SATURDAY, OCTOBER 30TH, 1909.

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.

Motorists and their Licences.

Whether motorists are members of "The Autocar League" or not, they should most assuredly profit by the advice we tendered to the Leaguists in our last two issues as to the places in which they take out licences for anything which requires a licence. There can be no motorist who has not year by year to do this for something other than his car, be it dog, gun, horse carriage, man-servant, armorial bearings, game, or what not. Such licence or licences will not, when the motorist realises what it means, be procured at any except a post office situated within the boundaries of a "clean" county. The fact that the proceeds of all these licences go to the county funds of the county in which they are issued places a weapon ready to our hands which we should be worse than foolish and wanting in our duty to ourselves and those counties which do not harass motorists if we omitted to use. To do this will entail some little trouble, but let the car owner who has been unjustly fined by the unsupported evidence of policemen remember his financial wounds, and resolve that no penny of his money that can be diverted shall go into the coffers of these plundering authorities. As the law stands at present, nothing but the driving licence fee of 5s. must be taken out within the area of the administrative county in which the person resides, and if any motorist who lives in Surrey or West Sussex, for instance, takes out his various other licences in either of those counties he travels near to being a traitor to his kind. These motorphobist authorities have spoiled us; let us spoil them as far as we can. We are carefully compiling a list of clean counties, which we shall publish early in December for final criticism by our readers, and we shall publish it before the end of the year in its final form, so that no motorist's money need be wasted in assisting the finances of counties which fleece us.

Bargaining with Parliament.

Many months ago, long before the present taxation proposals were made public, we ventured the opinion that the right policy for motorists to adopt was one of steady uncompromising but courteous opposition to any proposals for increased taxation. This was at the time when certain motoring bodies were communicating with the Government authorities on the subject of taxation and telling them in one form or another that if they must be taxed the money should go to the improvement of the roads. We pointed out at the time that this was a most dangerous policy, and that it was far safer to oppose taxation in every possible way, as it was impossible to bargain with Parliament. Unfortunately events within the last few days have shown how true our warning was. The Development and Road Bill, which came before the House of Lords last week, has been amended out of all recognition, so far as the road proposals are concerned. From a Parliamentary point of view the person most to blame is the Chancellor of the Exchequer, because he brought out the propositions for the increased car taxes and the altogether new petrol tax, but he promised the motorists, and in the draft of the Road Bill he maintained his promise, that the taxes should in the main go to the improvement of roads. Now the Lords have accepted an amendment that the motorists' money shall go to the maintenance of existing roads, as well as to the construction and maintenance of new roads and the improvement of existing ones. This is an absolutely unfair amendment, as if it is to be a question of general road maintenance, all vehicles should be taxed whether they be horse-drawn or otherwise, and the money from them all should go to the same object—that of road maintenance. As it is, the Lords propose that the motorist who already, as an ordinary ratepayer, pays his fair share of the rates by which the roads are maintained, is now to pay a special supertax for road maintenance. This shows plainly that the House of Lords is even more opposed to the motor car than the House of Commons.

We wish to steer clear of any political discussions, but it is painfully evident that the motorists' true friends in Parliament are comparatively few. First of all, we have the Commons voting for the increased car taxes and the new petrol tax by an overwhelming majority, and then we have the Lords proposing to spend the money in road maintenance, that is, as a mere contribution to the county and borough council rates. However, at the present time, with Parliamentary matters in such a chaotic state, with the future of the Finance Bill and the Road Bill so uncertain, it is impossible to say what will be the motorists' ultimate fate, but it certainly seems to us that the R.A.C., the M.U., and the Society of Motor Manufacturers should appeal most strongly to the House of Lords to carry out the spirit of the agreement which was entered into between them and the Chancellor of the Exchequer, unless the Lords intend to throw out the Road Bill entirely, which at the time of writing certainly does not appear to be their intention. So far as the motoring clauses are concerned, the Upper House is merely attempting to make the conditions harder and more unfair upon the motorist, who is being exploited in both Houses as a mere means to a political end. In the Commons he appears to be used more or less as a bait for the Socialists; in the Lords as a bait for the Agriculturists, justice to the motorist himself having very little consideration in either House. Had a really strong uncompromising opposition been made by the combined motoring organisations we do not believe that such an unsatisfactory state of affairs would have been arrived at. It has all come about by this foolish attempt to bargain with Parliament, which has ended as we said more than a year ago it would end. "We do not want to be taxed, but if we must be, please give our money to road improvement." This has been the child-like policy for a year or more.

Suppressing Scorching in Scotland.

Special attention should be drawn to the report of the Touring and Roads Committee of the Scottish A.C. which was dealt with in our "Club Doings" last week. A considerable number of activities were reported, but the special work to which we wish to draw attention is that of the Club's road agents. These officials had been posted at 153 controls, all of a nature where the speeds of cars should be restricted, and they had taken the times and worked out the speeds of nearly three thousand cars. The numbers of the cars were booked, and the owners of all which were driven at undue speed were communicated with, but only eight cases which were considered really bad on account of repeated excesses of speed were reported direct to the police authorities. Work on a somewhat similar but smaller scale was done last year, and the committee were satisfied by the comparison of last year's speeds with this year's that cars were now being driven with much greater care and consideration. All this is extremely satisfactory, and we sincerely congratulate the Scottish A.C. upon its sound work. We should like to see greater activity in this respect south of the border. So far as we know no equivalent work is being attempted at all except by the Automobile Association, and its hands are already so full with the ordinary patrol work and other activities for which it has made its name, that it can scarcely be expected to devote very much time or money to expensive investigations of this character, as the work is really of no use unless thoroughly careful timing is carried out, and this means that two competent officials must be posted at each control, which in its turn spells expense. Nevertheless, it is only fair to remark that what is possible in the matter of timing and exercising a disciplinary influence over motorists north of the Tweed should also be possible on the southern side of the river.

Earl Russell on the Road Bill.

At the fourth annual banquet of the Cycle and Motor Trades' Benevolent Fund on October 21st, Earl Russell, who presided, proposed "Success to the Fund," and after apologising for his absence at the dinner itself, went on to say: "At about the moment when you were sitting down to dinner I was making some observations in the House of Lords as to the iniquity of swelling our Road Fund in order to put it into the rates to maintain the roads. You will regret to hear that that august assembly, after some discussion, has adopted, by eighty votes to thirty, an amendment placing some charge for the maintenance of existing roads upon the Road Fund to which our new motor taxes will have contributed. ('Shame.') It has been pointed out by your humble servant and by others that that was a gross breach of the Parliamentary undertaking and understanding of motorists, but, however, the House of Lords, representing, as it always claims to do, the will of the people—(laughter)—has stated that in the interests of the public whose charges have been so enormously increased by motor traffic, they considered it right to carry that amendment, and that amendment has been carried. If I may make an observation as a result of the debate to-night, from what has been said on both sides, it is that, in motor matters at any rate, I should not advise you to put too much confidence in the House of Lords." (Laughter and applause.)

In the course of a speech at a Bohemian social concert, held at the St. George's Restaurant on Friday, October 15th, in connection with the Cycle and Motor Benevolent Fund, Colonel J. E. B. Seely remarked that we lived in an age of mechanics, and all who were not born with the proverbial silver spoon should enter upon this existence with a spanner.

* * *

The Motor Union has this week succeeded in establishing to the satisfaction of the Bow Street magistrate that a first class speedometer, which is controlled solely by mechanical means, is much more to be relied on than a stop watch in the hands of a police constable with very little experience of timekeeping. A driver employed by Mr. W. M. Burnham, a member of the M.U., was summoned in respect of an alleged infringement of the twenty miles limit over a measured furlong in Whitehall, the speed alleged being 23 miles 440 yards per hour. The speedometer which was on the car at the time registered just below twenty miles an hour. Mr. M. P. Oldfield, instructed by the Union, appeared for the defence, and subjected the witnesses for the prosecution to a cross-examination as to the methods employed in timing. After hearing the evidence of Mr. Burnham and of a speedometer expert, who testified as to the accuracy of the instrument, the magistrate, Mr. Marsham, stated that he had decided to dismiss the summons.

Useful Hints and Tips.

Grumbles. By the Grumbler.

High Tension Magnetos.

I HAVE a great respect for the manufacturers of high tension magnetos, as there are few branches of automobile engineering that call for greater care, accuracy, or experience in the selection of materials. My respect, however, is limited to the makers, and I can only extend it to very few of the firms that fit magnetos.

When a magneto fails or needs repair, the maker of it is usually blamed, whereas the culpable party is generally either the user or the maker of the car.

The car manufacturer seldom pays the necessary attention to lining up the armature shaft with the magneto driving spindle. He often relies on a very badly made joint—by no means universal—to correct or compensate his own bad fitting.

Moreover, he never attempts adequately to protect the magneto. When an experienced purchaser desires a proper magneto cover, as made by the Simms Co. and others, he is informed that it is an "extra." Personally I regard it just as great a necessity as the cover to a gear box or the inspection cover of a back axle casing.

I have still another grumble against firms fitting an Oldham-type coupling between the driving and armature shaft. This type of coupling permits the driven shaft to be coupled in two ways—the correct way and 180° advance or retard, whichever you prefer to call it. How many couplings are properly marked so that this choice of position cannot occur?

Reputable Accessories.

The experienced motorist always purchases his accessories from firms of repute. Besides being cheapest in the long run the initial expense is usually no higher. Some time back I bought some high tension wire from a little known firm. The wire looked first class, and as the price was the same as usual (I do not believe in inferior electrical details), I concluded that it was the genuine article. After a very short time, however, I found that, despite its robust diameter, it possessed very feeble insulating power, and was rapidly rotting.

My grumble is that wire is never marked so that the innocent buyer (like myself) can see the name of the actual maker. This is of no consequence when I go to a firm I know, and who I likewise know will only give me good stuff, but if I am "on the road" (with "Owen John's" permission) and want some wire, the local garage or cycle works are liable, in all good faith, to supply me with rubbish. I can buy a "King Dick" spanner anywhere because it is marked, so why not have the same system with wire and other important items.

Carrying of Tools.

During my reckless moments (usually at the beginning of the month) I often feel inclined to employ a Hooligan—or Apache as he now calls himself—to murder the man who first made the usual leather tool roll. A more unpractical and useless thing never existed. Apart from the fact that many of the tools are never wanted, the roll itself is an awful thing.

When it is new it certainly is a thing of joy, but after a little use the leather roll seems to become possessed of great capillary powers. The oil and grease on the tools work their way to the outside of the roll, so that it rapidly becomes a black sticky bundle, which the owner dreads to touch. The next stage in the disease is that the small tools which are usually required are removed from the dirty confines of the roll and distributed throughout the car. Thus the small shifter "lives" under the driver's seat; the gas pliers cohabit with the shifter; the screwdriver lives next door, also under the seat, etc.

Eventually the roll only contains the tools that are never wanted, and is stowed away in some obscure corner to rot.

Exit tool roll.

What is wanted is a strong wooden box with separate receptacles for each tool. I am waiting for some firm to supply this as standard. At present the local carpenter does the job, and it is much cheaper than a real leather roll.

Inaccessibility.

If I started grumbling on inaccessibility (and if the Editor were to publish all I should like, but never have the energy to write), I should require an edition of *The Autocar* the thickness of an encyclopædia volume. I will for the present confine my remarks to what I call the "countersunk" engine. As an extreme case I remember at the 1907 show (am not quite certain of the year) I saw a Climax chassis (now defunct). The bonnet was off, and as I approached it I made the remark, "They evidently could not get the engine finished for the show," as there was no engine visible. On close inspection, however, I saw that the engine was in position, but the side members of the frame were so high, and the engine slung so low, that the cylinder tops were practically level with the frame. The engine was a really first class one (a White and Poppe), but I think a good engine like that deserved a higher position. Some engines certainly should be put very low down, but that is another question.

The only accessible part of this engine, with its carburetter and ignition system, was the water outlet pipe.

I admit this is an extreme case, but there are other cars that offend greatly in this direction. There are a lot of well-known modern cars that have the base of the magneto and the petrol union to the carburetter well below the top of the frame. This construction is very poor to my mind. I like to see these parts and not have to feel for them.

According to the lay press, the motor car is rapidly approaching the perfect stage, so that my grumbles are really quite uncalled for; but it takes more than a press statement to silence such a confirmed chronic grumbler as myself.

Undershields.

One of my greatest grumbles has been directed towards the fiendish manufacturer who fits undershields that require the strength of Sandow, the patience of Job, a man designed on octopus lines, and a very big stroke of luck to refix the undershield should it ever, in a moment of bravado, have been taken down. All undershields can be easily taken down, but I have still to find the one that can, single-handed, be fixed on. Even when the shield is on, unless it is very carefully fixed it has a great tendency to rattle, which to a sensitive motorist is a refined purgatory.

I suppose the reason the undershield receives such scant attention is that it is a tinsmith's job. The gear case on the bicycle is similarly extremely difficult to refix, though the cycle maker has more excuse than the car manufacturer, in that he is cramped for room and has moving parts closely adjacent to his casing.

"The Autocar League."

Motorists and the Municipal Elections—The Test of Clean Counties.

"THE AUTOCAR LEAGUE" HAS NO SUBSCRIPTION. ITS AIMS ARE TO OBTAIN THE SUPPORT OF EVERY MOTORIST IN THE UNITED KINGDOM, SO THAT WHEN MATTERS OF VITAL IMPORTANCE COME UP FOR DISCUSSION A POSTAL REFERENDUM CAN BE TAKEN. WHEN THE REFERENDUM IS COMPLETED THE GOVERNMENT OR OTHER AUTHORITIES CONCERNED AND ALL THE CLUBS AND MOTOR ORGANISATIONS WILL BE NOTIFIED. ON CERTAIN OCCASIONS THE MEMBERS WILL BE ASKED TO TAKE UNITED ACTION, SO THAT INJUSTICES MAY BE REMOVED OR ABUSES STAMPED OUT. IT IS ONLY BY SOME SUCH SYSTEM AS THIS THAT MOTORISTS WILL BE ABLE TO OBTAIN FAIR AND JUST TREATMENT.

Municipal Elections.

ON the 1st November the municipal elections will take place throughout London and the provinces, and though they do not excite the same interest as county council or Parliamentary contests, they are of considerable local importance, and much may be done by these councils to make or mar the areas under their administration from the point of view of the itinerant motorist. It is a characteristic of all municipal candidates that they are "pledged to economy" with "efficient service," and that the interest of all classes will be their "special care." They may, therefore, be reasonably expected to encourage the motorist, who generally has money to spend, to give the borough the benefit of his patronage, and in return to use their influence in the proper quarters to obtain such conditions as will not only attract the motoring visitor but retain the support and co-operation of their motoring constituents.

To counteract the apathy and indifference of the municipal voter candidates and their canvassers will be glad to have the use of all the motor cars they can procure, and we therefore ask all members of the League to meet any overtures for the loan of their cars with a careful enquiry as to the candidate's views on automobilism in general, and in particular as to his bearing on existing local conditions. These may be good or, more probably, bad, and the man with a car to lend should frame his questions accordingly and satisfy himself that he is not sacrificing the cleanliness and elegance of his car and its appurtenances to the service of an individual who may consider it consistent with his pre-election promises to support the imposition of speed limits in open and unfrequented roads to the neglect of other places, and by countenancing the extortions of magistrates, whose greed is inversely proportionate to their sense of justice, deprive local tradesmen of a remunerative source of custom and bring into bad repute those whose interests they were appointed to protect.

How League Members may Help us.

From one of the counties which is at present on the black list we have received a hint from a member of the League that the recent appointment of a new chief constable might be the first step towards a change in the truculent attitude at present shown by the police towards the touring motorist. A large number of League members in this county intend to transfer their licences elsewhere at the end of the year, not because they disapprove of traps to capture road hogs driving to the common danger in villages or round corners, but as a practical protest against constables in civilian clothes lurking in ditches and behind hedges with doubtful stop-watches and the rigorous enforcement of absurd speed limits in open and deserted stretches of country simply to extort fines. We hope the new constable is a motorist, and will recognise that the persecution of motorists is not only a reflection on his conception of his duties, but also a very real source of loss to many to whom the fair name of the county is of material importance. Our correspondent's letter is an admirable example of how useful individual members of the League in all parts of the country can be to the general interests of automobilism by keeping the secretary of the League informed of important events directly affecting their particular county. It is most probable that we should not have heard of the appointment of this new chief constable at so opportune a moment as the present, and consequently we should not have been able to initiate any steps for the ultimate removal of those objectionable conditions which make the county a byword among motorists. Our correspondent has not only told us of the new appointment, but he has suggested a diplomatic course of action in which members of the League in his county should be asked to participate. We are acting on his suggestion, though for obvious reasons we cannot publish it, but we hope it will result in one more "clean" county next year.

Clean Counties.

