be taken up by the Society, with a view to suggesting some remedy for this state of affairs.

CONTEMPT.

## MOTORISTS AND THE PUBLIC.

[13539.]—Your correspondent "S.F.C.S." in letter 13509 speaks of the "criminal fallacy" of holding the middle of the road, when approaching a blind near side turn, in order to obtain a clearer view of the road beyond. Now I should like to suggest that the driver who drives by rule instead of using his brains is not fit to drive in difficult country, and that different methods of "cornering" suit different roads. "S.F.C.S.'s" plan of hugging the near side is no doubt the best for broad and much-frequented roads; but on roads barely wide enough to allow of two vehicles passing, it is not only unsafe but impracticable for cars of long wheelbase. As he would round a sharp bend on a narrow road, either his front "off" wheel would project well beyond the centre of the roadway, or his near back wheel must go into the ditch. As his tracks will show, he takes up more room than a car which, by approaching the bend in the middle of the road, lessens the curve to be described. At the same time, since he cannot see any approaching vehicle till at close quarters with it, he can neither give way, nor can he accelerate so as to meet it beyond the corner. In mountainous country, drivers of nervous horses need as much notice as possible of the approach of a car. In a sheep-farming country it is usual to meet flock after flock of sheep on their way to sales, especially during the autumn. Here again a view of the road beyond the turn is of importance.

If "S.F.C.S." had done much touring in Great Britain or the Continent with a large car, I hardly think he would advise any absolute rule to be followed by all drivers on all cars. If he carried out his methods on some of the mountain roads in France and Italy, he would be still trying to negotiate his first hair-pin corner!

NORTHERNER.

## BADGES FOR SHOW ATTENDANTS.

[13560.]—Captain Wright's suggestion *re* badge for exhibitors' representatives at Olympia is a good one. It would, it seems to me, render unnecessary the adoption of a livery. I refer to the silk hat and frock coat. Last year there was a tendency to sport those horrors.

For every man your correspondent can induce to discard the frock coat, I will find him one to wear a small neat badge.

Concerning "T.W.'s" other remarks, I think I have only to remind him that whereas he looks upon Olympia as an interesting exhibition, there are others who regard it simply as a market.

S. E. BRETT.

## SUMMARY OF OTHER CORRESPONDENCE.

SUPPLEMENTARY CONDENSERS.—The United Motor Industries write that supplementary condensers for ignition coils are being sold, and that the use of such condensers in connection with ignition coils is an infringement of the U.M.I. patents 20,347 of 1907 and 22,082 of 1907 unless such supplementary condensers were originally purchased from them.

FORGETFULNESS.—Messrs. Geo. Main and Co., of 36, The Parade, Leamington, write that a gentleman with a two-seated Isotta Fraschini car, with extra seat at the back, called at their depot last Saturday week at midday, and had his tank filled with petrol (ten gallons), and went off forgetting to pay for it. Should this meet the motorist's eye he is asked to kindly send a postal order for 10s. in payment.

REGISTER FOR CHAUFFEURS.—The Motorists' Advisory Agency, 24, Belfast Chambers, Regent Street, W., inform us that they have organised a free register for chauffeurs. They make the fullest enquiries with regard to applicants, who are classified into mechanic drivers doing all repairs, motor drivers, and second men. They have always found that a good man commands good wages, and also that their clients are equally prepared to pay well for really reliable and capable men.

# THE VALVELESS ENGINE.

**A REPORT OF THE DISCUSSION ON THE PAPER READ BY MR. C. Y. KNIGHT, BEFORE THE ROYAL AUTOMOBILE CLUB ON THURSDAY, OCTOBER 15th.**

Mr. Knight's paper on the new Daimler engine drew what was unquestionably the largest audience which has ever been present at the reading of a paper before the Royal A.C. In fact, it was impossible for all those who came to 119, Piccadilly, to hear it at all, as the room was so full that all late comers had to stop outside in the corridor in the vain hope that they might hear something. We gave such copious extracts from the paper last week that there is no need to add to them now, but owing to the length of the paper it was impossible to do more than start the discussion, which was postponed for a week, and which we hope to report in our next issue. So far as the preliminary discussion was concerned, it can scarcely be called critical. Only two queries of Mr. Knight's statements were made, the majority of the engineers and constructors present reserving their criticisms for the adjourned meeting.

Mr. Dugald Clerk presided, and in introducing the lecturer said he was exceedingly impressed with what Mr. Knight had done. It was not a new thing in gas engine practice to work with a slide valve, because from 1876 to 1882 gas engines were so worked. It was novel, however, to work a petrol engine with slide valves—an engine in which one of the sleeves formed the inner part of the cylinder, and the piston worked within that sleeve. The old engineer accustomed to gas engine work would have been afraid to do such a thing, but Mr. Knight had proved that it could be done with perfect safety. Few engineers would have ventured on so daring an expedient as a sliding sleeve with a piston within it. Mr. Knight, with great perspicuity, had furnished a solution of a very difficult problem.

Mr. Knight then read his paper, the whole of which, with the exception of the historical portion, was published in *The Autocar* last week.

The Chairman, in proposing a vote of thanks to the lecturer, said he must admit that when first he saw a section of the Knight motor he felt as if he was going back to the old days of the gas engine with slide valves and piston valves. He himself built a piston valve engine of 10in. cylinder and 14in. stroke so early as 1884. Like Mr. Knight, he saw the difficulties of the lift valve. The lift valve had many advantages, but, as Mr. Knight pointed out, extreme silence was not one of them. Still petrol engine designers had made them a little more silent than Mr. Knight had represented when he said their continuous noise was mistaken for silence. There was a different problem to face when they had a number of valves running at high speed, four cylinders with eight valves, or six cylinders with twelve valves all running at, say, 1,200 revolutions a minute, each valve making 600 taps a minute, and each cam making a corresponding number of actions. It was very remarkable that gas engine constructors using the tappet valve or conical lift valve should have succeeded so well as they had. Speaking for himself and the car he drove, he must say that its silence struck him as satisfactory till he heard that nasty definition of "continuous noise." (Laughter.) In one respect undoubtedly Mr. Knight's engine was very much quieter than any ordinary petrol engine. At Coventry Mr. Knight met him at the station with one of his cars, and as it came up he thought it must be a steam car; he could not hear the tapping of the valves. When they got on to the road the car ran with beautiful quietness, although they never attempted sixty miles an hour. He had lately been advocating careful driving, and trusted that automobile engineers would design an engine that the public would feel inclined to drive more gently. There was no doubt that this problem of gentle driving which they must all face would be very much assisted by a beautiful flexible engine. The object therefore of an engine designer should be to produce an engine so flexible that a man could, as Mr. Knight had promised, drive from dead slow to sixty miles an hour without changing gear. If that really could be done, if one could stop in traffic or crawl behind a slow waggon with the same silence as one could dart along at a high speed, the feverish desire for speed would pass away to a large extent. So far as his feeling went, he diagnosed the desire for speed as a desire for silence. People did not like the noise of the gear, and they were always happy to get on the quietest speed, which was always the top. He drove for a good many miles with Mr. Knight last week, and on getting used to the car he took the wheel himself. He found the car exceedingly pleasant driving, especially up steep hills. He told Mr. Knight that he thought a great deal more of a car that could climb hills very slowly than of one which went up very fast. If when driving up a steep hill he found a big waggon stopping the road, he liked to know that he could go round it without changing gear. This car pulled wonderfully well at very slow speeds. Mr. Dugald Clerk then entered into an argument similar to that pursued in his paper of the previous evening before the Institution of Automobile Engineers to show that at both high and low speeds a petrol engine tended to drop its twisting moment. If it dropped too much it would stop unless the gear was changed. He (the speaker) laid it down more than twenty years ago that to get the maximum effect from any gas engine or any explosion motor it was necessary to have the largest possible volume for a given surface. Undoubtedly Mr. Knight had arranged his explosion chamber as far as practical considerations would allow so as to approach the spherical shape. The ideal chamber would be completely spherical. That would give an engine which would pull the very best on hills. He had no doubt that one reason why it pulled so well at slow speeds was the absence of valve pockets. On that point he thought Mr. Knight had a distinct advantage. He should say that he was not satisfied, however, that Mr. Knight's claim for higher economy than that of ordinary petrol engines when properly proportioned for high speeds was thoroughly established. The experiments conducted by Mr. Knight in Paris proved that in his engine out of 100 heat units put into the cylinder in the shape of petrol he got twenty-six heat units returned in the form of indicated work within the cylinder, and twenty-three heat units as practical work. The mechanical efficiency would be something like eighty-seven per cent., which was very high. He had no doubt whatever that this system of minimum surface possessed great advantages when running at slow speeds. A cylinder with pockets would be less economical certainly than a cylinder with a smooth space like this at slow speeds, but the difference would

not be so great at 1,200 revolutions per minute, as the tendency was to smooth out those differences at high speeds. He thought when Mr. Knight came to test engines of equal compression and volume he would find that with high speeds at full load there would not be much in his favour—a little, but not very much—but at slow speeds there would be a great deal in his favour. That was the point. This engine was capable of giving the highest economy possible. One point which favoured economy was the fact of the whole of the surfaces being polished. Carbon did not settle on a smooth polished surface, and the heat did not flow so quickly through a smooth as through a rough surface. That had been determined by experiments with polished and unpolished vessels. Another point that struck him was one upon which Mr. Knight laid stress, viz., that the only contrivance for holding the gases in compression for explosion consisted in that ring to which he had referred which was backed up by cold walls on both sides. There was no need, as Mr. Knight pointed out, to depend in any way on the tightness of the sleeves of the cylinder. It was a bold move to put the piston inside a sleeve. A great deal of prejudice had existed against slide valves for gas engines because of the difficulties experienced in early engines. These difficulties did not prevent many thousands of engines being made, which had been in use for over twenty years. Mr. Dugald Clerk then referred to the ingenious manner in which Mr. Knight had overcome the difficulties which beset the early designers of slide valve gas engines, particularly the difficulty of the valve being subject to severe wear and the appearance of scratches along its face, due to the blowing away of the oil. He was afraid at first that there was something of the same kind of defect in the Knight engine, but careful consideration showed at once that Mr. Knight got over that difficulty very effectively, by making the piston valve so that it would hold gases just in the same way that the piston itself was made to hold gases. The method of using a ring and backing it with water seemed a most important one, and one on which Mr. Knight's solution of the difficulty depended. He (the speaker) did not know of any engine in which this difficult problem was solved in the way Mr. Knight had solved it. His feeling was in Mr. Knight's favour, because he had seen the pressure held by these rings in a most marvellous way. He was satisfied that Mr. Knight had an engine which had the property of standing up to its work.

The discussion was continued by Mr. G. H. Bailie, Mr. J. S. Critchley, Dr. H. S. Hele-Shaw, Dr. Watson, and Mr. Max Lawrence, but none of these gentlemen were critical except the last, who enquired how the lower ring on the fixed head could be kept gastight. One or two of the speakers admitted that they had come prepared to adversely criticise the engine, but their objections had been met.