Our enquiries in this matter are proceeding, and bring to light many differences of opinion as to the claims of particular counties to be regarded as "favourable." Hertfordshire is a case in point. There are several motorists resident in this county who testify to the fairness of police methods and the absence of traps except in places where complaints of dangerous driving have been received. They are eloquent in their praise of the courtesy extended to them by officials of the county constabulary, and also of the great improvements which have been made in the conditions of the roads. On the other hand, we have received indignant protests from members in Barnet and St. Albans, who say that motoring above a speed of ten miles is practically impossible on the Great North Road through the country, though tradesmen may drive horses at any pace they like, which generally means they overtake the motorist, and meet him with a smile on their return journey. We are uncertain how far the activities of the Metropolitan police extend in the county, for it is possible that they, and not the county police, are responsible for the conditions on the North Road, and we should like to receive further reports from members in the county lest we should be guilty of conferring honour and revenue where neither is due. Yorkshire is another county which presents difficulties. Divided into three Ridings, which contain many county boroughs, it is a matter of some doubt as to where the revenue from licences really goes. Take the West Riding, which, unfortunately, as a whole does not adopt the same favourable attitude towards motorists as the

other two. There are several county boroughs where motorists are well treated, and have no grounds for complaint, as, for instance, Halifax and Bradford, and members of the League in these places are anxious to benefit their boroughs rather than the county council for the West Riding. We understand that in this Riding the several county boroughs, though otherwise distinct, have a special scheme of adjustment with the county council by which the revenues received from licence fees and certain other duties are pooled. We are glad to offer this information, as several Yorkshire members have expressed some doubt as to the ultimate destination of their licence fees. We think the best thing they can do under the circumstances is to send their money to the North or East Riding unless they happen to reside in an unprejudiced borough in the West Riding, when they may well pay it to their own local authorities.

We shall refer to this subject again, and meantime will welcome any help members can give us in the preparation of the final list of clean counties, which will be published in good time.

Some Extracts from "The Autocar League" Correspondence.

THE ISLE OF WIGHT.

I am writing a line to inform you that the Isle of Wight has an absolutely clean sheet as far as police traps are concerned. I have never heard of one, and it is an admirable country for motors as far as scenery is concerned.

The entrance to it *viâ* Southampton and Cowes is dear, and should be barred if possible. The route *viâ* Lymington and Yarmouth is cheaper and better, as is also that *viâ* Portsmouth and Ryde, but the latter is tidal and hence times must be ascertained beforehand.—DL 310.

MOTOR TAX.

I have written to the Chancellor of the Exchequer respecting the calibration of engines for taxation purposes pointing out that all engines marketed prior to 1909 should be accepted at the maker's stated power, that being all that they can be expected to average.

Further, that it is manifestly unfair to class engines with automatic inlet valves along with those having mechanical ones, and short stroke engines along with long stroke ones.

That old engines deserve some consideration as against modern ones. The owner of the old and less efficient car is usually the person least able to bear the burden of the extra taxation.

I hope all owners of such cars will write to the Chancellor of the Exchequer pointing out these anomalies before it is too late. Numbers count!—A MEMBER.

CHESHIRE A CLEAN COUNTY.

I notice in your issue of October 16th that you include the county of Cheshire in the list of those counties which "must be added as claiming admission to the roll of honour." Although I receive *The Autocar* every week, and read it (perhaps hurriedly at times when I am busy), I have not noticed any complaints with regard to this county or its Chief Constable, but as the county is now being added to the above list, I feel that it is only right to bring to your notice the very fair and commonsense treatment that the motorist gets at the hands of the Chief Constable and his police in the county.

I may say that I motor about the county a great deal, and especially the Chester side of it, as also do many of my friends. Frequently drivers of motor cars passing me signal to me to go slowly, presumably on account of a police trap. I always acknowledge their kindness, but inwardly I always smile, and certainly never alter my speed if I know the road, unless I am approaching a cross road, turn, village, or some place where it is one's business to slow up, and I always hold up Cheshire as an example of how police regulation of motor traffic should be carried out. My experience is that, owing to a certain class of motorist, who has perhaps more money than brains, it is found necessary to place police at dangerous places, to stop the former from going at a speed dangerous to the public. On certain roads in the county I know it has even been found necessary to time cars covering certain distances, but this has always been done in a perfectly open manner. Numbers of cars have to my knowledge been, as you might say, "caught" in this manner, exceeding the legal limit, but how many of these have been prosecuted for dangerous driving? Certainly those that have been I am sure richly deserved it, and I also know that the number is extraordinarily few.

Although the Chief Constable of Cheshire is, I know, a true Britisher, and a man to whom anything mean or underhand would be distasteful, I am certain that if he should at any time find it necessary to take serious steps to prevent dangerous driving, it would be entirely due to wanton and thoughtless behaviour on the part of motorists themselves.

I should like to say, in termination of my letter, that I feel sure that in the county of Cheshire the police are much too well organised, trained, and are too businesslike, to waste their time in trying to make names for themselves and get advancement, as is done in some counties, through setting traps to catch motorists, whether they deserve it or not, though at the same time they have to carry out their duty of protecting the public, who in this county, whether owning motor cars or not, should be grateful to them.—ANTI-SOCIALIST.

I think there must be some mistake in the information given you about the treatment of motorists by the police in Cheshire which has caused you to put this county on your black list.

I have lived here for many years, and have been a motorist from the earliest days of the movement. I have driven cars of the following powers: 9½ h.p., 12 h.p., 16 h.p., 20-30 h.p., and now drive a 36-40 h.p. These cars I have driven many

Those of our readers who approve of the objects of the League are asked to sign and send in the following form:

THE AUTOCAR LEAGUE.

I am the owner of a .....h.p..... and will undertake to vote by postcard or letter on any important matter concerning the welfare of automobilism.

Name.....

Address.....

To the Editor, "The Autocar," 20, Tudor St., London, E.C.

thousands of miles over the county, and during the whole period—about nine years—I have never been interfered with.

There are no hidden police traps in the county. The only traps are long distance ones of from three to seven miles, and these are located in places where it is really dangerous to drive at a high speed. The police in uniform stand out openly in the roads, and a driver can always see that he is being booked as he passes a given point. If he is reckless enough to go at an excessive speed after such a warning surely every right thinking motorist will agree that he deserves to be hauled up for it.

There are very few prosecutions in the county, and none take place unless the speed has exceeded twenty-five miles per hour over these long distances, or unless the driver is charged with driving to the danger of the public in populous or dangerous places.

The Chief Constable—himself a motorist—has, I believe, treated us in a fair and reasonable manner, and I feel sure if all counties were like this motorists would have little to complain of.

I trust you will enquire further into the matter, and see your way to remove the name of this county from the black list.—J. Alfred Morris.

[We have received several other letters from Cheshire motorists to the same effect as the above, and in our issue of October 16th we added Cheshire to the provisional list of counties to which licences might be paid by those who had the misfortune to live in blackened areas. The reason Cheshire was not included in the original list was that this list contained counties in which there were no police traps of any kind. At that time we had not sufficient data by us to enable us to discriminate between the trap as such and the fairly administered control, and therefore we excluded every county in which police timing of any sort or description was practised.—Ed.]

MUNICIPAL ELECTIONS.

Some few weeks ago I was asked by my friend Councillor ——— to give him my assistance at the forthcoming borough council election on November 1st. I gladly promised him the use of my two motor cars, and also my personal aid for the event. My attention was drawn to a newspaper last week dealing with a proposal to restrict the speed to ten miles per hour in my friend's district over several miles of road and most unnecessary thoroughfares. One of the greatest supporters of the proposition was my friend, who now surely cannot blame me for intimating to him a withdrawal of my promise. Perhaps members of "The Autocar League" will keep their eye on similar cases.—Fair Play.

THE RETFORD POLICE.

With reference to your remarks in last week's *Autocar re* Retford and its police jurisdiction, there are no borough police at Retford, but the county police have a Retford division under Supt. Thomas with headquarters in the town, so that the actual jurisdiction of the Retford police extends for some miles round the borough, but the activity of the police with regard to motor offences has been limited to the borough or a short distance outside thereof. Personally, I am of the opinion that the police are not all to blame for their persecution of motorists, their hands having been forced by the Corporation.

If my recollection serves me rightly, previous to a speed limit being in force in Retford prosecutions were unheard of, and at the Government inquiry following the application Supt. Thomas stated that he was not in favour of a speed limit, as he had sufficient power under Section I. of the Motor Car Acts.—Resident.

[We thank our correspondent for his information, which confirms our advice that Retford should be avoided as shown on page 576, October 9th.—Ed.]

ITINERANT CATTLE.

I should like to call your attention to a matter which I think it would be a very good thing to have legislated for. I refer to the driving of cattle on the road after dark. On Saturday, the 16th, I was driving from here (Windsor Forest) to Northampton. I left Newport Pagnell at about 6.15. It was very dark, and raining. I had my lamps, a large acetylene headlight and oil side and tail lamps, alight. About three miles from Newport Pagnell I was going along at about fifteen miles an hour (luckily for me!) I have to wear glasses, which were rather fogged by the rain. I heard shouts from in front, and, guessing there were cattle on the road, I jammed on both foot and side brakes, and locking the wheels, slid right into the middle of a herd of forty black Galloway cattle. I saw nothing of them at all till I was in the middle of them. I knocked one beast down, but it was not much hurt. The only danger to my car was a smashed headlamp, mudguard, and dented radiator, so I consider I got off cheaply.

All vehicles are supposed (?) by law to carry lights. I ask whether an obstacle like a herd of cattle being driven at night should not have a man in front and behind with large lanterns. Apologising for the length of this letter—E. J. Needham.

COUNTY BOROUGHS AGAIN.

Referring to the scheme of favouring counties which do not persecute motorists when paying one's motor licences, I do not think you have advised as to what one should do in regard to county boroughs like Brighton, where the police are exceedingly fair, but where, outside the town, one is immediately in one of your "black" districts. Other motorists would no doubt be glad of advice on the point.

I hope some scheme will be arranged to meet the many owners of cars, who, like myself, have bought second-hand cars, whose rating by a fraction brings them within a higher licence (*e.g.*, my car is a 15 h.p. Panhard, the R.A.C. rating of which is I understand 20.5), and who cannot afford to sacrifice their cars and purchase more modern types.

THOMAS GARRETT.

[We have dealt with the subject of County Boroughs both in this issue and last week. As Brighton itself is fair it should not be deprived of the licences of resident motorists, but it is in West Sussex, so that residents in that half of the county should pay their money to some "clean" county.—Ed.]

PERSECUTION IN LANCASHIRE.

Referring to letter 14819 in your last week's issue, in which your correspondent suggests putting St. Helens on your black list of towns to be avoided, I fully endorse every word he says, having been a victim myself to the unfair treatment of the St. Helens magistrates.

Driving one evening with a friend and resident to his house in the suburbs of St. Helens, the road being 60 feet wide, and not a single person on it, I noticed two police approaching on the footpath. The car being on its second speed and travelling at not more than twelve miles an hour, I little dreamt I was running into the jaws of the law and a fine of £5 and costs for driving to the danger of the public, so kept blissfully on my way without the slightest intimation from the police that I was doing wrong; but, no, they made up their minds by the following evening, and went to my friend's for my address, which he promptly gave. Their evidence was contradictory and untruthful, which I can now (knowing their case) bring evidence to prove. However, fortunately, I made provision, knowing full well my fate, or I should by now be just about completing my fourteen days.

My motoring record exceeds 170,000 miles without previously a finger being raised against me, but this is not good enough for St. Helens. I am deemed a criminal by an ignorant policeman.—Not One of the Four.

FAIR PLAY FOR BIG CARS.

I am very sorry to be one of the many who will be hard hit by the proposed new taxes.

I certainly think big cars are to be encouraged; there are many reasons why they should be, as everyone who has anything to do with them knows.

They do more damage to the roads possibly, but the petrol tax will equalise them on this score, as against the small car. Why should this not have sufficed? It means a considerable tax to the owners who get from 10 to 15 m.p.g. out of their cars; but my contention is that, whereas if this petrol tax had been the only extra one imposed, no harm would be done to the industry generally. Who will entertain the big cars when they come into the second-hand market, if they will have to pay yearly an enormous tax? It means this, that the original purchasers will keep their cars, and shun the idea of a new one, which, of course, will put the manufacturers and the men who have put England to the top of the motor industry in a very serious way.

Could not Mr. Lloyd George be induced to put more on the petrol and leave the other as it was? This way seems to me

to be the fairest since the bigger the power, and the more the car is used, the greater would be the amount paid towards the maintenance of the roads, etc.; then the present owners who only keep a car for occasional runs would not be hit unfairly. If we are to pay for the use of the roads, surely it is only fair and right to pay according to how much we use them.—W. HURLOCK, JUN.

THE NORTH RIDING CLEAN.

I think the North Riding of Yorkshire (County Hall at Northallerton) should be added to the list of counties favourable to motorists. I have spent four months here and have not heard of any prosecutions. I have seen mention in your paper of a trap between Scotch Corner and the turn to Darlington, but though I have often driven that way I have never seen the trap or any signs of it. There is sometimes a constable at the turn to Darlington and sometimes one at Scotch Corner. Persons who take corners and cross roads with reasonable caution have nothing to fear. The country people also are civil to motors and make way readily. The drivers of traction engines are an exception. Inconsiderate and reckless drivers of motors are rare about here, but a turn of speed can be indulged in on some of the straight open roads.—F.C.G.

[This is only one of many letters received on the subject of the North Riding of Yorkshire, and, as motorists seem to be of the opinion as a whole that it is "clean," we have decided to transfer it to the "roll of honour."—ED.]

MOTOR "AUTHORITIES."

I have read with interest the various letters lately published in *The Autocar*, and many complaining (justly, I think) of the so-called "authorities" in London doing nothing of practical value for the motorist. I agree with the various complaints relating to the manner in which traction engines and other slow vehicles are driven. Why do not these distinguished authorities bestir themselves? The driver of a traction engine cannot possibly hear approaching traffic, and cannot see it if it is behind him on account of possibly two or three trailers, on which may be seated several brakesmen. These men notice the traffic wanting to pass the engine, but will not trouble to inform the engine driver—the result being that the motorist must either stop behind or run up to the engine driver and tell him he is obstructing the road. Now why don't these "authorities" get the law amended so as to compel the brakesmen seated on trailers to notify the driver of any vehicle wishing to pass. The law at present is that so long as the driver of the engine has not been aware of vehicles wishing to pass (and he cannot possibly see or hear them) there is no case against him. It has been my lot to be ridiculed by these brakesmen, and I have been compelled to run alongside towards the engine and tell the driver—much to the amusement of the brakesmen—I wished to pass.

Now I pay about £15 a year tax on petrol, and the local authorities will not keep the road in decent repair. Now I think this is another matter in which the London motor authorities might interest themselves. If we are being taxed for better roads, then we ought to get them, or appeal to our motor "authorities" to fight for us, or otherwise we are being fooled out of our money. I consider the tax on petrol exorbitant—£15 a year petrol tax plus higher carriage tax is no joke—and cannot understand the motor "authorities" not making out a better case instead of quietly submitting.—HEARTILY SICK.

FOR FUTURE BETTERMENT.

Now that the general election is more than probable in the immediate future it is of the highest importance that we motorists should decide what promises we are to demand from our Parliamentary candidates before assisting with our cars at the election. I do not think it is realised what a magnificent opportunity is afforded us in this way of bettering our position and obtaining in the next Motor Car Act something approaching justice. All that is needed is concerted action. Now this is where "The Autocar League" comes in. May I suggest that a series of questions be framed (of which not more than four be eventually chosen either by vote of the members or by a committee) for each member to put to his respective candidate, with an intimation that his car can only be lent on the polling day after receipt of satisfactory answers. I regret very much that the R.A.C. has not taken this matter in hand already, but unless it does so shortly I look to "The Autocar League" to step into the breach. At the last election the Berks Automobile Club, of which I am the hon. sec., drew up four questions which were put to all the candidates for Berks, and for the most part very satisfactory replies were received, but what is wanted is that all motorists throughout the country should be unanimous in their demands. One of the questions should undoubtedly deal with the extension of the speed limit in the open country to thirty or thirty-five miles an hour. This, in my opinion, is more urgently needed than anything else, as it would have the effect of rendering the ordinary trap so unlucrative that the police would be free to attend to the really dangerous driver at the really dangerous spots. Another question might bear on the whitewashing of endorsements on licences after a certain lapse of time.—W. BERNARD SECRETAN, M.D.

UNITY AND SELF-RESPECT.

While out here I shall not be of much use in the voting line, yet your scheme is so sound and should do so much that other influential automobile societies seem unable to do that I am most anxious to join.

There is one way it appears to me by which such a combine could do much to remove the present strong objection in the country to the motor car. That is, if any person joining the League were to sign an agreement never to break the law by exceeding speed limits and disobeying danger and other signals. It only requires time to let the eyes and nerves of the general public get accustomed to these speedy vehicles, etc. Police traps and speed limits will also disappear. Much of the same thing, but, of course, on a very much smaller scale, took place when the now-despised bicycle first became popular, and all our roads were overrun by it.

If we can eliminate these road scorchers and hogs from among the ranks of motorists the public will soon be reconciled to the car and fully appreciate it at its true value.

The spirit as evinced in letter No. 14688 in *The Autocar* of 11th September should not exist in the League. It is wonderfully vindictive, and what is more, most unpatriotic and unworthy an Englishman. The only thing to admire about it is that it is signed.

Let us do nothing wrong or opposed to the law, or anything vindictive or revengeful, and we shall soon gain the day.—PUNJAB, INDIA.

[The letter referred to above ran as follows: ". . . I regret that while the tax on petrol and the increased tax on motor cars remain in force I for one will certainly not think of joining any movement connected with the service." The writer was a medical man.—ED.]

A PITEOUS APPEAL.