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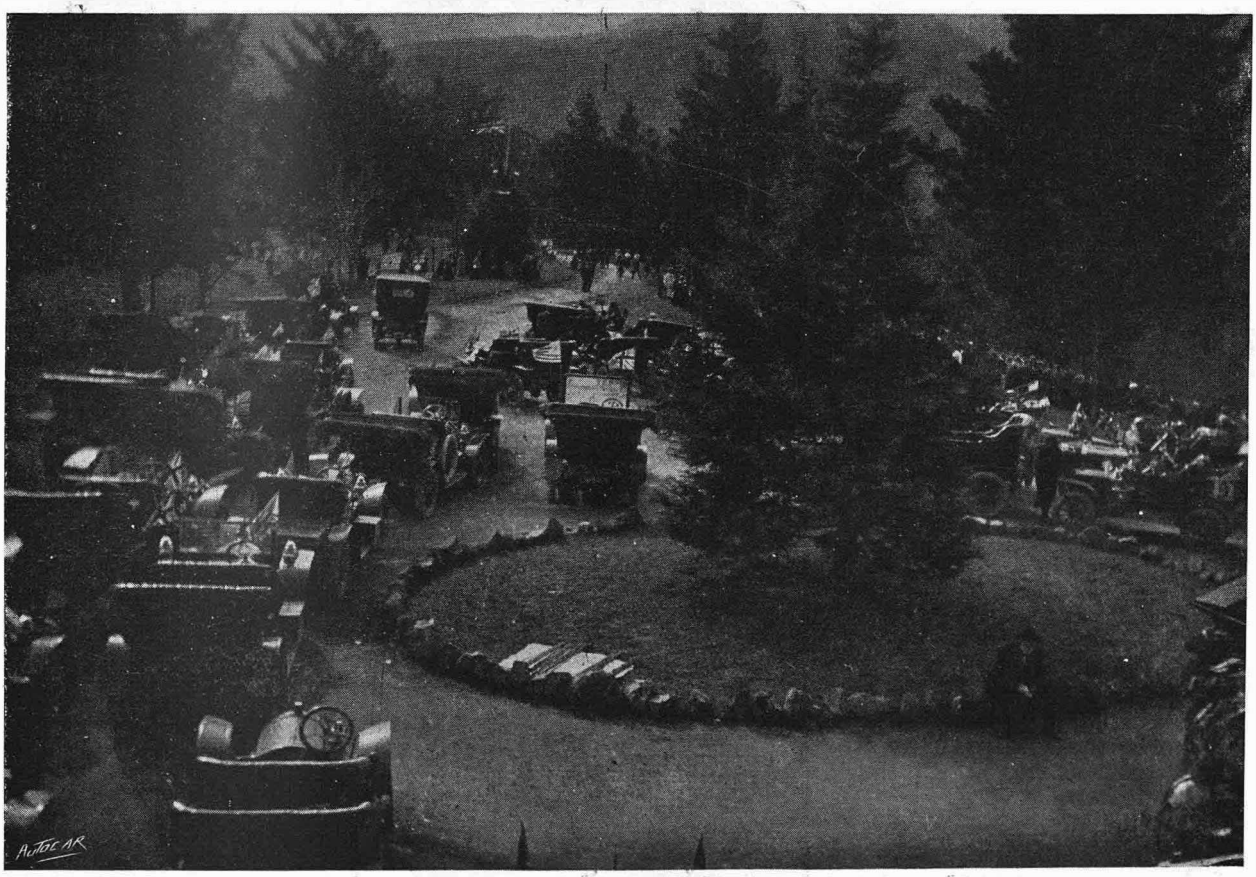
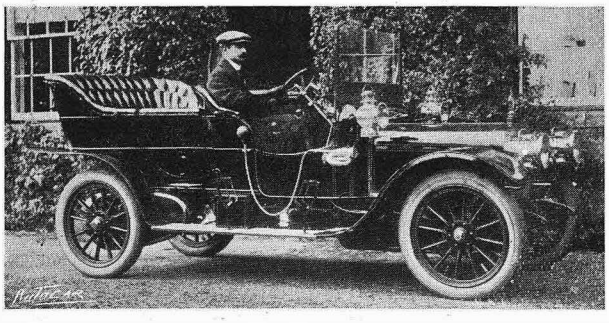
A motorist who was wet through was driving at a good speed in order to get home as soon as possible, and was caught in a police trap on a deserted and wide stretch of road outside Thetford. This attempt to prevent taking a chill cost him £2. Those who know the road will sympathise with him.




THE VICTORIAN AUTOMOBILE CLUB entertained the officers of the American Fleet during its visit to Australia to a motor drive to the Black Spur, Healesville. Our photograph shows the assembly of vehicles, which included cars of the following makes: Argyll, Brown, Daimler, F.I.A.T., Gladiator Itala, Minerva, Napier, and Talbot, all of which were heavily laden for the journey.

# Flashes.

The King and Prince of Wales have consented to become patrons of the Seventh International Motor Exhibition, which opens at Olympia on Friday, November 13th.



A fine 20 h.p. Sunbeam car, supplied to Mr. A. M. Henniker, of Rowington Hall, Warwick

The Lord Bishop of Newcastle has recently been presented with a handsome Armstrong-Whitworth car as a token of the esteem and regard of a number of his admirers throughout the country. Dr. Garratt will use his car in the discharge of his episcopal duties, which often involve awkward cross-country journeys. There is a peculiar fitness in the fact that the car is one manufactured in the bishop's own see.

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At a Council meeting of the Institution of Automobile Engineers on October 14th, Mr. Dugald Clerk, the president, suggested that, in view of the rapid growth of the aeroplane movement, a sub-committee should be appointed to collect information and report to the Council on the science of the aeroplane movement. This was unanimously agreed to, and the following were appointed a committee: Mr. Dugald Clerk, Mr. F. W. Lanchester, and Dr. H. S. Hele-Shaw.

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Motorists in the Southend district are being subjected to strict surveillance on the part of the police, and a number of prosecutions and heavy fines have resulted from the traps laid. The timing is of the crudest description, and is in the hands of utterly inexperienced police officers. The distance over which the trap extends is one mile, but motorists are not stopped, and they remain in blissful ignorance of having transgressed the law until they hear from the police afterwards, when of course they are unable to prepare any defence. The constables are disguised as broken down cyclists tinkering with a bicycle while really they are taking times and numbers.

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It is no doubt an excellent thing for the economically minded owner to keep his car in good repair, but the repairing idea may be carried too far. A correspondent in a delightfully chatty letter writes: "I know of one hotel proprietor (needless to say, in Scotland, though he is from the south) who has told his garage mechanic to rebuild a car which had jumped the stone parapet of a bridge into a rock strewn river. All I saw of it was a frame of best selected splinters reinforced by buckled flitch plates. The mechanic was not quite sure which was the front and which was the back axle, but thought it a pity to scrap so many hundredweights of motor material."

The value of front wheel brakes is gradually achieving recognition. The first maker to fit them satisfactorily to a chassis will undoubtedly attract a considerable amount of attention to his manufactures. There is no doubt that, owing to the variation of design, the application of front wheel brakes appeals rather to the chassis builder than to the brake specialist.