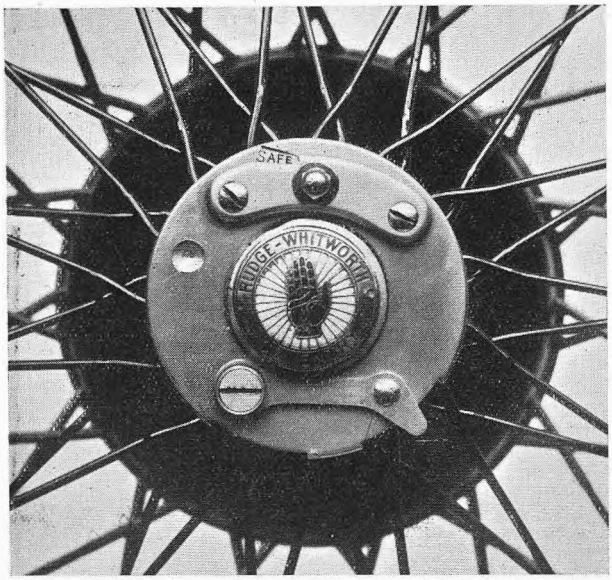
I sincerely hope that you will do something with regard to the speed limit soon. It seems that we are getting done all round. Now I see that the new roads for which we have to pay, though used by all kinds of traffic, are still to have a speed limit of 20 m.p.h., and then I suppose the same sickening state of affairs will begin on the new roads as on the old. I thought the removal of the speed limit and consequently the end of trapping was the one consolation for which we were to pay, but now it seems that we shall get nothing. Cannot you do something to alter the state of affairs by means of the League? I am confident that trapping is what motorists are most concerned about, and I hope you will soon be able to abolish traps. But why not abolish the speed limit, and have the one charge of common danger, and be able to drive in peace?—E. B. HALL.

INCONSIDERATE DRIVING.

I think it would be well if you could do something to endeavour to prevent a class of inconsiderate driving that I have frequently noticed of late. I refer to large cars overtaking a slower vehicle on a road only wide enough for two, quite oblivious of the fact that a car is rapidly approaching them from the opposite direction, and obliging that car, which has the right of the road, to pull up. I had a very narrow escape of a bad collision on the 10th inst. on the London side of Esher. A large covered car coming from London attempted to—and did—pass an omnibus, and had I not applied my brakes as hard as I could we should have had a tremendous smash. I was not driving fast, fortunately, but the other driver, seeing me coming, had no right to attempt to cut through. I am still trying to get the number of the car corroborated, as I cannot be quite positive about it. This was the last of several similar cases I have met. Possibly the fact of my living just outside London and often meeting the traffic at hours when it is generally going in the opposite direction may be the reason of its frequent occurrence; but while this sort of reckless driving goes on it seems to me little short of suicidal to talk of doing away with the speed limit.—WEYBRIDGE.

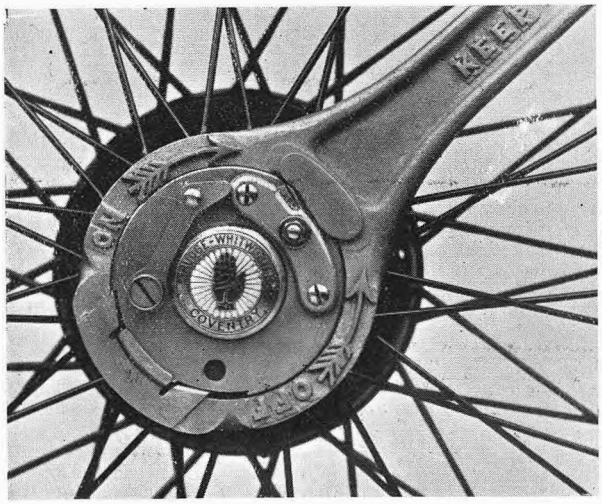
A Detachable Wheel Improvement.

A THOROUGHLY practical improvement has just been brought out by Rudge-Whitworth, Ltd., for their detachable interchangeable wheels. This will not only be a feature of R.-W. wheels in future, but any existing Rudge-Whitworth wheel can easily be altered so as to embody it. The great idea is to provide a double lock to the wheel, so



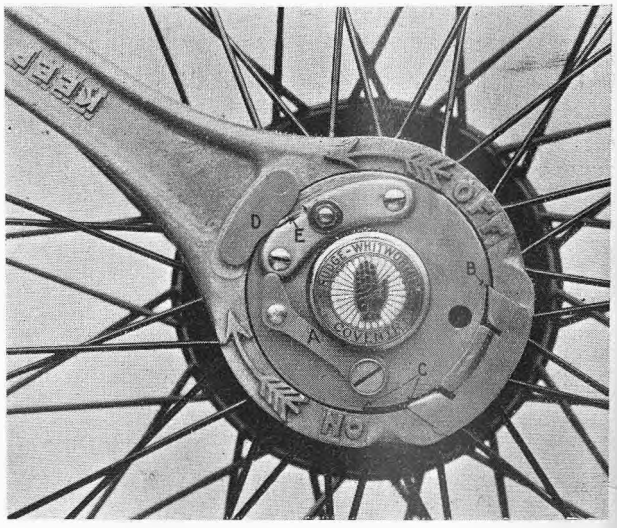
1. The automatic pawl in the "safe" or locked position. The hand operated bolt below is also locked, and its projecting end makes it impossible to put the spanner on the hub till it is swung round.

that it may be what is expressively, if inelegantly, known as "fool proof." The illustrations we give are almost self-explanatory. It will be seen that on the face of the hub there is a little hand-operated catch or bolt, which must be taken out of its slot and turned back, or the spanner for removing the wheel cannot be applied. When the spanner is applied it depresses the automatic pawl, so that there is no chance of a careless changer trying to unscrew the wheel with the pawl in engagement. This shaping



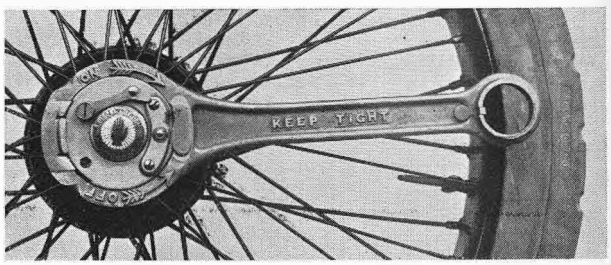
3. Putting on the wheel spanner in position to lock wheel The spanner is now on the other abutment, so that pawl "clicks" as wheel is screwed home.

of the spanner so that it must force the automatic bolt out of engagement when unscrewing the wheel is very good, and another great point of the double lock is that the hand-operated bolt will not go into place unless the automatic pawl discloses the word "safe." which it does when it is in full engagement with its ratchet. If the pawl is not quite down into a tooth the hand-operated bolt will not go into its slot, nor will the word "safe" come up to view. Therefore



2. Removing the wheel. A, hand operated bolt swung back so that the spanner can be put on hub. B, tooth on spanner engaging with hub to unscrew the wheel. C, teeth which engage for screwing on the wheel. D, cam plate on spanner to depress spring pawl E.

the wheel changer must put a little more pressure on the spanner and screw the wheel home a shade more, so that the spring pawl can drop into the base of a ratchet tooth. To make this easy the spanner has been increased in length, giving it very considerable leverage. There is no question that the automatic pawl and the hand-operated bolt are an ingenious and simple combination, as either is more than suffi-



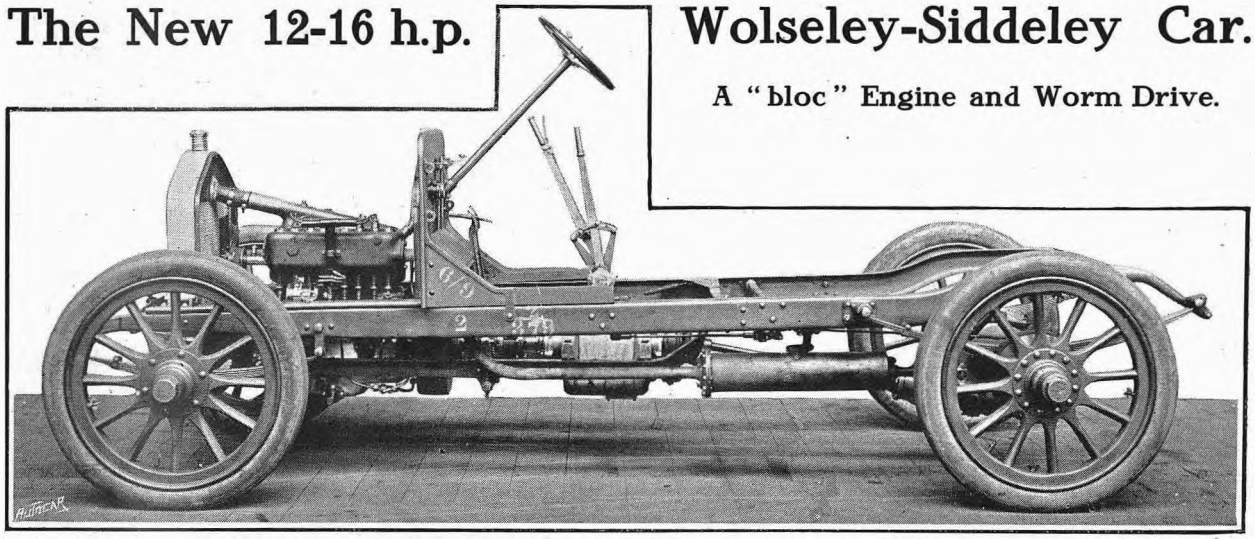
This shows the length of spanner leverage now provided.

cient to lock the wheel, but by their own interlocking they make it impossible for anyone who is not criminally careless to use the wheel at any time without a double lock—that of the automatic bolt and that of the hand-operated bolt. The makers liken the bolt to the latch of a door and the hand-operated bolt to the door bolt—a very excellent parallel.

They also point out that if the chance of one device failing is one in a million, the chance of two independent devices of equal merit but essentially different in principle failing is one in a million millions.

The New 12-16 h.p. Wolseley-Siddeley Car.

A "bloc" Engine and Worm Drive.

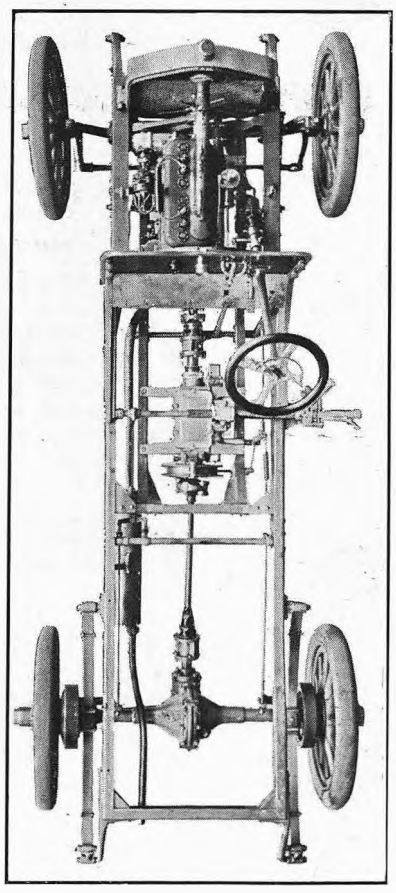


Near side view of chassis, showing upsweep of frame over back axle and slope of underframe.

THE 12-16 h.p. is a new Wolseley model which replaces the 14 h.p. for open bodies, while the 16-20 h.p., another new model similar to the 12-16 h.p., but more powerful, takes the place of the old 14 h.p. for closed bodies. The 18 h.p. and the 20-30 h.p. of 1909 die, and in lieu thereof there is to be a 20-28 h.p. and a 24-30 h.p. The 30-34 h.p. of 1910 is the old 30 h.p. with modifications, but the 40-50 h.p. six-cylinder is a new model, with which we shall deal in a later issue. The salient points of difference in the 12-16 h.p. from the 14 h.p. are the adoption of a *moteur bloc* engine, an underframe for the support of motor and gear box, and an under axle worm drive. These are points which, occurring for the first time in cars turned out by the Wolseley Tool and Motor Co., must assuredly awake interest. From a close inspection of the chassis as a whole we have no hesitation in saying that the new 12-16 h.p. Wolseley is certain to add to the already great reputation of the Wolseley Tool and Motor Co. for superlative automobile construction.

From the views of the chassis, it will be seen that the frame is of the usual channel section cambered steel, inswept at the dashboard and upswept over the back axle.

An underframe of similar section is supported by the cross members and carries the engine and gear box. This underframe is kept lower at the back than at the front, the slope being adopted to get as horizontal a drive as possible from the gear box to the worm, which is placed below the worm wheel on the back axle.



Plan view of chassis, showing underframe and the manner in which the engine and gearbox are carried.

An excellent idea of the conformation and design of the four-cylinder engine can be gathered from the illustrations. The cylinders, which are 3⅛in. in bore and 4½in. in stroke, are cast *en bloc*, and form, we are bound to say, one of the neatest castings of the kind we have yet come across. The valves are all on the left-hand side of the unit, and the mixture leads are cast integrally. Thermo-syphon cooling is adopted, and we would draw attention to the manner in which the flanged mouth of the water uptake pipe is made to embrace the entire surface of the water-jacket over the combustion heads.

The carburetter is placed close up to the left flank of the engine, and the exhaust trunk being part of the *bloc* casting there is practically no outside piping. The water-jacket spacing is of the amplest, as can be seen by examination of the sectional drawings, while the exhaust trunk itself is almost surrounded by water. To reduce the width of the engine and to provide a better form of combustion chamber, the valves are set at a slight inward rake.

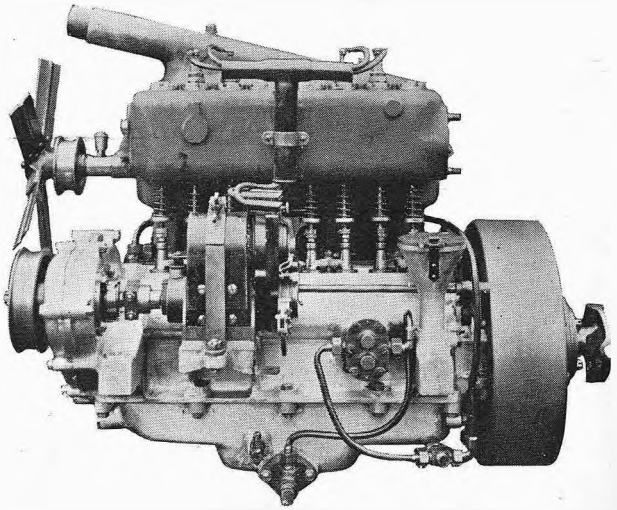
The crankshaft runs in three bearings of generous dimensions, these and the bearings of the big ends being lined with white metal.

The under-cover of the crank chamber is formed with a sump, into which the spent oil percolates through a suitable gauze filter plate. In this under-cover are formed also four transverse oil channels, into which scoops carried on the ends of the connecting rods dip for the purpose of lubricating the big ends and serving the gudgeon pins and cylinder walls. The drip from the forward crankshaft bearing serves to keep a suitable level of oil in the distribution gear chamber. The oil from the sump is forced to the bearings by means of a toothed wheel pump bolted to the right-hand side of the crank chamber and driven by skew gearing by, and at right angles from, the camshaft. The oil is led to a pressure gauge on the dashboard. By the above arrangement it is impossible for the engine to over-

lubricate, so that there cannot be a smoky exhaust. The valve stem guides are of unusual length, and the club-headed tappets are calculated to be quite noiseless.

Ignition is by Bosch dual high-tension magneto, the latter being gear driven and placed most accessibly on a table formed on the left of the crank chamber. The spindle of the driven magneto pinion is produced beyond the distribution gear case to take the fan bel driving pulley.

A multi-disc clutch conveys the drive to the

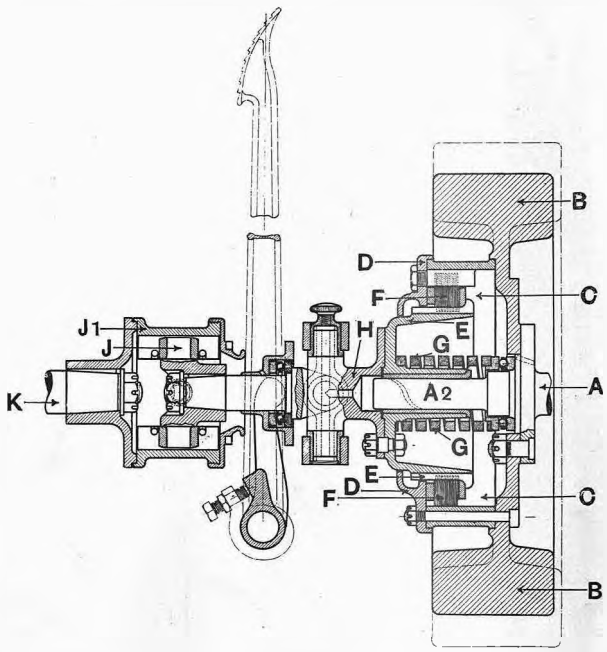


View of near side of engine, showing magneto, oil pump, crank chamber filler, and oil level cock.

gear box through an encased well-designed universal joint, which can be rapidly dismounted for clutch withdrawal when necessary. All the wearing parts of this and the propeller-shaft universals are renewable.

The gear box, which is of remarkably small dimension, has its short stout shafts set in the vertical plane, the primary-shaft superimposing the secondary. The intermediate gear sleeve connecting to the inter-clutch and gear box universal runs in ball bearings, as does the primary-shaft, but the secondary-shaft is in long plain white metal lined bearings to ensure quiet gear running.