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The circumstances of a most unusual corner road mishap were disclosed in a case at the Bromley County Court, before Deputy Judge Walker, in the absence of Judge Emden. Two cars and a horse and trap were involved, and there appears to have been all-round carelessness. The incident points to the necessity of good warning being given on the approach to cross roads and sharp curves, and especially to the necessity for the removal of all obstacles to vision and the erection of effective road signs at such dangerous places.

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The latest test hill "find," viz., Constitution Hill, Chatham, is interesting, and as there is no ordinary traffic on the hill it should be useful for testing purposes. The gradient (certified) is one in four and a half, and in length, steepness, and the general surroundings the hill bears a most remarkable resemblance to Arthur Street West, the famous Edinburgh test hill, and, as at this hill, it can only be taken from practically a stationary start. It is, if anything, adjudged a stiffer test than Arthur Street, which, of course, a number of cars have climbed. A standard 15 h.p. Talbot has proved equal to the very severe test of starting up on the crux of the hill with four on board, and a two-seated 8 h.p. Rover driven by Platt Betts has since made the climb.

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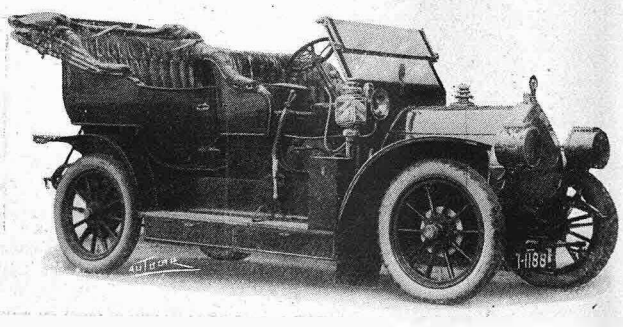
La Rochelle-Pallice is an excellent French port of entry for attacking La Vendée, Brittany, and the Western portion of Normandy. It will therefore be of interest to motorists who, driven abroad by police persecution in this country, make a practice of motor touring in France, to know that the French Minister of Public Works has appointed the necessary officials at La Rochelle-Pallice for the examination of touring motor cars arriving from England, and for the issue of the necessary driving and circulating documents. La Rochelle-Pallice is now one of the few ports in France where motor cars can be passed through the Customs without delay. Our attention has been directed to this announcement by the Pacific Steam Navigation Co., whose boats run to this port.



A 30 h.p. Adams car, supplied to the order of Mr. J. Whatton, of Torquay. This car is fitted with the distinctive radiator which, with its brass facings, forms the letter A.

*Flashes.*

On Thursday, 15th inst., close upon two hundred members of the cycle and motor businesses, under the chairmanship of Mr. Albert Eadie, assisted at the third annual banquet of the Cycle and Motor Trades Benevolent Fund. Mr. Eadie was supported by such prominent trade personages as Messrs. E. M. C. Instone, J. B. Purchase, S. D. Begbie, F. S. Straker, Warwick J. Wright, T. H. Woollen, E. Lisle, E. Gascoine, E. Brown, Capt. D.Arcy Baker, and others. The vice-chairs were occupied by Messrs. Chas. Sangster, Harry Smith, S. F. Edge, A. J. Wilson, C. V. Pugh, J.P., and E. A. Wilson. The motor trade was very strongly represented, although Mr. Knight's paper on the valveless engine at the Club was responsible for a good many absentees. After the usual loyal toasts, the toast of the evening, "The Cycle and Motor Trades' Benevolent Fund," was given by Mr. Albert Eadie, who stated that the motor trade lagged behind the cycle trade in their support of this most commendable and praiseworthy fund. He appealed to all members of the automobile interest absent and present to at least equal the cycle trade. The toast was replied to by Mr. A. J. Wilson, the father of the fund. Mr. Wilson explained the objects of the fund, and gave many interesting examples of the way in which the fund had been applied. He also appealed to the motor industry to support the fund equally with their cycling brethren. "The Cycle and Motor Trades" was proposed by Mr. S. F. Edge, and was replied to by Mr. A. Wilson and Mr. E. M. C. Instone. The toast of "The Chairman and Vice-chairman," given in Mr. J. C. Percy's inimitable style, closed the toast list of a most interesting and enjoyable evening. Before breaking up the Chairman announced that the total amount of subscriptions notified in the room during dinner amounted to £907 2s. 6d.

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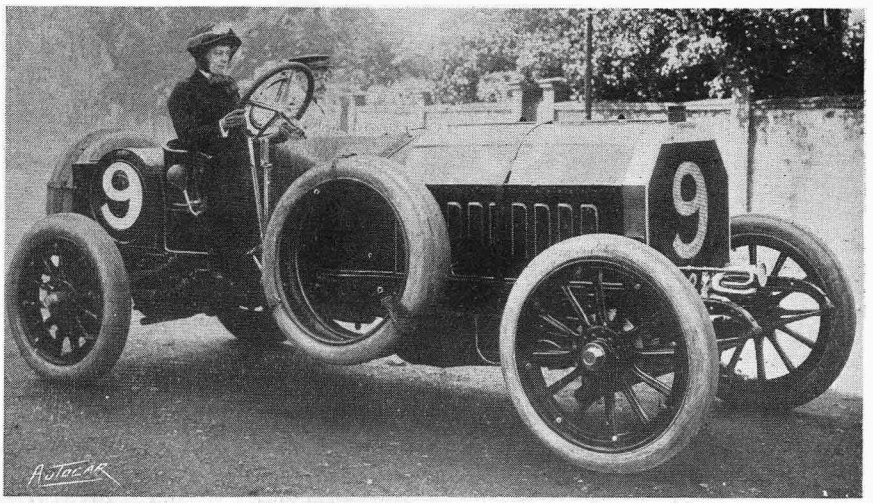
A novelist, who also happens to be a most enthusiastic motorist, writes us: "I am going to protest against the name of the new Daimler engine. It will wreck romance. How can an author write, after describing a fearful scene between the hero and the heroine, 'and rushed forth into the silent night.'" We sympathise with our novelist friend, but after all there are always some characters in a novel which must be killed off somehow, and a silent car end on is as deadly as a noisy one.