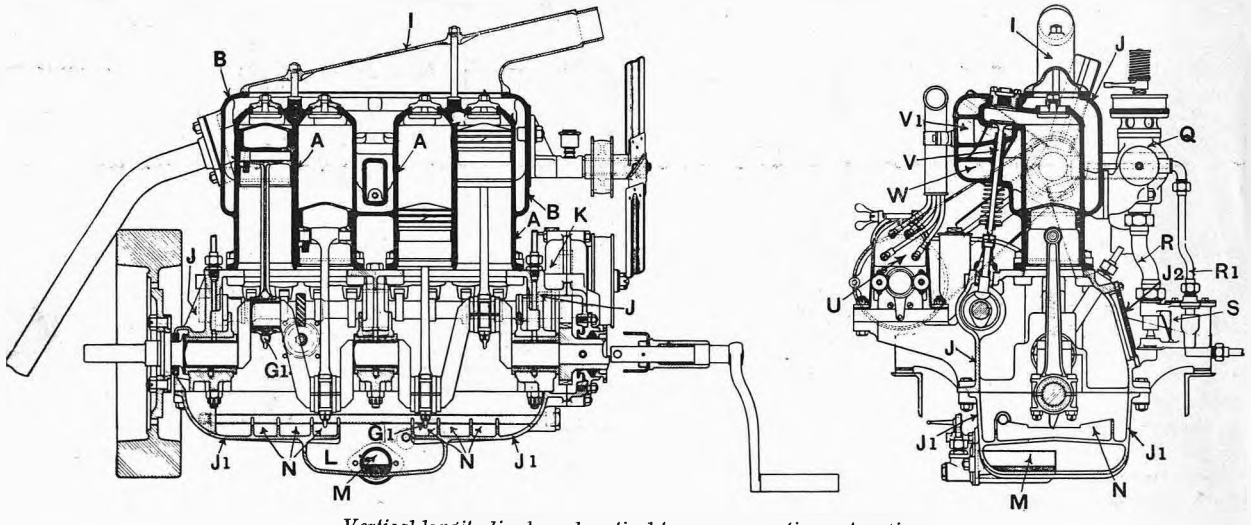
A brake drum of good width and diameter is found in rear of the gear box. It is of the external type, the brake shoes being compensated in action. The drive continues to the back axle by means of a propeller-shaft having a universal joint at each end, this universal being similar in every respect to that occurring between the clutch and gear box. The driving worm, which



Vertical sections of flywheel, clutch, and universal joint.

A, crankshaft
A2, spigot end of crankshaft
B, flywheel
C, driving member of clutch
D, clutch cover
E, driven member of clutch
F, clutch discs
G, clutch spring
H, clutchshaft
J, universal joint
J1, universal joint casing
K, front end intermediate gear sleeve

is placed below the worm wheel, is carried in three ball bearings of large diameter, with a thrust ball bearing at each side of the worm. The lubrication of the worm and worm wheel is a simple and certain matter, for the former runs in an oil bath. The worm



Vertical longitudinal, and vertical transverse sections of engine.

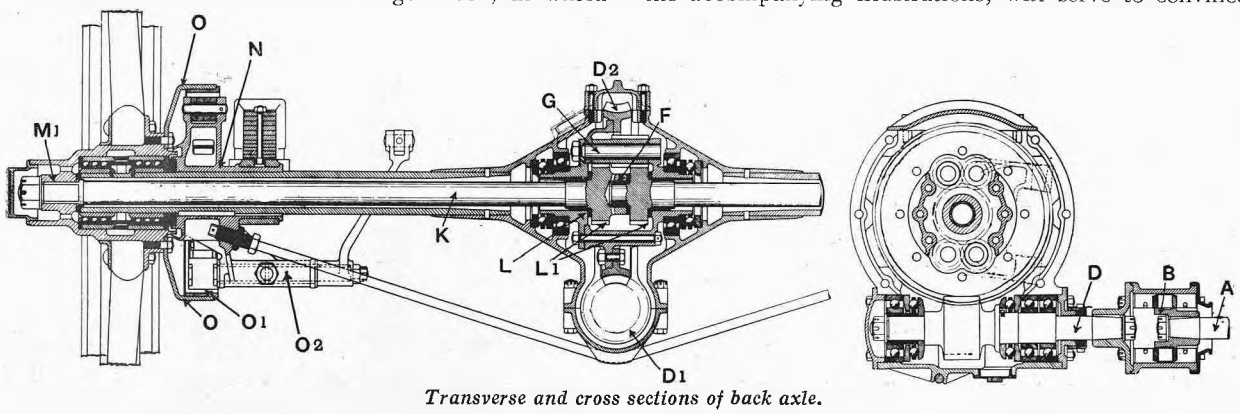
A A, cylinders
B B, water jackets
G1, oil scoops on big ends
I, water uptake
J, crank chamber
J1, under cover to crank chamber
J2, inspection cover
K, distribution gear case
L, oil sump
M, oil suction pipe and filler
N, oil channels
Q, throttle and automatic air valve
R, main mixture pipe
R1, starting mixture pipe
S, carburetter
U, magneto
V, exhaust valve
V1, exhaust trunk
W, inlet trunk

wheel is bolted to the differential gear box, and is set centrally over the inner ends of the driving-shafts. A parallel form of differential gear is used. The inner end of the right-hand driving-shaft enters the inner end of its left-hand neighbour, and so makes the pair equivalent to a single shaft.

The sockets of the differential gear box, in which the inner ends of the driving-shafts are bushed, rotate in ball bearings, while the wheel hubs, which are carried on the live axle casings, run on two rows of triple ball bearings.

A thrust ball bearing is placed outside each of the differential gear box bearings. The outer ends of the driving-shafts are castellated, and take corresponding formations in the driving wheel hubs. The axle is stiffened by an adjustable tension rod, which passes from a lug on the spring table under the worm case.

We think the perusal of the above all too fragmentary description, coupled with the examination of the accompanying illustrations, will serve to convince our readers that nothing in the shape of forethought and careful design, born of complete shop and road experience, has been wanting in the consideration of the above chassis. The above described 12-16 h.p. is the only Wolseley car for 1910 which will be fitted with thermo-syphon water circulation.



Transverse and cross sections of back axle.

A, rear end of propeller-shaft
B, universal joint
D, worm spindle
D1, worm
D2, worm wheel
F, recessed end of driving-shaft
G, satellite wheel spindles
K, driving-shafts
L, differential gearbox
L1, sun wheels on ends of live axles or driven shafts
M1, driven dog boss in wheel hub
N, spring table and brake segment carrier
O, brake drum
O1, brake segments
O2, brake spindle

The Eight-cylinder 35 h.p. De Dion.

THE 35 h.p. De Dion will be found on the De Dion stand at Olympia, and will thoroughly repay examination. The novel eight-cylinder engine was illustrated and described in our issue of 16th October, but two or three points may be added. The engine is fired by two magnetos, one to each range of four cylinders, and each driven off its own camshaft. The magnetos are placed at the rear of the engine, and have their contact maker ends quite accessible by opening two small folding doors formed in the dashboard. The engine bed, formed of a short three-point suspended underframe, is raked backwards to reduce the angle of the propeller-shaft to the minimum. The carburetter is formed with two jet chambers, one jet to each range of four cylinders. The pressure gauge is carried on a central backward curved bracket on the crank chamber, the dial presenting itself through the dashboard. The well-known single disc De Dion clutch is fitted, and between this and the four-speed gear box runs a transmission-shaft of considerable length, having a universal joint at each end. The change speed is obtained by the vertical De Dion gate, which we hope to describe later, as it is a clever device. The gear box is also three-point suspended. The pedal brake drum, which is of large diameter, is formed with radiating flanges on its outer periphery. The propeller-shaft is carried in a casing forming part of the differential gear case, and has one forward universal joint. The differential gear casing is, of course, not carried upon the axle, but is slung from a short cross tube suspended from brackets which are held in jaws between thick rubber washers. We are assured that this method of suspension entirely nullifies the well-known De Dion gear "ring," which was said to have been due to the differential gear case being carried directly from the frame and not enjoying the muffling effect of the pneumatic tyres. A lubricating pump is fitted to the gear box, oil being sprayed upon the meshing of the teeth in engagement. The flexible cardan-shafts are entirely enclosed in leather tubes.

The differential is fitted with a device for adjusting the depth of engagement of the teeth of the driving bevel pinion and the driven crown bevel wheel, the adjustment being performed from the outside.

Drivers who have been summoned in respect to an extinguished tail lamp, and owners who desire immunity from police interference, will be interested in tail light indicators. A combined steering-pillar lamp, tail light indicator, and inspection lamp adds to the comfort of the motorist and the car's reliability. A device of this kind, consisting of a special universally-jointed lamp, for inspection of signposts, lubricators, gauges, etc., has been introduced by Messrs. C. A. Vandervell and Co. The lantern portion is instantly detachable for use under the bonnet, etc. In the separate circular switch is incorporated a small relay, so arranged that should the electric tail light fail the lamp on the steering wheel instantly lights up, and immediately attracts the driver's attention. This type is recommended for cars with flat dashboards. For Daimler and other cars with curved dashboards the tail light indicator is mounted on the side of the right-hand dashboard cupboard. This indicator can be used as an inspection light as well as a tell-tale. The company also manufactures an electric adapter for acetylene headlights for use in cases of emergency.

On the Road.

Bases of Taxation—Tyres the Criterion.

I FORESEE that rivers of ink will flow before all hands agree on the proper method of taxing motor cars, and it will be many a long day before it is realised that in nothing can absolute fairness be obtained in this world. The overwhelming result of the new "Autocar League" referendum shows that the majority of car owners desire to do their best to execute justice as far as possible, but even taxation by unit of horse-power comes very hardly on the owners of more than one car. Consider the similar unequal incidence of the game licence. If we wish to be allowed to shoot game we all have to pay £3, whether we loose off five hundred or fifteen thousand cartridges. Here one might think a logical Government might differentiate, but I suppose on the principle *de minimis non curat lex* it is not considered worth while, and each and every one pays the same. It is true that there are such things as licences for shorter periods at reduced rates, but they are beside the question. But there is little complaint heard, and a little consideration will show the reason. If game licences were cheaper a larger number of people would take them out, and a certain kind of poaching would become more common and less detectable. I allude to the snapping up of odd game on the high road or even on one's own property, which it is not nowadays worth while taking out a licence to do, to the detriment of the man who is originally responsible for the presence of the game in question or who has paid rent for the privilege of shooting at it. Therefore we see that there is little analogy between a game licence and a motor licence.

But a comparison with the permit to carry a gun is a much closer one, and founded more on reason. Because a man owns two or more guns he is not asked to take out two or more licences, because he is not likely to want to carry more than one at once, though I cannot help thinking he might pay more for the privilege of using two guns, because it is such good evidence that he indulges in a good deal of shooting and is altogether a superior sort of person. I commend the idea to Mr. Lloyd George—unless the subject is one perhaps he would sooner not be reminded of. But although a man may use two guns at once he cannot use two motor cars at the same time, therefore we may conclude—with very few exceptions—that when one is on the road the others are at home, and it seems very unfair that, because he happens merely to be the owner of more than one, he must pay for each as if it were his only one. My experience tells me that if a man has two cars one is generally a big one and one a little one, and for reasons of economy the little or moderate sized one is used about three times as much as the more extravagant big one. Possibly the big one may be an old lumbering car, almost unsaleable, and for ever going wrong, while the little one of more modern construction is capable of going quite as fast, holding nearly as many people, and in the habit of keeping in good order. But, as it is not covered in or has not so much room for luggage, it is necessary to keep the old one for station and night work, and the poor owner has to pay, perhaps, three times as much for a thousand miles of travel as he has for six times as great a distance with the other. Which is undoubtedly wrong, and the cure for it would seem to be that a man should be able to take out a licence to keep a car of a horse-power large enough to include his biggest, smaller cars to be included without extra charge. If his family is greater than himself, and includes more than one person who can drive—so that both cars can be on the road simultaneously—then the excise people would use their discretion and make him pay extra *pro rata*, but otherwise justice would be done by only charging for one. It would assist trade and incidentally come to the same thing with the revenue as well, because people would keep their old cars, the second-hand market would not be glutted, and consequently more new cars would be bought and licensed.

But, as the operation of this scheme implies more commonsense than can be looked for among the powers that be, I am driven back on a scheme—as the only absolutely fair one—that met with a howl when it was first proposed. It is the taxation of tyres. We pay duty on our tobacco and liquors according to the amounts we use; if tyres were taxed we should do exactly the same, and the operation of Providence would be wonderfully shown in the result. It is well-known that what bursts tyres is pace, therefore the scorcher's tyres would cost him more than if he were content to drive like all other motorists. It is also well-known that tyres burst when corners are taken too fast, therefore this knowledge would keep pace down at corners, and it needs little demonstration to show that the tyres which wear holes in roads get from the roads as good as they give. Exactly how much each size of tyre would have to pay I cannot venture to say, but the drawing-up of the scale would be child's play when compared with the inquisitory computation of horse-power that we motorists may possibly have to suffer from in the near future. That will be a fearful business, for no brain on earth can devise a really satisfactory method which will take into consideration such things as old piston rings, faulty transmission, worn bearings, weak mixtures, and incomplete ignition, all of which go to arrive at true road-power just as much as bore and stroke, diameter, and number of cylinders. Already the cry of the over-rated is to be heard in the correspondence columns, and so many experts are giving different opinions as to the only real proper way of arriving at the precise power that it seems impossible they can ever be united except in opposition.

Of course, such things as retreading will have to be

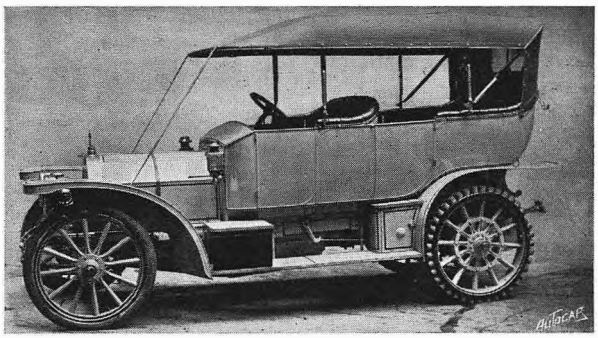
The first of the new luxuriously fitted Lorraine-Dietrich taxicabs to ply the London streets for hire.

taken into consideration, but as the number of firms who can retread is relatively quite small, there would be little difficulty in keeping an eye on them and charging a duty of, say, a third of the original tax on a new cover. Solid tyres and mechanical wheels would also have to be considered, but any trouble could be avoided by enquiring of the makers as to how many miles their wares should go and charging accordingly.

It would be also necessary to take into consideration the extra mileage granted to tyres by the use of such things as outside bands and reinforced tubes, but here again those responsible for them would not decry their inventions by endowing them with less distance than they would in reality be capable of performing. I am not writing this with any idea of an extra tax on an industry and a movement already harassed to the utmost, but as an equable and just assessment in the place of one full of abuses and unfairness, for undoubtedly the incidence of taxation would fall exactly where it ought to if tyres were the only criterion taken into consideration.

Petrol can be, and is, used for many purposes other than that of driving motor cars, consequently there will always be trouble and recrimination over rebates and exceptions with motor boatists, aeroplanists, hairdressers, and dry cleaners. But motor tyres cannot, and never can, be used for purposes other than their original intention, and if the money obtained from this tax on them be used in improving the roads that wear them out everybody should be satisfied, and the result could be described as almost Utopian in its poetical justice. There would be other advantages to motorists as well, for cheap and bad tyres would soon be things of the past, and only the best would be good enough because most economical. Some critics may remark that there is a lot of luck in the life of a tyre, and hint at such things as broken bottles and the like, but our many insurance companies would be delighted to insure against such accidents, which, after all, are becoming more and more rare each year as motors become more common and the sale of drink diminishes.

I never was much of a statistician, but as many of the readers of *The Autocar* seem to revel in figures, it would be very interesting, putting the average annual distance performed by a private car at six thousand miles, to find out how much the tax on each sized cover should be, in order to bring the total result to about the same as the proposed tax by horse-power unit. Let us suppose, merely for the sake of argument, that the present Budget will not pass, in which case it is possible that the proposed system of taxation will be hung up with the idea of seeing if a larger proportion of the tax cannot be derived from cars and the appurtenances thereof manufactured in foreign countries. In that case our "tyre tax scale" will be most useful in apportioning the duty, and the new Government should be deeply grateful to *The Autocar* for making its task so easy. But, speaking seriously, I know of no system of taxation of motors, if motors must be taxed, that would be as fair and proportionate as this one, more just even than the primitive idea of toll gates, and more easily collected than the present impost on motor spirit. Sooner or later, too, the absurdity of charging the repair of roads to the traffic that does the least harm to properly constructed ones would become too apparent to be overlooked, and then there would be a tax on the grinding iron rims of carts and carriages and the smashing, disintegrating steel shoes of the surface-destroying horse. There was a deal of sense in the old out-of-date proverb, "Who breaks, pays."



A boat-shaped body on a 35 h.p. F.I.A.T. built by Messrs. Cann, Ltd., of Miller Street, Camden Town, N.W., for the K.T. Syndicate, whose tyres are fitted to the back wheels. This is an interesting illustration, as it shows the unsuitability of the flush sided design for a really long body. This only applies to the appearance. So far as the comfort is concerned, nothing whatever can be urged against it. The dash and the front part of the body are exceedingly cleverly carried out, and the failure to make the rear portion to look as smart reflects in no way upon the abilities of the coachbuilders, but shows that the combination of a wide and a long back does not suit the torpedo design, which was primarily introduced and is seen at its best with a four-seated and comparatively short body.

The 1910 Sizaire et Naudin.