AN ENTHUSIASTIC LADY AUTOMOBILIST. Mrs. Edgar Thornton driving her 100 h.p. Itala. Already owning two lower powered Italas this is Mrs. Thornton's latest acquisition, and it is interesting to note it is the actual car which was driven to victory by Cagno in the 1907 Florio Cup Race at Brescia.

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Mr. J. R. Bramah, of 16, Chapel Walk, Sheffield, tells us he is specialising on improving old cars. That is to say, when a car has a good engine and chassis, but an antique bonnet and radiator, he redesigns and reconstructs the radiator and bonnet so as to give the car a more modern appearance.

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The International Roads Congress recently held in Paris has elected Lord Montagu of Beaulieu vice-president of the first section of the Congress, and Mr. W. Rees Jeffreys jointly with Mr. T. Cole secretaries of the Congress as representing Great Britain.

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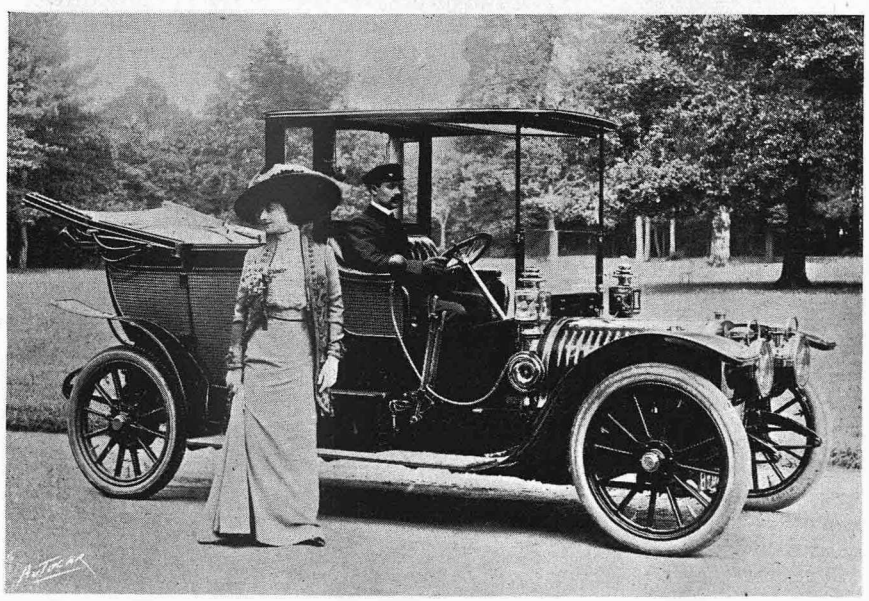
Few motorists realise the burden of the voluntary work undertaken by the hon. secretary of a club. In conversation the other day with Mr. Granville M. Kenyon, the hon. sec. of the Kent A.C., he told us that in the twelve months he found that his correspondence alone in connection with club matters necessitated the dictation of just over 2,000 letters.



A FINE TOWN CAR. A 16-20 h.p. Hotchkiss landaulet fitted with a handsome Kellner body, supplied to a well-known actress of the Opera Comique, Paris.

*Flashes.*

Amongst recent additions to the ranks of the A.A. is the Lord Chief Justice.

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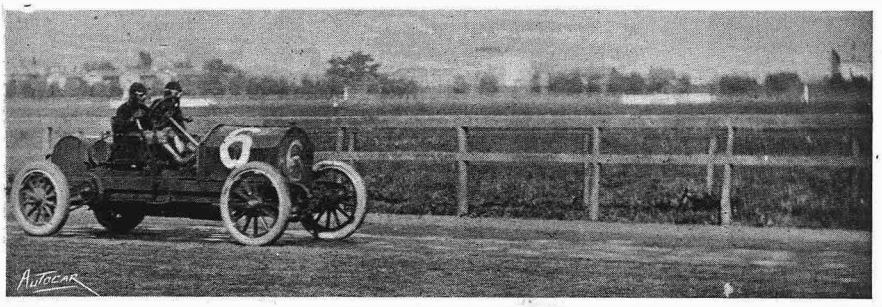
One of the refinements of the six-cylinder Standard car is found in the bearing for the magneto driving-shaft. This was originally a long plain bearing, but it was found in practice that this particular bearing did not stand so well as it should. It has, therefore, been replaced by a ball bearing. Another is the ready manner in which the oil level in the crank chamber can be ascertained. The lubrication is mechanical, and the oil sump in the bottom of the crank case has to be filled to a certain level. Before proceeding to fill it a tap is turned on, and then the oil is left to run till the tap begins to overflow. This tap, by the way, is most accessibly placed, so that one can turn it on without difficulty or soiling of the hands or clothes. It is really a very strange thing when one comes to think of it that probably seven-eighths of the engines in use to-day on motor cars have no means of ascertaining the oil level in the crank chamber, and that the majority of the few that are so provided have the oil level cocks placed in absolutely inaccessible positions, while the mere act of getting at them is a filthy undertaking.



THE TWENTY-FOUR HOURS' RACE. The winning car, a 50 h.p. Simplex car, driven by George Robertson and Frank Lescault alternately. The car covered 1,117 miles.

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Valveless, Ltd., having made application to the Technical Department of the Royal A.C. for a long distance trial (a thousand miles) of a 25 h.p. Valveless car, the trial began on Monday, October 19th, and will take place over the Club's six standard routes from London.

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It is seldom one hears of such a wanton assault as a motorist is said to have experienced last week on Hartford Bridge Flats. He was driving towards Basingstoke, and on passing a dogcart the driver struck at him with his whip. The motorist immediately turned and asked the horse driver for his name and address, but was only greeted with more slashes. He followed the horse-drawn vehicle until he reached Blackwater Police Station. The officials there were asked to take up the matter. The result of the proceedings to follow the horse driver's alleged atrocious behaviour will be watched with interest.

The Secretary informs us that the membership of the Automobile Association on October 1st stood at 7,838, as compared with 4,464 the same day last year, representing an increase in income of over seven thousand pounds per annum.

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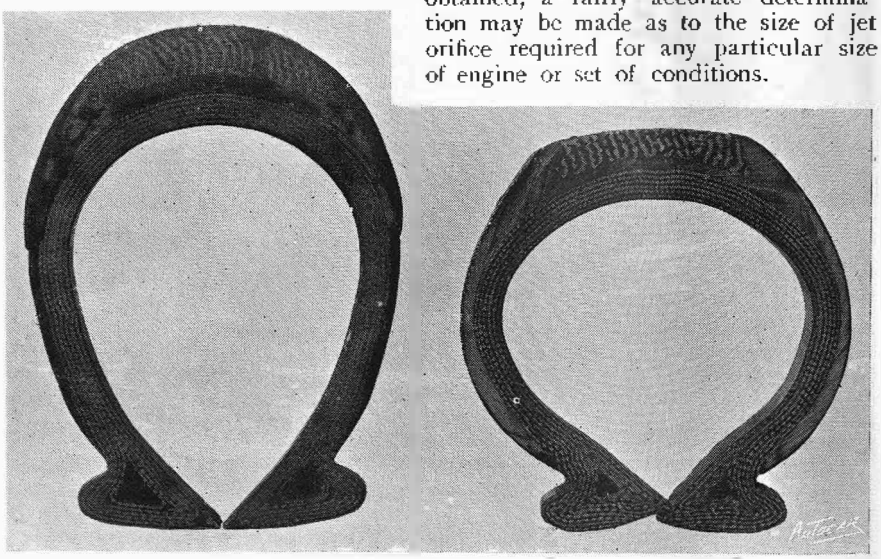
The Hon. Leopold Canning speaks most emphatically of the entirely satisfactory way in which he has always been treated by the Bridgwater Motor Co., Ltd. He has found the firm thoroughly competent, courteous, and honourable. In addition to this, they have splendid premises of so commodious a nature that when they were erected some few years ago they were regarded by many people as absolutely unreasonably large. As it was, the building of these large premises was an evidence of Mr. Carver's foresight, as they have proved too small for the company's requirements and have been enlarged.

* * *

Mr. Robert W. A. Brewer, A.M.I.C.E., will read a paper before the Society of Engineers on Monday, November 2nd, 7.30 p.m., at the Royal United Service Institute, Whitehall, upon the flow of liquid fuels through carburetter nozzles. This paper supplements Mr. Brewer's paper of last session, which obtained the President's gold medal. This second paper will deal principally with the action of a jet tube and its effect upon the flow of liquid fuel. There are a number of tables and curves in the paper which are the results of experiments extending over some twelve months, which show very clearly and concisely the amount of petrol which flows through a jet orifice of any size between 0.9 and 1.4 mm. diameter, and through all the range of suctions or negative pressures which are likely to occur in actual practice. There is also a certain amount of experimental data showing the relative behaviour of petrol and benzol under these conditions. The whole object of this paper has been to demonstrate that, by a method of simple calculation and the use of the data obtained, a fairly accurate determination may be made as to the size of jet orifice required for any particular size of engine or set of conditions.



Two sections of the Heisby tyre which was described last week. The left-hand section is from a new tyre, the right-hand section is from a cover that has covered 2,500 miles.

# SOME QUERIES AND REPLIES.

Readers are invited to send in replies to the queries of their fellow readers.

Letters should be addressed to the Editor of *The Autocar*, Coventry.

## QUERIES.

### No. 741.—Detachable Rim.

WILL any reader be good enough to advise upon the best type of detachable rim for a 40-50 h.p. Rolls-Royce?—M 1415.

### No. 742.—14-18 h.p. Gladiator.

I SHOULD be obliged if any reader would give me his experience with the 14-18 h.p. Gladiator of 1907 or 1908 type as regards hill-climbing, petrol consumption, speed, etc.—N.O.

### No. 743.—Heavy Motor Covers.

WOULD some of your readers kindly tell me how I can cut clean (up to ¼in.) holes through the centre or thick part of a heavy motor cover (pneumatic), and do it quickly and neatly?—T.L.F.

### No. 744.—Ross Petrol.

CAN any of your readers speak from experience of the value or otherwise of Ross petrol? An agent in this town has a stock of it, and it is sold considerably cheaper than the usual brands. I have not seen any mention of it in your paper, though I read it pretty thoroughly.—T.F. (Londonderry).

### No. 745.—Catalytic Ignition.

I SHOULD by glad to know whether any of your readers could tell me where I could obtain any of the old Catalytic ignition sparking plugs, or, failing these, some of the wire used for this purpose. I have never used one of these plugs, but I see no reason why they should not give satisfactory results, and am anxious to try them on my car.—F.D.

### No. 746.—Electric Lighting of Car.

I NOTICE a correspondent in *The Autocar* speaks of lighting his Singer car with a dynamo driven off the engine. I, and no doubt others too, would like to hear some particulars of how he does it. Where does he place the dynamo, and how is it governed so as to keep the speed right? Has he a cut-out to come into action when the engine stops? —W.S.

### No. 747.—Non-skid Bands and Studded Tyres.

I SHALL be much obliged if some of your readers will give me their experience as to whether non-skid bands such as Durandal are more economical to use than steel studded covers. The size of tyres on my cars is 920 by 120 and 820 by 120. I shall be glad to hear also users' experiences of Barker tyres. I may add I have long since given up re-treading worn covers.—IRIS.

### No. 748.—Kempshall Tyres.

WILL any owners of small cars (my car is a 7-8 h.p. two-cylinder) having experience of Kempshall tyres be good enough to say whether they have, as I am told they have, a definite retarding influence on the pace of the car, especially in muddy weather? I live in a hilly district, and have a daily round averaging between twenty-five and forty miles, and if my informant is correct, the time taken would be considerably increased, no small matter in the cold winter weather, to say nothing of the more frequent changing of gears.—A COUNTRY SURGEON.

### No. 749.—Petrol Consumption.

I SHOULD be much obliged if any owners of 20 h.p. White steamers will give me their experience of the number of miles they can run on a gallon of petrol. The White people tell me I should do eleven or twelve miles to the gallon, but I cannot in practice do more than eight, and this on fine summer roads, so what I shall do in the winter I am afraid to think. The roads here are narrow and winding, so that between pulling up for traffic and corners it is difficult to get up much speed, or at any rate keep it up for any time, and this of course militates against economical running. All the same, I am disappointed at my fuel cost, and if any reader can suggest how it can be reduced I shall be obliged. I burn Ross's petrol (a Scotch production, I believe), at tenpence a gallon, and the temperature of my steam averages about 390° C., so that it is not wet. Consumption was the same when I tried Shell.—S.W. (Castle Douglas, N.B.