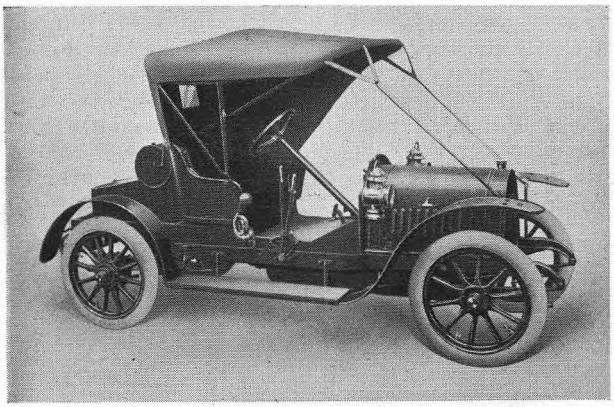
Those acquainted with the rapid little S. and N. cars as they appear to-day will find many improvements in detail in the 1910 12 h.p. single-cylinder Sizaire-Naudin. Chief among these is the ready adjustment of the hand brakes by means of self-locking finger nuts, and the substitution of a fork piece for taking the forward end of the brake rod, into which the latter screws, so disposing of the plain bent rod, as on the older models. The stroke of the engine will be found increased by 10 mm., bringing that important and power-conferring dimension up to 140 mm. = 5½in. The camshaft is no longer round, but squared to take the cams. An easily accessible drain cock is now provided to the crank chamber. A guide for the starting handle is now cast on the lower half of the camshaft cover, while the starting handle pin has disappeared in favour of a positive ratchet. Also the camshaft cover can now be removed without the withdrawal of the camshaft. The diameter of the exhaust pipe has been increased ¾in. to 2½in. The wings are now detachable by unscrewing four bolts. The choke tube of the carburetter when released by a screw can be moved upwards to facilitate the removal of the jet. It would be difficult, we think, to imagine what else the Sizaire requires towards perfection.

A motorist named Mr. J. E. Withers, on being charged at Kingston the other day with exceeding the speed limit, said the police had behaved very fairly to him throughout. The same remark might also be applied to the magistrates, who dismissed the case on payment of 9s. 6d. costs. We hope that this incident marks the dawn of a brighter era for motorists at Kingston.

The 10-12 h.p. Albruna.

A Small Car with a Long Stroke Four-cylinder Engine.

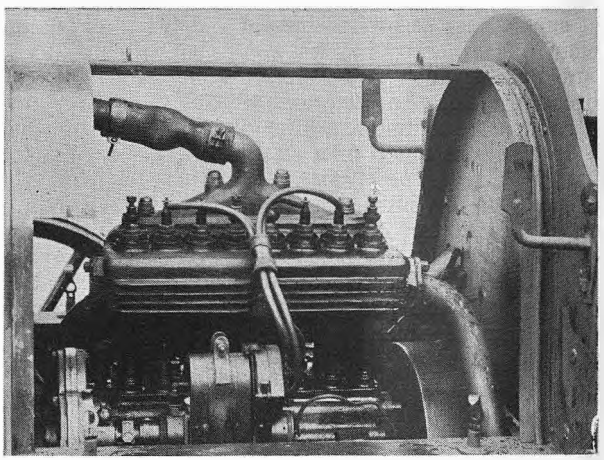
TO the man contemplating a medium powered, light, medium priced, low running cost car, the 10-12 h.p. Albruna car by Messrs. Brown Bros., Ltd., of Great Eastern Street, E.C., and 15, Newman Street, Oxford Street, is to be commended. The general arrangement of the well proportioned chassis can be gathered from the side view of the chassis and the photograph of the complete car. Excellent lock is afforded by the insweeping of the side



The 10-12 h.p. Albruna fitted with its two-seated standard body.

members at the dashboard, and the central portion of the frame is kept most conveniently low by the upsweep of the side members over the back axle. The engine 62 mm. = $2\frac{7}{16}$in. bore × 120 mm. = $4\frac{3}{4}$in. stroke is of the *moteur bloc* type, and makes a remarkably clean job. The valves are all on the left of the engine, and the exhaust trunk is cast therewith and carries a series of radiating flanges on its outward face. The inlet leads are also formed in the casting, while the water jacket spacing over the combustion heads and round the valve chambers is of unusual dimensions. The Bosch H.T. magneto used for ignition is most accessibly placed on the left, and can be most easily dismounted. No water circulating pump is used, the thermo-syphon system being depended upon most satisfactorily for engine cooling. The voluminous and rapid uptake can be realised by the dimensions of the flanged mouth of the uptake. A very simple but effective automatic form of carburetter is fitted. With the magneto down it is seen that the valve tappets and valve stems are particularly accessible. A multi-disc clutch of excellent design conveys the drive to the three-speed gear box, to which a neat form of gate change is provided. The back axle is of robust construction, and the road wheels run on bearings on the live axle casings, so that the driving-shafts have no other but driving duties. The wheels are 760 mm. × 90 m.m., and the frame is carried on long supple semi-elliptical springs forward and doubly-shackled threequarter elliptical springs behind. This double-shackling is rendered possible by the presence of radius rods. Lubricators are provided to all the moving parts of the springs. Both pedal and side lever applied brakes are of the internally expanding order, the latter being nicely compensated and rod applied. The gear box is short, of the oil retaining box variety, and has stout shafts running in ball bearings and wide stiff gear teeth. The gear ratio on the top direct speed is 3.7 to 1—a well-chosen ratio for this type and weight of car. The car is sold at the advertised price with two-seated body equipped as shown, save for the hood.

We were recently afforded an opportunity of driving this car over our own special test ground, and were amazed to find how sweetly and comfortably it ran with two heavyweights up and a full equipment. It took all reasonable grades on its top speed, and when its second was required it was found to be remarkably quiet. Traffic driving, except for dead stops, was quite possible on its top speed throughout, and it got away from a crawl on its top speed in quite a remarkable manner. The engine, too, is very sweet, quiet, and efficient, with almost entire absence of vibration, even when running slow and light. We were much impressed by the little Albruna, and regard it as a most desirable car of its class and power.



The near side of the 10-12 h.p. Albruna engine, showing the magneto arrangement and valves all on one side.

By his wise and just decisions Sheriff Campbell-Smith, of Dundee, has done much to discourage the senseless trapping and persecution of motorists in the Dundee district. This is in striking contrast to the action of the Sheriff at Perth. In dealing with a recent case which came before him against a well-known and experienced driver for exceeding the speed limit, the Dundee Sheriff remarked that there was a great deal of unreasonable and foolish prejudice against motorists. In this case he excused himself for being obliged to convict by stating that, whether the law was wise or foolish, it was his duty to administer it, and so join apparently the foolish majority. It so happened that the defendant had been fined 30s. by the Perth Sheriff for a similar offence. Thereupon the Dundee Sheriff caustically remarked that that was a merciful sentence for Perth. The proprieties of the situation, however, precluded him from inflicting a less fine than that imposed by his brother Sheriff of Perth, so he ordered a penalty of £2, at the same time advising the defendant to take as good care as he could, and to be aware of ditches where there were bushes and conveniences for concealing policemen. The Fiscal at Dundee is hard on motorists, but it is consoling to know that his zeal is tempered by the reasonableness of a fair-minded Sheriff.

Mountaineering by Motor Car.

Climbs to the Mer de Glace and at and around Chamonix. By W. Douglas Fawcett.

(Being Leaves from a Wanderer's Diary.) (*Continued from page* 595.)

I dismount, explore the path ahead, and return. But I have to wait here a long time, for mules are descried winding down the higher reaches of the track, and it would not be fair to their riders to risk startling the beasts. Then I restart the car, and it bounds up the narrow, rocky, path to the next and worst bend. Here the difficulties are considerable. It is necessary for me and my assistants to turn the back wheels into position by hand. The coming ascent (as described also by Mr. Robson, of Sale, near Manchester, an English motorist and witness) is up a genuine 35% gradient bristling with big rocks, the tops of some of which look almost too smooth to give a grip to the tyres. And just behind the car yawns the void, with an uninviting drop on to a portion of the track which we have threaded already. More mules, which contrive, and but barely, to pass us, compel waiting. After much work the back wheels are shifted round, the blocks placed securely behind them, the engine is restarted, the clutch let in, and with a genuine bound the car takes the ladderlike rise, atilt, with back wheels now skidding, now pushing gamely against boulder sides till I reach the next hairpin bend, swing the bonnet round as far as maybe, and jam on foot and side brakes, my wife and another English lady slipping the blocks into place as soon as they catch me up. It is a glorious struggle. What of the clutch? Well, I cannot sufficiently praise that clutch—a metal to metal one of the "unlubricated" De Dion brand. It can be slipped as much as you like, it engages at will very gently, and grips absolutely when the psychological moment has come. Let me instance a remarkable test. On a "freak" slope, with the engine running and the first speed engaged, allow the car to go backwards. Now let in the clutch, cautiously. The car will come to a stop, and then re-ascend the incline. The great superiority of the metal to metal clutch over the leather-lined cone device could not be demonstrated in a more striking way. Let me observe that this clutch is strictly De Dion standard; the interesting point is that it is proved adequate for difficulties which the ordinary motorist will never confront. Of course, it is also practicable to let in the clutch when the reverse speed is engaged and the car is moving forward. The car will then stop and reverse. A marvellously efficient device! Yes, assuredly. It is to the excellence of this clutch, of the robust engine, of the cardan back axle, and the transmission that the successful climbing of the Montanvert is mainly due. A leather clutch would be quite useless.

To show that I am not exaggerating difficulties, I will quote from a letter of Mr. W. Robson, who is describing how the car restarted, etc., on one

On the way to the Mer de Glace. Mr. Fawcett and group posing before the camera.

View on the road to the Mer de Glace.

of the bad portions of the middle zigzags. He writes: "With a snort of satisfaction it (the car) left the wooden blocks, and fairly leapt upwards. A huge rounded hump of rock on the inside of the track seemed to bar the way, and a smash looked inevitable. The car mounted this obstacle, however, with amazing and even fierce energy. In doing so it was tilted over outwards towards the edge of the precipice, and for several yards it was running on three wheels at a lateral angle which again threatened disaster." Never surely was a car so brutally used! He continues: "Again and again, over obstacles always cruel, till the car seemed to tear out its heart, the same brave and victorious struggle was seen. The engine ran perfectly, although the jolts and jars were so terrible. One could see a tyre squeezed almost flat by harsh side contact with a piece of rock on the track, whilst the wheels seemed frequently strained to breaking point. Everything—body, chassis, and engine—appeared constantly on the brink of dissolution. Yet at the successful completion of the ascent to the Montanvert Hotel the tyres were uninjured, and the car showed no signs whatever of rough usage." I must observe that the car underwent some two hours of testing of this kind. The total time occupied in *actual movement* was about two and a half hours. Owing, however, to the various delays due to wheel shifting, waits for mules, etc., the passage from Les Praz to the Montanvert, which was effected in two stages on two separate days, took over six hours.

With the views from the open higher reaches of the path becoming ever grander, I reached at length a convenient harbour of refuge (the site of an old shanty) on a rock platform, and left the car in charge of a cantonnier or track overseer for the night. A bonfire was lit to indicate the situation to onlookers in the valley far below, and our party went up to stay at the Montanvert Hotel. In the morning much more severe climbing had to be done, but the car was not to be denied, and by seven o'clock was at rest on the famous terrace above the "sea of ice." I wonder whether another car of like width and weight —the mountaineer is by no means a light car as compared with the short stroke (100 by 120) 8 h.p.—will ever succeed in reaching this spot. The chances of success would be greater if the terrible zigzags could be avoided by the construction of some easier route. But even were these zigzags avoided, I must express a doubt as to whether any ordinary live axle vehicle could stand the strain. And axle troubles, unfortunately, are not the only ones to be feared. Clutch, engine, and transmission must be reliable.

Overheating? The engine gave no trouble whatever; in fact, a lady, feeling the radiator when the victory had been won, exclaimed in surprise, "Why, it's hardly hot!" One important result stands out very clearly. Lubrication by "splash" is absolutely efficient, and the complication of a one-cylinder engine with forced oil circulation by pump is wholly unnecessary, unless it be to spare certain lazy folk the need of occasionally pressing down a plunger!

On the opposite side of the Chamonix Valley, on the side of the mountain, can be seen Montanvert Hotel and terrace.

The tyres stood the test as well as the car, and that is saying a good deal. In fact, many of the tourists who saw the mountaineer on the terrace would not believe that it had come up the path, alleging that the mountain railway had conveyed it there with the view of attracting folk! "The tyres and car are quite new," said a lady to the *chef de gare*, who was unable to convince the objector that she was not being deceived!

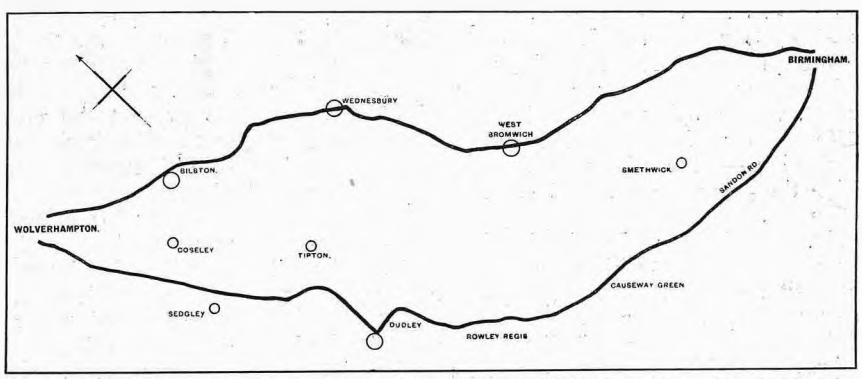
So great was the interest shown in the car that I was asked by the railway manager to allow it to be exhibited at the upper station for a week. Later he offered to bring it down to the valley for me without charge in a special waggon attached to the ballast train. This courteous offer rendered the descent by the mule path, with the possible explosion of a tyre amid the rocks, unnecessary. Not that the descent of mule paths in this car is to be feared; in fact, we have often descended such places backwards when unable to turn. The brakes are very reliable, and by engaging at need the low speed (or, if going backwards, the reverse) with ignition cut off an additional engine brake of a most effective sort is secured. On the other hand, the best tyres are but rubber and canvas, and if one can avoid the risk of imperilling them unnecessarily on a path so abominably bad as that of the Montanvert it is well to close with the opportunity offered. The car itself had nothing to fear from the descent; it has had two seasons during which to "crack up" under the stress of like circumstances, and it preserves a charmed life—a marvel of construction of which French automobile engineering may well be proud.

One more observation ere I conclude this article. The "mountaineer" effected the actual climbing without any assistance whatever, the power of the long stroke engine being ample, and the throttle, in fact, was never fully opened on the low speed. At certain of the very difficult corners the wheels, as I have remarked, had to be turned by hand. It would be hard, I opine, to get even a two-wheeled cart round one or two of the bends, which were cut for mule traffic and pedestrians, and nothing else. Given decent paths, a regular service of small automobiles would be practicable on the Montanvert and other mountains, and by this hint hangs much. In the future such paths may be made in many places, and what is now improperly termed a "freak" climb may therefore well prove the precursor of a useful, practical reform.

Proposed Birmingham-Wolverhampton Road.

A New Route which will avoid several Miles of Tram Lines.

MOTORISTS who are acquainted with the road from Birmingham to Wolverhampton will not be sorry to hear that there is every possibility of a new route being constructed between those two industrial centres. At present the road is an abomination in the sight of every motorist, but now that the Association of Midland Local Authorities and the Royal Automobile Club have approved the scheme there seems every prospect of its being carried through in the near future. It is now some time since the Midland Local Authorities approved the scheme, and the Association has drawn up a report and submitted the scheme to the seven district councils through whose areas the proposed road will run. According to the report, the distance covered by the new route will be eleven miles, or one and a half miles less than the existing one. Five miles of existing roads are to be utilised, while the remaining six miles will penetrate a hitherto undeveloped part of the country, to which it will provide a much needed means of access.



Plan of the proposed new road from Birmingham to Wolverhampton, also showing the existing route. The new road is the lower of the two.

With the exception possibly of the Manchester to Preston road, it is about the worst main route in the country, and the idea has been hailed with acclamation by the most influential residents in the districts. It has also been approved by the Royal Automobile Club, the General Committee of which passed a resolution cordially supporting it. As regards the cost of the undertaking, estimates have been made by a leading Midland contractor, who has offered to undertake the scheme for about £77,000. This estimate has been based on the assumption that seventy per cent. of the labour employed will be men recommended by the distress committees as "unemployed." The rateable value of the part that will be affected is over £4,000,000, with a population of about 850,000.

The Chancellor of the Exchequer and the Presidents of the Board of Agriculture and the Local Government Board have been notified of the scheme, which, we may mention, is in no way due to the introduction into the House of Commons of the Development and Road Bill, as the original suggestion was made over a year ago by Mr. George H. Sankey.

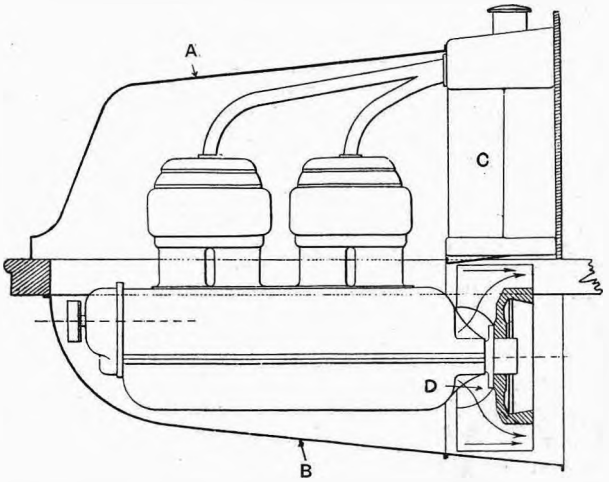
It may be of interest to compare the old and the proposed new roads. The existing route is *viâ* Handsworth, West Bromwich, Wednesbury, Bilston, Priestfield to Wolverhampton. The new route will be *viâ* Causeway Green, Oldbury, Rowley Regis, Dudley, Tipton Road, and Coseley.

Revocation of Renault Patents.

By Eric W. Walford, F.C.I.P.A.

LAST week an announcement was officially made which is interesting to motorists generally, and to motor car manufacturers in particular, that a number of Renault patents have been revoked on the ground that they have not been "worked" in this country.

Our readers probably are aware that, under the existing Patents Act, if a patentee has his invention manufactured wholly or chiefly abroad the patent in this country can be upset or revoked on that ground alone. Naturally, there are a large number of foreign patents on the leading features of foreign cars that have to be "worked" in this country, in order that the patents can be maintained. Some of these are of very great importance, as, for instance, the



Renault live axle and the Daimler gate change patents.

The Renault patents which have been revoked are for the most part not of any great importance, particularly as the original live axle patent (No. 3,981 of 1899) is not included. The following is a list of the patents which have been revoked, together with a short title, except in the case of the radiator patent, which, being of some importance, I abridge:

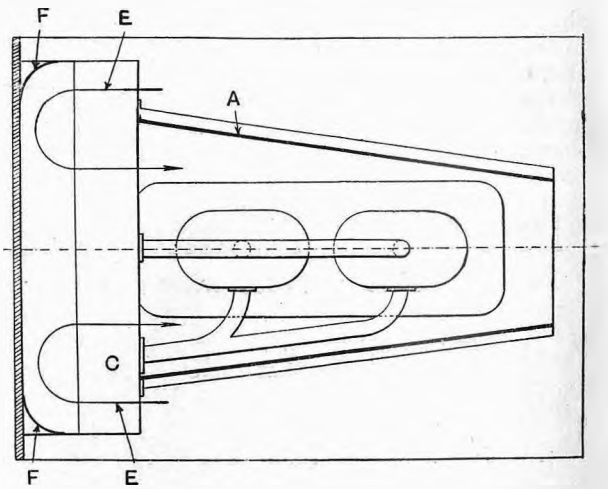
No. 22,664 of 1901: Change Speed and Clutch Mechanism.—This relates to a change speed gear in which the gears are mounted eccentrically and rolled into mesh.

No. 614 of 1903: Lubricating System.—The crank chamber is formed with cups, which collect the oil splashed up, the cups supplying the oil by ducts to the various parts.

No. 7,666 of 1904: Cooling System.—The engine is provided with a bonnet A and an undershield B, which are formed without louvres. At the back of the bonnet is arranged the radiator C, and beneath is arranged a flywheel fan D. The air is drawn through the radiator in the direction of the arrows E, and is forced under the car. Deflecting plates F are arranged at the corners to improve the draught of air.

No. 29,059 of 1904: A sparking plug in which the insulator is fitted to an adapter which screws into the body of the plug.

No. 29,410 of 1904: Friction Clutch.—One clutch cone is cut transversely and circumferentially, so as to leave tongues which are knocked up in order to act as spring pads, which are first engaged by the other cone.



No. 29,058 of 1904: Electric Terminal.—This is a high-tension terminal resembling a button, which is carried by the high-tension wire, enabling it to be fitted and removed for testing purposes while the engine is running.

No. 290,600 of 1904: Engine Distribution Gear.—To prevent the crankshaft shocks being transmitted to the distribution gear a resilient connection is provided between the crankshaft and the distribution gear wheel.

No. 24,843 of 1905: Shock Absorber.—This comprises a piston reciprocating in a fluid chamber with an adjustable by-pass.

The decisions in the above cases are subject to appeal, but if not appealed against the result is that the patents become void and the inventions public property in this country.

The Fruits of Police Negligence in Surrey.

An interesting commentary on the misplaced activities of the Surrey police in their persecution of motorists for merely technical offences is furnished by Sir W. Vincent's address to the grand jury at the Surrey Quarter Sessions last week. He said the calendar was of a rather severe nature. He thought it was always the case at the October Sessions that there were charges of housebreaking and burglary, which was due to the fact that during the summer holidays many houses were left unoccupied. The returns showed that during the June quarter the number of indictable offences committed in the county was much larger than in the corresponding period of 1908—138 against 124. The only satisfaction he could see was in the fact that the prisoners charged with these offences were more—109 against 78. He regretted to see that some of the burglaries were by foreigners. The correct explanation of the increase of crime in the county of Surrey would be found in the fact that the police habitually withdraw themselves from the populated areas, where residents' houses and property need protection, to the open country, where they conceal themselves in ditches, etc., for the trapping of motorists for merely technical breaches of the law.

Motor Union Notes.

(Communicated by the Secretary.)

Taxation by Unit of Horse-power.

It is satisfactory to observe that the readers of *The Autocar* have confirmed the opinions arrived at by the Motor Union as to the fairest method of taxing motor cars. The organisation of the Union is designed to keep the Central Executive in touch with the views of the general body of motorists, and it is therefore gratifying that when the efficiency of its machinery is tested it is found adequate to fulfil its task.

The Union has done all in its power to persuade the Government to adopt the unit of horse-power as the basis of taxation in place of the schedule proposed in the Finance Act. The resolution approving the former method which was passed by the General Committee of the Union on May 19th was forwarded to the Chancellor of the Exchequer, and when the House of Commons in committee considered Clause 66 of the Finance Act, Mr. Joynson-Hicks, on behalf of the Motor Union, moved to omit the classification schedule, and suggested the insertion of the following words:

> "In the case of motor bicycles and tricycles at the rate of two shillings and sixpence for each unit and fraction of a unit of horse-power, in the case of motor cars up to and including forty horse-power at the rate of three shillings for each unit and fraction of a unit of horse-power, and in the case of motor cars exceeding forty horse-power at the rate of six shillings for each unit and fraction of a unit of horse power."

The deputation from the Union which waited upon Mr. Lloyd George again exposed the unfairness of the "classification" method, and suggested that motorists would be treated more equitably if the "unit" system were adopted. The Union is therefore very glad to have its action in this matter endorsed by the readers of *The Autocar*, of whom it was stated in a recent issue, "There appears to be an overwhelming opinion in favour of taxing by unit of horse-power."

Discussing in a previous issue the vote which was taken upon this subject, it was stated that "there is also a widespread feeling that the proposed taxation will bear very hardly upon the owners of old cars with engines so much less efficient than those which are employed on more modern vehicles." This the Union also foresaw, and it was to obviate this potential injustice that there was added to its amendment, defining the formula by which horse-power should be calculated (the diameter of the cylinder squared, multiplied by the number of cylinders, and divided by 2.5), a clause which provided that—

> "In the case of the engine of any motor car in existence at the first day of January, nineteen hundred and six, and of the engine of any motor car on and after the expiry of four years from the dates of the construction thereof, the divisor shall be four instead of two decimal five."

To increase the constant would be the simplest method of allowing for the inevitable decrease in the efficiency of old cars. Under the present proposals an old car which has probably changed hands after four or five years' wear at one-third or one-quarter of its original price will be taxed as highly as if it were a new car. The results of such a method will be (1) to depreciate the selling value of second-hand cars, and (2) to tax unfairly the motorist of moderate means who has to be content with a second-hand car.

When the Development and Road Improvement Funds Bill was considered by the House of Lords in Committee, Earl Russell (who is a vice-chairman of the Union) strongly opposed an amendment to include maintenance in the purposes to which the Road Fund is to be devoted, pointing out that the suggested amendment was contrary to a Parliamentary understanding.

◇ ◇ ◇ ◇

A member has suggested to the Union that the local authorities should be induced to erect a rail or barrier at the edge of the pavement in front of school gates, with a view to preventing children from rushing out into the roads at the close of school hours. The idea is a very good one, but, unfortunately, the local authorities have no power to erect such bars outside the school grounds, and it would, therefore, appear that no practical effect can be given to the suggestion. There is, however, amongst local authorities a growing recognition of the value of the Union's school signs to prevent accidents at such places. The Borough Council of Hastings, the Wetherby Rural District Council, the Mountain Ash Rural District Council, and the educational authorities at Wood Green are amongst those to whom school signs were granted last week for erection in their respective districts.

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The Local Government Board have issued an order restricting the speed of motor cars to ten miles an hour at Robertsbridge, Sussex, and have intimated that local inquiries will be held into applications for ten mile speed limits at East Grinstead on the 27th October, and at Southwick on the 6th November.

A conference was held at the offices of the London County Council on the 22nd October, with a view to seeing whether an agreement could be arrived at between the council and the objectors to the application for a ten mile speed limit on Roehampton Lane.

An application has been made for a ten mile speed limit at Harlow, Essex. The Union consulted with the local club (the West Essex Automobile Club) and the county surveyor with regard thereto, and as a result thereof is able to acquiesce in the application.

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At the request of Sir Alfred Watkin, the Union is supplying two Special Caution Signs bearing the words "Dangerous Bend" for erection at a dangerous double curve at Frogholt, about a mile and a half from Folkestone on the London Road. There were also issued last week for erection in the county of Kent five Special Caution signs. Three of these were supplied to the borough of Chatham, and two, bearing the words "Dangerous Turn," were granted free to the Kent County Council, to warn motorists of the corner near the Jolly Sailor Inn at Whitstable. The danger of a corner on the Tonbridge-Eastbourne road has also been lessened by the erection of the Union's special caution signs with the words "Dangerous Corner" added.

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The Oxfordshire A.C. is endeavouring to secure an improvement of a dangerous corner on the Iffley Road. The owner of the adjacent land has kindly consented to give as much as is required to round off the corner. The Union is prepared, under certain conditions, to contribute towards the cost of the improvement if advised to do so by the Oxfordshire club, the Union's representative in the county.

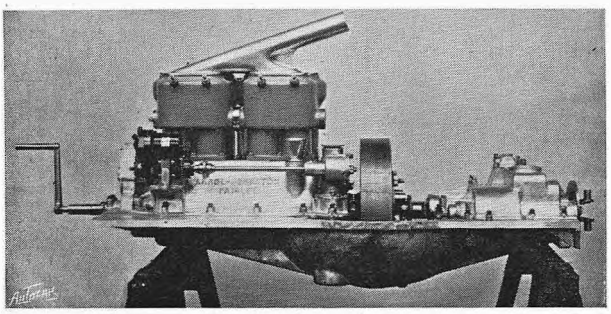
◇ ◇ ◇ ◇

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

The New 15.9 h.p. Arrol-Johnston Car.

Some of the Original Features in its Design.

THE Arrol-Johnston Car Co., Ltd., of Paisley—one of the oldest motor manufacturing concerns in Scotland, and whose vehicles have, by sheer merit, gained an enviable reputation for reliability and general excellence—have for some time past been engaged on the design and production of a new type of chassis. This new type, which will make its first public appearance at the forthcoming show at Olympia,



The near side of the 15·9 h.p. Arrol-Johnston engine, showing mounting of engine and gear box on bed-plate.

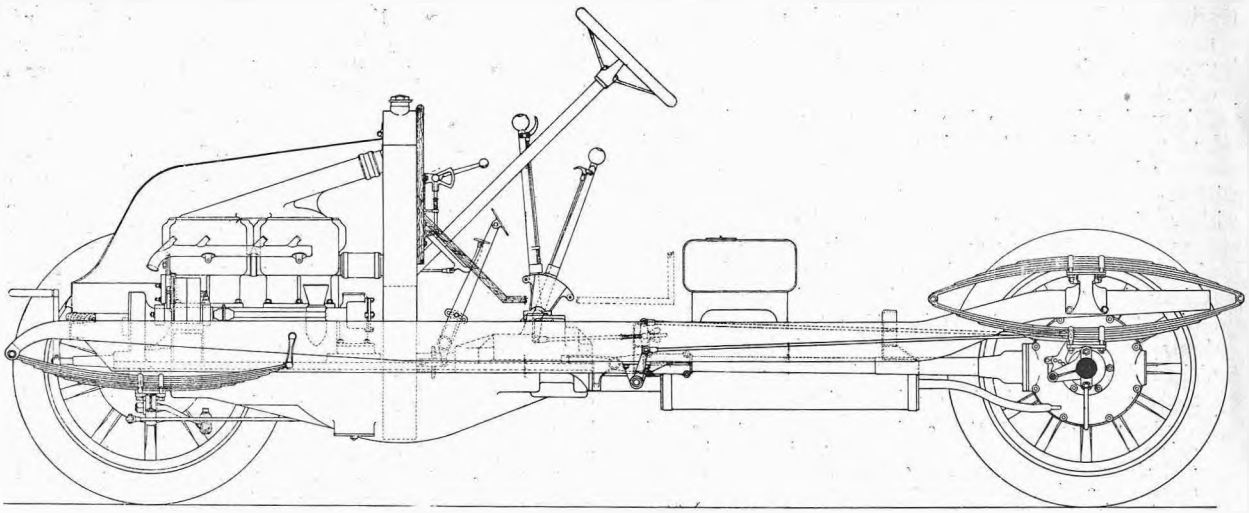
has been designed with the idea in view of producing a vehicle which, whilst moderate in price, will embody all those latter-day requirements which devolve into economical running, reliability, and smart appearance.

The following description and accompanying illustrations will give some idea of the general features of this interesting chassis:

The frame, which is about 2ft. 8in. wide, inswept at the front to 2ft. 3in., is built up of pressed channel steel, with side members 4½in. deep at the central portion. The bottom flanges, forward of the centre of the frame, extend considerably inwards to carry a large aluminium bedplate which supports the engine and gear box. The side members of the frame are, towards the rear end, curved first upwards to give clearance over the back axle, and then horizontally inwards till they meet at a point where they are strongly gusseted and riveted together. Three stout cross members tie the rest of the frame, the front one having the bottom flange extended rearwards and riveted to the extended side-member flanges, thus forming a front support for the engine bed plate, which is an exceptionally strong and at the same time light structure.

Semi-elliptic springs are fitted in front in the usual way, but those at the rear are full elliptic, the bottom sections being bolted to the back axle casing, and the upper sections to steel brackets extending from the side framing. All joints are fitted with neat lubricators, and the well-known Arrol-Johnston link motion is fitted between the frame and back axle to prevent side sway. A solid H section forging forms the front axle, and, outside of the spring seats, the top flange is formed with greater width to give strength for the front wheel brakes with which this chassis is fitted. The shafts of the live back axle run on ball bearings, and the double thrust bearings for the bevel drive are fitted with threaded adjusters, by means of which correct meshing of the pinion and crown wheel can always be secured. All the road wheels run on ball bearings, and are fitted with 815 × 105 Dunlop tyres, or Continentals as desired.

The engine and gear box are carried on the large aluminium bed plate already mentioned, which is firmly bolted to the frame flanges and forms a complete undercasing for the engine, flywheel, and gear box. The engine has four cylinders, 80 mm. diameter by 120 mm. stroke, cast in pairs, and is designed to develop, nominally, 15.9 h.p. R.A.C. rating. The crank chamber is bolted to the planed surface of the aluminium bed plate, and when the engine is lifted the crankshaft, etc., is raised too, all bearings being bolted up from below. This feature of design, which is also applied to the gear box, undoubtedly facilitates examination and adjustment. The crankshaft is of special steel, carried in three long white-metalled bearings, and both inlet and exhaust valves are mechanically operated from a single camshaft driven by helical gearing. Hinged wipers are interposed between the cams and the valve lifters to relieve the latter of side strains. The valve rods and springs are enclosed by a couple of neat and easily removable aluminium doors to exclude dust and ensure silence. Thermo-syphon system of water circulation is used, the radiator being of the flat vertical tube type with a six-gallon capacity, and placed behind the engine on the dash. The flywheel is directly below, and designed to act as a fan, inducing a strong air current through the radiator.

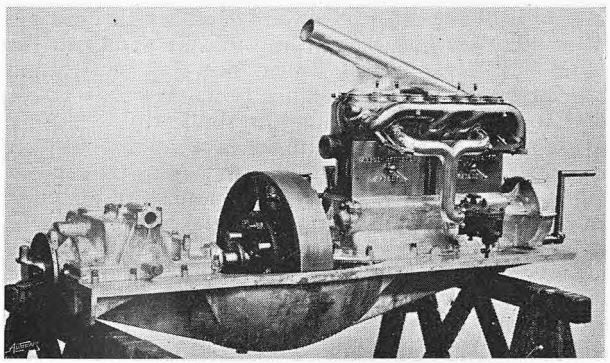


The new 15·9 h.p. Arrol-Johnston chassis.

Lubrication is by forced feed from a small gear-driven pump situated in the bed plate sump. Oil is drawn through a wire gauze filter and forced through ducts to all the principal bearings. Oil is also delivered under pressure to the camshaft bearings, valve tappet levers, etc., and to the gears driving the camshaft, magneto, and oil pump. A relief valve is provided to regulate the pressure, and a tell-tale is fitted on the dash. The oil filter, which can be detached for cleaning by the removal of a single nut, is extremely accessible through a special hand-hole in the bed plate.

Ignition is by high-tension magneto, with fixed firing point. Two sets of sparking plugs are provided for, so that accumulator and coil ignition can also be used. The magneto, which is of the Bosch DU4 type, is carried on the near side of the engine, and is driven from enclosed spiral gears through a small outside shaft with detachable coupling.