### No. 750.—Radiator Water and Frost.

I SHALL be glad if I can elicit from some of your readers an opinion or opinions on the following points: (1.) Should one always use distilled or soft water in the radiator? Our local water is very hard, and quickly furs up the kitchen boiler. On the other hand, rain water is apt to rust iron pipes very quickly. (2.) How shall I avoid freezing in the winter? Supposing a certain amount remains in the pipes even after an attempt be made to empty the radiator, or if it were forgotten? I go to my country cottage every week end, and there my car would stand under cover, but in the open, as far as frost is concerned. Glycerine is suggested, and I fancy there are other anti-freezers. I am a beginner, and want advice.—W.R.A.

## REPLIES.

### No. 726.—Steam Cars.

I have had a 16 h.p. Turner-Miesse car for over two years. I have no difficulty in running at a fraction over one penny per mile with paraffin at or about sixpence per gallon, and lubricating oil, 2s. 6d. I may say that my car weighs 33½ cwt. with landaulet body, and is easy on tyres.—B 205.

I have had a 6 h.p. Stanley steam car in use for the last two years, and have pleasure in confirming all Mr. W. Ford C. has to say in favour of these clever little machines. My Stanley has given me great satisfaction; its silence and flexibility on the road are indeed a recommendation.—M.Inst.C.E.

I have driven a Sheppee motor of 12 h.p. for the last two and a half years. It is remarkable for smooth running. It is very light on tyres. It is fitted with the Sheppee Co.'s latest improvements. It is giving me entire satisfaction. There is no difficulty in driving it, as it has no complication of levers. It runs twenty miles on anything between one and a half to two gallons of paraffin and about the same quantity of water. If "J.J.C." wishes for any further information, and if he will write to me, I will give him any particulars with pleasure.—J. B. W.

### No. 734.—15 h.p. Buick.

I have now had one of these cars for three months. It is capable of a very good turn of speed, and very handy indeed in traffic. The worst part about it seems to be the carburetter; this has an adjustable jet working something after the style of that fitted in the sight feed of a Dubrulle lubricator, screwed up or down from the bottom of the mixing chamber; there is also an adjustable air, and if these two are not set exact it will not pull. It has a cork, which should be frequently treated with a thin varnish. The gears are push pedal, the box requiring plenty of thick oil. This is not a car I would propose to go on tour with, as it seems to me most suited for traffic, although it will climb any hill, frequently on top. I cannot give your correspondent any definite figures *re* petrol consumption, but would say roughly about twenty-five miles to the gallon.—J. A. SMITH.

I have for some months been the owner of a 15-20 h.p. Buick, and have driven it about 7,000 miles. It has given me every satisfaction, and I have never had a mechanical stop of any description. I look after the car entirely myself, and find it a very easy matter to do without the help of a mechanic. It has plenty of speed, and can maintain an average of well over the legal limit, and is capable of doing over forty miles an hour on the flat. I have kept a careful record as regards petrol consumption, and find that I can average twenty-eight miles to the gallon. The car is most simple to drive, the control is easy, and I certainly like the epicyclic gears, as they are very effective and give absolutely no trouble whatever. The engine is so flexible and smooth in running that when travelling on top speed one can hardly hear the car running. As a hill-climber I really think for a light car it is extraordinary, and I have really often myself been astonished at the steep hills this little car has negotiated on top speed. The oiling arrangements are very simple and effective. Every part of the mechanism is very accessible, and any little adjustment that might be required can be done without the least trouble. In conclusion, I would say that I am very pleased indeed with my little Buick, and would not change it for any other car. If there is any further information that "G.H.M." requires, I should be pleased to give him the benefit of my experience as far as I am able.—J. B.

### No. 722.—Turner-Miesse Steam Car'

Your correspondent "B 205" draws attention to an error in my letter to you of the 26th September *re* time taken in getting up steam on Turner-Miesse car from cold, for which I beg to thank him. Instead of five, I should have said *fifteen* minutes from cold, the five minutes, however, being about the time required after an ordinary stop for, say, lunch, with the burner turned right out, the heat stored in the generator enabling a quick start to be made. Knowing that the makers are particularly against any statement being made which is not true, I regret the error, and trust you will kindly spare me space to correct it. —F. A. YERBURY.

### No. 733.—Size of Tyres.

In reply to this query, I would tell your correspondent that I am driving a 15 h.p. Coventry Humber fitted with 810×100 tyres, and know of others doing the same, and the collective opinion is that this is the correct size for the car. In one or two instances I know of where 810×90 have been used the life of the tyre has been very much less in proportion, and using this size must therefore in practice be undertyring the car. My car in eighteen months has been driven over 5,200 miles, and to my knowledge the front tyres (810×100) have never been deflated, and the covers are still a long way from the retreading stage, while at the back the off hind wheel cover is still running, but is getting shaky. I inadvertently let it go too far before sending it to be retreaded. The excellent state of the covers is, I am sure, in a great measure due to the Ara vulcanising outfit, which I have used for stopping cuts and keeping the wet out. I have repairs in my covers done with this simple apparatus which have run over 2,000 miles, and are still good and watertight. I have no financial interest whatever in the Ara Co.—EC 271.

# THE TRANSVAAL A.C. NON-STOP COMPETITION.

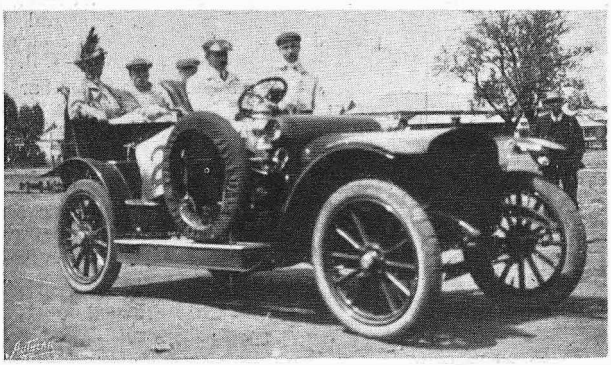
On September 19th and 20th last the members of the above club held a non-stop run for the Park Trophy from Johannesburg to Potchefstroom and back, the outward journey being made on the 19th and the return on the following day.