The carburetter on the engine to be shown at Olympia is of the White and Poppe type. It is placed on the off side of the engine in a very accessible position, fuel being fed by gravity from an eight-gallon petrol tank placed under the front seat. This is fitted with an outlet valve arranged to apprise



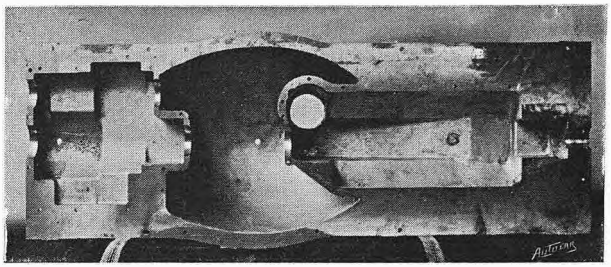
The engine, flywheel, clutch, and gear box of the 15.9 h.p. Arrol-Johnston are all mounted as a single unit.

the driver when the fuel supply is reduced to two gallons. The throttle is controlled by a small horizontal lever working in a rack quadrant, and by an accelerator pedal placed between the clutch and brake pedals.

A special design of plate clutch is fitted, full particulars of which were not available at the time of our inspection of the chassis. Connection with the gearshaft is made by a rigid but easily removable hexagon coupling, which carries a braking arrangement to facilitate gear changing. This rigid connection eliminates all back lash at this point, and is made possible by the method of supporting the engine and gear box on the girder-shaped bed plate.

The gear box gives four speeds and reverse, the top speed being a direct drive. The reverse wheels are out of mesh when not required, and the short, stiff shafts are mounted on ball bearings, ball thrust races being provided to take the end pressure of the helical gears used to give a silent drive to the lay-shaft. The gears are manipulated through striking levers and rods, with locking device, from an enclosed gate change quadrant, and the hand lever is fitted with a catch to prevent unintentional reversal.

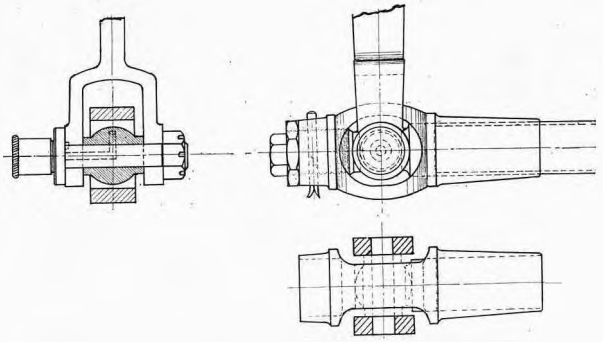
Behind the gear box is the only universal joint used on the chassis. This is of the ring and stud type, enclosed in an oil bath casing, and its position in relation to the back axle causes but a very slight angular displacement. The cardan-shaft is encased in a strong torque tube, jointed at the front end by a hinged crosshead, and bolted at the rear to the bevel drive casing.



The single unit casting by which the engine, flywheel, clutch, and gear box are supported and encased.

The steering gear is of the screw and block variety, and is so arranged that all joints in the steering box are simultaneously adjustable by manipulation of a single bolt easily accessible from the footboard. The access opening is closed by a lever lid cover, which forms its own fastening, and similar lever lids are used on the engine and gear box. Adjustable ball thrust bearings are fitted on the steering block, and the box is very substantially attached to the frame. The tubular distance rod between the steering arms is placed behind the front axle. All the joints, both ball and socket and knuckle, are large, and the pins have duplicate fastenings. The risk of steering connections coming adrift is therefore practically eliminated.

Four brakes are used, one being placed inside each wheel. They are of a novel expanding type, and all of the same size, with interchangeable parts. The metal expansion rings are made with a number



The ball and socket steering joint. The lever end is forked, and the steering rod eyeleted to prevent the latter falling away.

of internal teeth at one point of the circumference. The ring is cut through and sufficiently relieved, with an equal number of teeth on either side of the gap. Two intergeared pinions are fitted to engage the internal teeth, so that when the actuating pinion is rotated in one direction the brake ring is expanded till it fits the drum all round. Rotated in the opposite direction, this pinion draws the rings from contact with the drum, the operation being assisted by three equidistant spiral springs. The actuating pinions are operated through levers and rods fitted with Whippletree compensating gear from the side hand lever in the case of the rear brakes, and by pedal for the front wheel brakes. These latter are fitted under the Allen-Liversidge patent.

The chassis has a wheelbase of oft.. with a length over all of 12ft., and weighs about 17 cwt.

Small Car Talk. By Runabout.

Parti-coloured Wiring.

I OFTEN wonder why no go-ahead accessory dealer has not marketed a set of low-tension wires in many colours. Take my own case. I have two ignitions and three batteries, three electric lamps for the car, and another for the drip lubricators, the whole controlled by three switches. My wiring is very neatly arranged. It trickles through neat little brass rings in festoons, which remind me of the lianas in the virgin forests of the Amazon, and finally the entire collection emerges in a fat, orderly, many-stranded cable in the region of the accumulator box. But at no point save its two terminals is any single wire recognisable. As I roam over the chassis with my grease gun and oiler I meet wires here and there. Whence they come and whither they go I have not the vaguest notion, and I can only solve the puzzle by detaching single wires in order from their respective terminals and unravelling the whole of their mazy course. But if each wire were encased in a woven cover of different colours it would be a simple matter to face derangements and short circuits even by night, and the cost would be infinitesimal.

Small Car Prospects.

Olympia is approaching, and trade whisperings lead me to prophesy that we men of moderate means shall never have enjoyed so wide or attractive a choice as this autumn's show will present to our covetous eyes. None the less, in low first cost there is a certain danger quite apart from that of meretricious trash masquerading under a generous specification, a handsome outline, and a tasteful finish. Let me therefore reiterate that, for the man whose income is small, one cylinder is better than two, and two better than four; 6 h.p. more desirable than 10 h.p., and 10 h.p. preferable to 15 h.p. In the matter of cylinders, it is partly a matter of replacements; we all need a few ignition plugs in a year, and each increase in the number of cylinders puts a definite number of shillings on the annual bill. It is also partly a matter of repairs and adjustments; the simpler a car is the less frequently will professional advice be necessary. When we turn to consider power, it is a matter of tyres and petrol. The heavier and faster the car, the shorter will be the life of the tyres, the longer will be the fuel bill. Some poor men—and by "poor" I mean in this connection men who think in sovereigns normally—set out to buy a car with the idea of getting the highest power their available capital can procure. The small car man's motto should be, "What is the lowest power that will do my work well?" There is a great advance in the design and construction of twin-cylinder engines of late. I know several two-cylinders which are indistinguishable from the ordinary fours at most engine speeds, and there are actually one or two single-cylinders which at certain engine speeds closely resemble the cheaper fours. The fetish of four-cylinders as the absolute minimum need not worry a man who wants to motor peacefully on the cheap, and now that makers generally are fitting a bottom speed ratio sufficient to cope with any hill, even a 6 h.p. is seldom under-powered for English roads.

Grease Cap Elbows.

A very sound hint in *The Autocar* of October 16th recommended the amateur owner to manufacture a grease gun of ample bore fitted with nozzles to screw into sundry apertures on the car. I have already adopted this plan with regard to my own vehicle. All my greasers have the same thread, barring the differential cap, which is naturally on a more generous scale. My home-made grease gun has two detachable nozzles—one to fit the differential casing, the other to fit all the minor greasers, *e.g.*, steering gear box, steering joints, spring shackles, etc. With this grease gun I can rely on packing every part absolutely cram full of grease before I start on a tour, and the small brass thimbles hold sufficient oleaginous matter to cover all replenishments needed on the tour. Thus the morning labour before the car is ready for the road is considerably shortened. Some of the joints will accept as many as eight brass thimblefuls of grease, so the advantage of using a screw nozzle gun is apparent. Otherwise I should have to fill each thimble and screw it down many times; as it is, I remove the socket of the greaser bodily, screw the gun into the hole on the chassis, pack it quite full, fill the greaser, and replace.

Wastage of Oil.

The economical motorist should pay great attention to the point of oil wastage in considering which car to buy. There are cars on the road which consume oil so liberally that the lubricating bill surpasses the petrol bill. On the red-carpeted benches of Olympia it is impossible to judge of this point, but it is rather vital to the man whose purse is shallow. A friend of mine had one mournful experience in this respect. His first car sweated oil at every pore. He spent a great deal of time, money, and temper in attempts to prevent leakage, but to small purpose. He eschewed those standard oils which are procurable at every garage, and confined himself to the cheaper brands sold direct to the public to save middlemen's profits, but even then his oil bill was longer and larger than his petrol bill. Finally, he sold his first car, and bought a second, attracted largely by the fact that its gear box was cast in one piece according to the catalogue, with no orifices save the inspection lid on the top. This gear box actually proved to be a worse sinner than its predecessor. It had not occurred to him that the clutchshaft must enter somewhere, and that the propeller-shaft must emerge axlewards, or that bearings must have caps to them; but he soon discovered that his "one-piece" gear box, though it had no vertical joint, was bored as to its walls in many places, and that each of these bearings sprayed out oil liberally. When he made this exasperating discovery he banished oil from the gears altogether, and employed pure grease, with the result that his layshaft presently seized, owing to the thick lubricant failing to penetrate along the journals. A mixture of medium consistency would have served, and solved the difficulty no doubt. I must be grateful to him in one respect at any rate; he has introduced to me one of the oils which is only sold direct to the public, and it suits my car admirably, while its cost is about half that of the oils I previously employed.

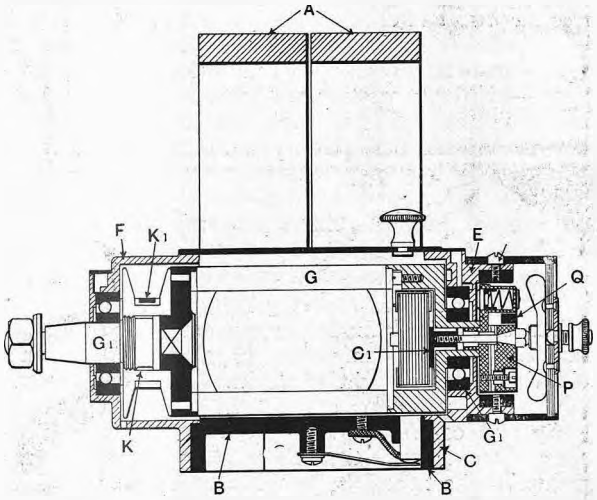
The Riley Co., of Coventry, ask us to deny a report which has gained currency that they intend manufacturing a four-cylinder Riley car for next year. They state that little change will be made in Riley cars, as the two-cylinder engine with cylinders set at 90° has given such good results, and is so well appreciated that no change is necessary.

The Latest Bosch Magneto.

A Simple Ignition Arrangement for Two-cylinder Cars.

THIS is a compact and neat form of magneto just put upon the market by the Bosch Magneto Co., Ltd., of 23, Store Street, W.C., for the ignition of two-cylinder engines with cranks at 180° or 360°. The design of this machine has been reduced to the least common multiple in the matter of simplicity—a great desideratum when it is remembered that magnetos of this description are required for small cars and cabs. Apart from the high-tension wires running from the distributer to the sparking plugs, there are no external connections with this system. The absence of numerous connecting wires therefore greatly facilitates the location of defects when such occur, which is seldom indeed. Comparison with the four-cylinder type will show the extreme simplicity of the two-cylinder machine.

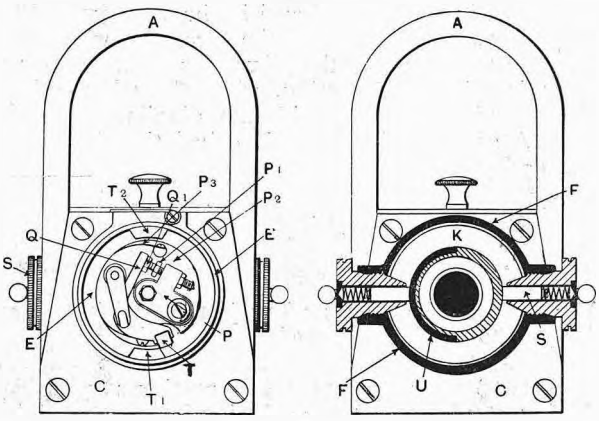
The following brief description of the apparatus if read with the accompanying diagrams will give a very clear notion of the operation of the machine and its simplicity of design.



Reference, figs. 1, 2, 3, and 4.

A A, magnets
B B, gun metal base plate
C C, end plates carrying distributer and contact breaker cases
C1, brass disc
E, contact breaker case
F, distributer case
G G, shuttle armature with windings
G 1, armature spindle
H H, armature end plates, enclosing condenser I
K, grooved distributer disc
K1, distributer contact slip ring
M, insulated screw conducting primary current to the platinum P1 on the contact piece P
P, contact piece
P1, stationary platinum
P2, contact breaker disc
P3, contact breaker returning spring
Q, contact breaker bell crank lever
Q1, platinum or contact breaker
S S, H.T. distributer brushes
T, fibre block on contact breaker lever
T1, cams T2, cams
U, contact for distributer disc K

The two magnets A A are with their pole shoes mounted upon the brass base plate B B, to which end pieces C C carrying the contact breaker case E and distributer case F are secured. In the centre of these end plates occur the single ball bearings in which the armature spindle G_1 rotates. The shuttle armature G is wound in two parts—one the primary, consisting of a few turns of thick wire, and the other the secondary, being very many turns of fine wire, both well insulated. The rotation of the shuttle armature G carrying these two windings between the two pole shoes attached to the lower ends of the magnets A A, and consequently in a strong magnetic field, produces a current in the low-tension armature winding, and consequently by the interruption of the latter a secondary or high-tension current in the secondary winding. This interruption is effected by the operation of the contact breaker Q P (figs. 1, 2, and 3), and occurs twice in one revolution of the armature, at each 180° of rotation. The breaking of the current produced in the primary or thick wire wind-



Figs. 2 and 3.—The contact breaker and distributer ends respectively. The inscription below fig. 1 refers to figs. 2 and 3 also.

ing induces a high-tension current in the secondary or thin wire winding, which current when so induced is led to the distributer contact slip ring K_1 in the distributer K, and delivered to the distributer brushes S S in proper sequence to fire the cylinders, these brushes being connected by wiring with the sparking plugs.

One end of the primary winding on the armature is attached to the core of the armature, and the other to the brass disc C_1, into which the insulated screwed pin M enters. This pin also holds the contact breaker P in position, and so conducts the primary current to the platinum point P_1. The pin M and the contact breaker P are insulated from the contact breaker disc P_2, which has, however, a metallic connection with the armature core. In the rocking arm O a platinum point O, is also fixed, this platinum being kept in contact with the platinum P_1 on the

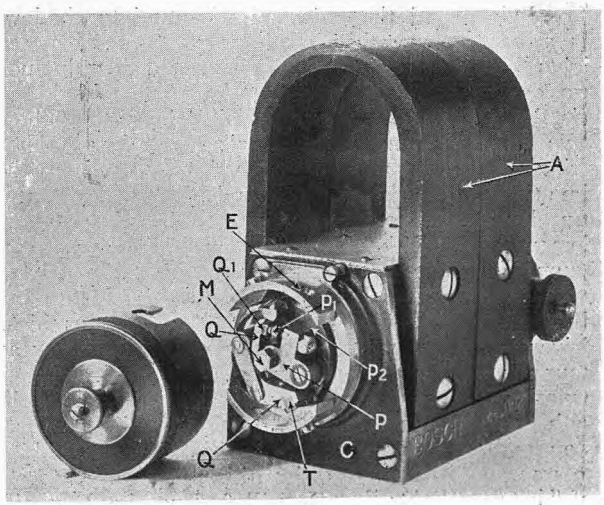


Fig. 1.—A general view of the complete machine from the contact breaker end.

contact piece P by means of the spring P_3. Now, the contact piece P with its platinum point being electrically insulated from the contact-breaking rocking lever Q, the only passage for the primary current when produced is by the platinums P_1 and Q_1, which are normally kept in contact by the spring P_3. When these platinums are separated, as they are twice in each revolution of the armature by the contact of the block T with the cams T_1T_2, the flow of the primary or low-tension current is interrupted, and a high-tension current induced in the secondary winding. Now the first end of the secondary winding is attached to one end of the primary, so that one forms a continuation of the other, while the other end of the secondary connects with the distributer contact U. A grooved fibre disc K, called the distributer, is mounted on the ring carrying the segment U, and the two carbon distributer brushes, coming alternately into contact with the segment as it rotates, takes the high-tension current to the sparking plugs to which they are connected. The photographic illustration shows the particularly accessible nature of the contact maker. It is merely necessary to withdraw the milled cap and screw out the insulated pin M to withdraw the contact maker for cleaning or adjustment. The distributer carbons and the distributer segment can be cleaned by unscrewing and withdrawing the brushes S S.

On two-cylinder motors with cranks set at 360° the armature must be driven at camshaft speed, but where the cranks are set at 180° the armature must be driven at crankshaft speed.

Some Notes on Night Driving.

By Runabout.

EVEN in these days of projectors which run up into millions of candle-power (*vide* advertisements and, for confirmation, report of R.A.C. lamp tests) the average motorist continues to dislike driving at night, and to avoid it whenever possible. It is simple and pleasant enough when one knows one's road and there is no particular hurry, provided one gets home some day—admittedly less pleasant and less simple when night overtakes one tangled in a mess of strange by-ways and with some serious urgency pressing one on at all costs. Much sitting behind other drivers has shown me that the average motorist ignores two little points which can rob night driving of all its terrors except fog. Watch the average motorist when any delay benights him, and it becomes obvious that he cannot hope to reach his destination without an hour or two of lamplight.

Between Lights.