The route covers a distance of 166 miles of roads of very diversified character. There is a piece about six miles long covered with sand varying from three to six inches deep, two water spruits to cross, and mile after mile where rocks break through the surface of the road—in fact, the so-called road is little more than a track worn down by ox-drawn waggons. The difference in levels between Johannesburg and Potchefstroom is 1,500 feet, the entire lift having to be made in a distance of sixteen miles.

The following are the principal features of the rules which governed the trial:

All prize winners must make an absolute non-stop run. It must be clearly understood that a non-stop is a run in which the road wheels have been in motion the whole time between the controls. A competitor may switch off his engine going down hill, but the engine must start running again without assistance other than that given by the momentum of the car.

No adjustments may be made except any slight adjustment to trembler coil or lubricator, which can be made only by the driver whilst the car is in motion.



The winning car, Mr. H. Gill's 25-30 h.p. Austin.

No persons other than the driver shall be allowed to touch any part of the car mechanism or steering wheel.

After the starting signal has been given no person may leave the car for any purpose until the control is reached.

Competitors will have their petrol tanks filled at the starting place. No spare petrol may be carried. If a further supply of petrol is needed at Potchefstroom, an official of the club will fill in the petrol required. On arrival at Johannesburg all competitors who have made non-stop runs must have their tanks refilled in order that the committee may ascertain the exact amount of petrol consumed.

All competitors must have their cars weighed with petrol and water tanks full, but without passengers, luggage, spare parts, etc.

Oil, water, and grease may be put in the car at Potchefstroom, and the time occupied will not be counted. The observer must be present during the time taken in doing this, and must see that no adjustments whatsoever are made.

The minimum average speed limit for the journey is as follows: Ten miles per hour for cars of 10 h.p. and under, and twelve miles per hour for cars of over 10 h.p. Cars not making this average speed will be disqualified.

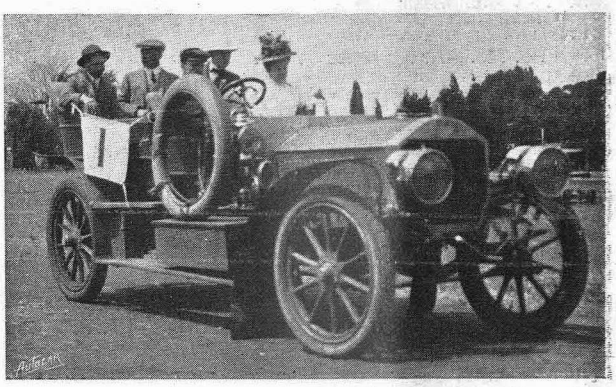
Competitors must not fill any supplies whatever into the tanks, lubricators, etc., between controls.

All competing cars must, in the opinion of the committee, be in regular touring condition.

The winning cars will be decided by the following formula:

$$\frac{\text{Gross weight of car, passengers, luggage, etc. (petrol tank full)}}{\text{Petrol consumed in gallons}} \times \text{average miles per hour.}$$

The Park Trophy was won by Mr. Gill's 25-30 h.p. chain-driven Austin, which made an absolute non-stop run at an average speed of 28.4 m.p.h. Eight and a half gallons of petrol were consumed on the 166 miles run. The car, with passengers, weighed 39 cwts. 1 qr. 8 lbs. Second place was taken by Mr. Hellmann's 40 h.p. Napier, which made a non-stop run at an average speed of 31.9 m.p.h., and consumption of eleven and a half gallons of petrol. The car weight, with passengers, was 42 cwts. 3 qrs. 12 lbs. Mr. Adair's 8-10 h.p. Darracq ran into third place, and made a remarkable journey. The car's laden weight was 17 cwts. 1 qr. 18 lbs., and the 166 miles were traversed with a fuel consumption of four gallons, at an average speed of 25 m.p.h.



Mr. H. Hellmann's 40 h.p. Napier, which was placed second on formula.

The following is a list of the competitors who made non-stop runs and were awarded Club medals:

| | Factor. |
|---|---|
| Mr. H. Gill (25-30 h.p. Austin) ... ... | 14,092 |
| Mr. H. Hellmann (40 h.p. Napier) ... ... | 13,359 |
| Mr. T. B. Adair (8-10 h.p. Darracq) ... ... | 12,349 |
| Mr. H. Moton (10-12 h.p. Gladiator) ... ... | 10,346 |
| Mr. D. H. Saker (9 h.p. Star) ... ... | 8,195 |

## CLUB DOINGS.

### British Motor Boat Club.

The question of new classes for the 1909 season is to be considered shortly. In addition to the usual speed classes there will be one specially provided for 18ft. boats. The advisability of creating a class for hydroplanes pure and simple will also be considered.

### Scottish A.C.

Examinations for driving and mechanical proficiency certificates in connection with this club will be held as under: Glasgow, Tuesday, October 27th; Edinburgh, Thursday, October 29th; Dundee, Thursday, November 5th; Aberdeen, Friday, November 6th; Inverness, Saturday, November 7th; Dumfries, Tuesday, November 17th; and Hawick, Thursday, November 19th.

### The Manchester A.C.

A meeting of the committee of this club was held at the Midland Hotel at noon on Tuesday, the 13th inst. A letter was read from the Royal Automobile Club, from which it appeared that no scheme would be entertained permitting joint affiliation to that body and the Motor Union, and after discussion it was resolved that the proposed conference of provincial clubs be abandoned in view of the attitude adopted by the Royal A.C., as the conference promised to serve no useful purpose, nor to lead to any peaceful solution of the present differences of opinion. Discussion of the future attitude of this club and the arrangements for obtaining the views of members was deferred to a future meeting.

The action of the secretary in arranging for the erection of a danger sign at the top of the Cat and Fiddle Hill was approved.