As the shadows lengthen he keeps pressing the car on urgently and nervously, inspired by the fallacy that it is easier and pleasanter to drive by twilight than in the dark with acetylene to help him. As a matter of fact, the half-hour or hour "between lights" is easily the worst time in the twenty-four hours for seeing. If the lamps are not lit there is insufficient light; if they are lit, the fading daylight is just strong enough to spoil the clear contrast between the glare of acetylene and the objects it throws into shadow. As a consequence this half-hour or hour "between lights" is always an anxious time, and may include two or three narrow squeaks—dangers avoided and mistakes corrected at the last possible instant. These have their effect on the driver's mentality. They string up any nerves in his constitution, and by the time thick darkness has fallen and his powerful lamps can help him to the uttermost he is already demoralised. If he has to keep on driving for several hours his nerves will recover, as he finds driving easier in the deeper darkness of absolute night; but this is just the experience which the timorous night driver seldom enjoys, for he is generally home by an hour or so after lighting up time, and lacks prolonged experience of driving "in the black." Any motorist with an objection to night driving should arrange to stop and dine, prepare his lamps, smoke—anything to waste a little time during this awkward half-hour of "between lights." He will find nothing to terrify him when he takes the road again as soon as darkness has really fallen.

A second error common among less experienced night drivers is to hug the near side of the road, and use its illuminated beading of turf as a steering guide. This error has two bad effects. Sooner or later the car will slide up to some conveyance or other, the colour of which blends readily with the roadway; its tail lights—if any—will be those tiny red glasses set in the back of the faint oil headlights, rendered invisible alike by position and intrinsic poverty until the car is almost upon them, when only a mighty swerve can avert a collision. If the car is held to the centre of the road, or even a trifle towards the offside, the vehicle will be visible much earlier, and even if it is overlooked until rather late, quite a minute swerve will avail to clear it.

Needless Steering Difficulties.

This error also produces a second unpleasantness. Many owners have complained to me that they cannot hold their cars straight at night. By day they can keep the car's nose on a bee line, but by night they quaver and corkscrew, and are for ever giving little tugs and wrenches at the wheel. This sensation is the product of short focus steering. The eyes are trained on some point too near to the car. It may either be the fault of weak headlights, allowing too brief a range of vision, or of steering by the nearside road edge as illuminated by the side lamps. If a driver takes notice when driving by daylight, he will find he steers by and towards a point well ahead of the car, and consequently steers straight. He can only steer straight at night by adopting the same plan; and consequently he should employ headlamps of ample power, and steer by their light, not along the road edge as lit by the side lamps.

A last very simple wrinkle concludes my observations. We all are familiar with those moments of lurid language in which the car has shot swiftly up to a cross road, and as all the lamps are staring fixedly ahead, no one can read a word of the desirable information painted on the weatherbeaten signpost. There is a call for volunteers, and after a fractious pause one of the passengers wriggles out of his rugs, dislocates a side lamp, plunges knee deep in the slushy grass, and possibly clambers up the fingerpost with the lamp in his teeth. All this bother is prevented if the driver provides his left-hand man with an opera glass, and slows the car forty or fifty yards from the signpost. The passenger can thus often detect the required direction without dismounting, and without calling for the car to be stopped, or the gears changed.

On the Track. By H. C. Lafone.

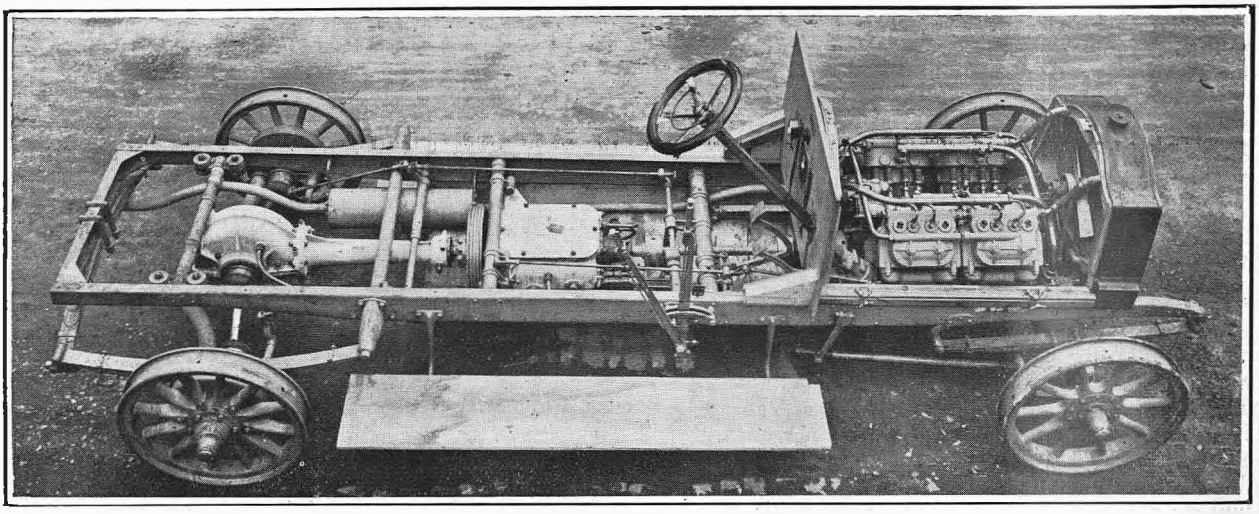
THINGS are humming at Brooklands. Flights, and trials, and records, and all sorts of fun. By the time this week's *Autocar* is published Paulhan will, if the weather is decent, have made his *début* at Weybridge, and I shall be very much surprised if the Brooklands course does not see a crowd alongside which that evoked by Nazzaro may be described as a sprinkling of sightseers. It will not, however, when these notes appear in print, be too late to see the famous young Frenchman fly, for he is billed for to-day (Friday) and to-morrow. It is stated that the flights will take place any time between 10 a.m. and dusk, but the actual performances will, of course, largely depend on the weather. Probably the afternoon will be the best time to visit the track, for, even at this autumn season, the wind generally drops away as the sun sinks. I am glad to inform my readers that the B.A.R.C. has "played the game" by its members. All members will be admitted free to watch Paulhan fly, and will enjoy their ordinary privileges. This is only fair, for those who lend a helping hand in time of trouble deserve any advantages which may be forthcoming when things begin to look up again. Paulhan is using a Farman biplane, with Gnome seven-cylinder rotary motor. This is of the same type as was the machine on which Farman put up the world's record for long distance flying at Rheims. Given reasonably still air conditions I expect to see all existing height and duration of flight records fractured this week-end. Paulhan is quite a young man, who was until recently a simple mechanic in a French factory. He first came to the front in connection with a model aeroplane, which attracted much attention. So handy did he show himself that he was given charge of a biplane at Rheims, where he soon made his name by some daring high flights carried out during the opening days of that meeting, when wind and rain rendered navigation of the air anything but an easy matter. For some days Paulhan held the world's record for length of flight, and was finally placed third to Farman and Latham. He would have made a bold bid to recover his lost supremacy on the last day but one of the meeting had not his machine been badly damaged by a gust of wind as he was starting out with a specially large petrol tank installed.

I walked over the Brooklands flying ground on Sunday last, and was much impressed with the possibilities of the locality. There is a very large space of ploughed and rolled land, somewhat irregular in shape, which will be ideal for manœuvring on unless torrential rain makes the surface over soft. Then on two sides of this ground there is rough grass land, the surface of which is just passable, and from which at the time of my visit of inspection an army of workmen was rapidly clearing bushes and stumps and roots. Even without this surrounding land there is plenty of room for a man with only half Paulhan's skill, and when the bushes and stumps have been rooted out all round there will be space even for the veriest tyro. For the biplane there is a fine hangar, which is solidly built of wood. This shelter has been rented by Mr. Astley, who proposes to use it after Paulhan's visit has come to an end. I have only one piece of advice to give Brooklands aviators; it is, don't fall into the sewage farm which skirts one side of the prepared ground. It would make nice, soft falling, but you would stay there a long time before you thought of violets!

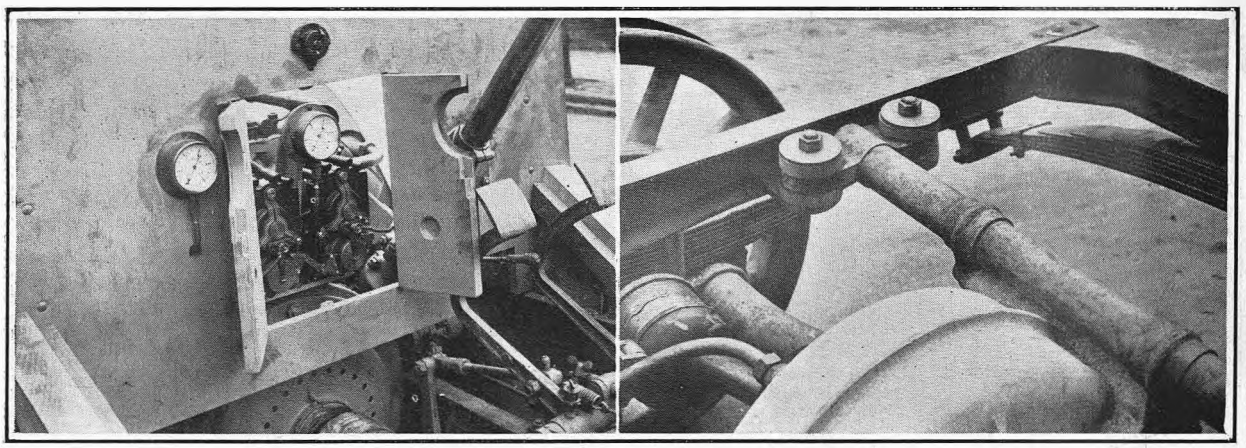
Last week there was on the track rather a famous little four-cylinder Martini in charge of Mr. Runci-

M. Paulhan leaving the Hotel Cecil for Brooklands to judge of the suitabilities of the motordrome for aeronautics. On the left is Mr. Holt Thomas who made the arrangements for M. Paulhan at Brooklands, and on the right Mr. Maurice Ducrocq who is arranging M. Paulhan's projected London-Manchester flight. Madame Paulhan is standing on the step of the car.

man. This tiny racer finished first of the four-cylinders in the voiturette race organised last year by *L'Auto*. The bore of the cylinders is only 62 mm., and the stroke but 90 mm., yet the little machine easily averaged forty-five miles an hour round the track, despite the hurricane which was blowing all the time. Except for one or two minor points, such as the provision of double exhaust valves, the diminutive speed machine is identical with the standard Martini "twelve." I had the pleasure of driving it for a couple of laps, and should never have imagined that so much life and power could have been developed by such ridiculously small cylinders. That it was more than a speedster was proved by the excellent manner in which it negotiated the 1 in 4 of the test hill. The Benz Company have their eye on the 90 h.p. Brooklands class records. Nothing definite has yet been arranged, but I think the firm will try and better the Napier figures. Next week the 60 h.p. Thames six-cylinder starts on Tuesday for some long distance records, and before long I fancy Mr. Astley will have a go at the 60 h.p. class figures. Last week Mr. Young's Itala was practising for an onslaught on these 60 h.p. records, and an unofficial whisper had it that the car for a certain distance was amazingly fast. Unfortunately, I arrived in the paddock just too late to see the performance, so can't guarantee the truth of the rumour.



The chassis of the new 35 h.p. eight-cylinder V-type De Dion car, described on page 669.



Two constructional details of the new 35 h.p. De Dion car, described on page 669. The method of supporting the differential case on rubber buffers and the trapdoor in the dashboard to give easy access to the magnetos will be noticed.

The main road to Newton Stewart from Ayr, three miles beyond Barrhill, is covered with 3½in. metal for a distance of a mile. There is a very thin coating of silt on the top, but as no roller will be passed over it, it is not fit for motor traffic, and will do damage to tyres. The road is very narrow, so cars cannot avoid passing over the metal. All cars should take the Snap Inn Road, which is in fair condition, and avoid the Bargrennan Road where the metal lies.

A feature of the new La Buire cars is the silent chain drive for the camshaft. Of course there is no novelty in a chain-driven camshaft, as engines driven by this means were shown in one of the very earliest exhibitions. The idea was revived in a much more satisfactory form by the Daimler Co. last year, the difference being that the new silent chain was used—a type of chain which was not available in the days of the noisy pitch chains with their unavoidable backlash.

Proposed International Motor Traffic Regulations.

Recommendations by the Paris Conference.

THE recent International Conference of Delegates, which met in Paris to consider the question of adopting uniform regulations for motor traffic in the countries represented, has made the following recommendations, which have already been signed by several of the States concerned:

I.—Admission to Public Thoroughfares.

Every motor car to obtain international permission to be driven on the public highway must either have been certified as fit to be used, after examination by a competent authority or by an association empowered by such an authority, or must belong to a type certified in accordance with the aforesaid method. The examination must be based particularly upon the following points:

1. The mechanism must be of a reliable nature, and constructed to obviate, as far as possible, all risk of fire or explosion; to obviate all risk of frightening horses by its noise; to constitute no other source of danger to traffic; and to cause no serious inconvenience to road users by smoke or vapour.

2. A motor car must be provided with the following mechanical parts:

(a) A powerful steering gear that allows turns to be taken easily and safely.

(b) Two systems of brakes, independent of one another and adequately efficient; one at least of these systems must be quickly operating, to act directly on the wheels, or on drums made in one piece with the wheels.

(c) A device that can prevent, even on steep hills, all backward movement, in the event of one of the brake systems failing to ensure such a condition.

Every motor car exceeding 350 kg. in weight unladen must be furnished with an arrangement by which the driver can, from his seat, reverse by means of the motor.

3. The gears must be so grouped that the driver can operate them without ceasing to view the road.

4. Every motor car must be provided with plaques indicating the firm that has constructed the vehicle, and the maker's chassis number, the horse-power of the motor, or the number and bore of the cylinders, and the unladen weight of the vehicle.

II.—Conditions for Drivers.

The driver of a motor car must possess those qualifications that afford an adequate guarantee of safety to the public. In so far as international traffic is concerned, no person may drive a motor car without having received permission to do so from a competent authority or from an association empowered by such an authority, after he has given proof of his fitness. No permission may be given to persons under eighteen years of age.

III.—International Road Certificates.

In order to ensure for international traffic the carrying out of the conditions stipulated in Sections I. and II., international road certificates shall be granted according to the following method: The certificates shall be valid for one year from the date of their issue. International road certificates granted by the authorities of one of the contracting Governments, or by an association empowered by such Government with the countersign of the authority, shall give free access to traffic circulation in all the other contracting States, and shall be recognised there as valid without further examination. The recognition of international road certificates may be refused on the following grounds:

1. If it be evident that the conditions under which they have been granted according to the principles laid down in Sections I. and II. have not been fulfilled.

2. If the owner or driver of a motor car be not a native of one of the contracting States.

IV.—Position of Identification Numbers.

No motor car shall be allowed to pass from one country to another unless it display, at the back, in addition to the number-plate of its own country, a distinctive plaque bearing letters establishing its nationality.

V.—Warning Apparatus.

Every motor car must be provided with a deep-toned horn as a warning signal. Outside large towns it is permissible to use other warning signals, in accordance with the regulations and usages of the country. Every motor car must be provided after dark with two lamps capable of rendering the plaques legible. The roadway must be illuminated in front over an adequate distance, but the use of dazzling lights is always prohibited in town areas.

VII.—Meeting and Overtaking Vehicles.

When meeting or overtaking other vehicles, drivers of motor cars must rigorously observe the rules of the road of the localities in which they are.

VIII.—Position of Notice Boards.

Each of the contracting Governments agrees to take precautions, as far as its authority permits, that there shall only be erected as indications of dangerous points the signs specified in a schedule. Modifications may be made in accordance with a general understanding, by the Governments of the contracting States. To this system of signs it is possible to add a sign notifying a customs house and ordering a halt, in addition to another sign indicating a toll-house and *octroi*. The Governments will at the same time endeavour to secure adherence to the following principles:

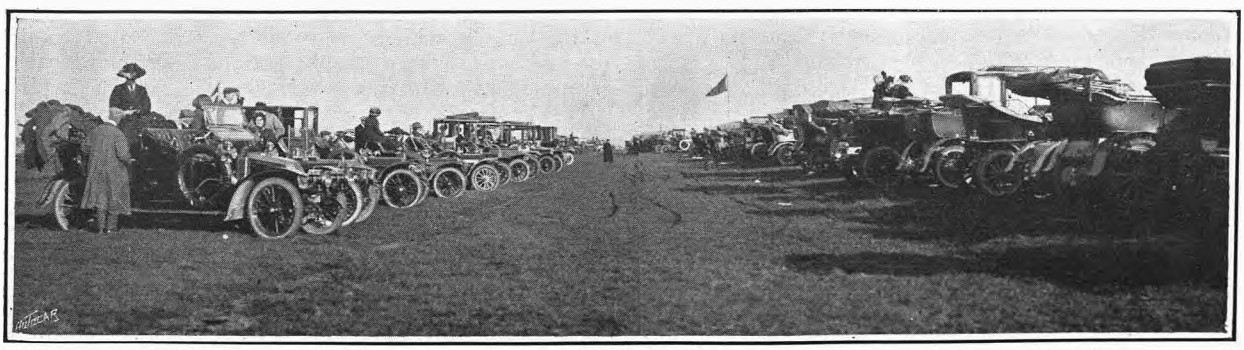
1. Generally, there is no occasion to indicate by warning signs the dangerous points that are situated in towns.

2. The signs must be erected at a distance of about 250 m. from the point indicated, unless the position of the place prevents. When the distance of the sign from the dangerous point varies in a marked degree from 250 m., special notifications are to be made.

3. Warning signs must be erected perpendicularly to the road.

IX.—General Regulations.

The driver of a motor car circulating in a country is bound to conform to the laws and regulations relative to traffic on the public roads in force in the said country. An extract from these laws and regulations may be supplied to the motorist on his entering a country by the office where the customs formalities are carried out.

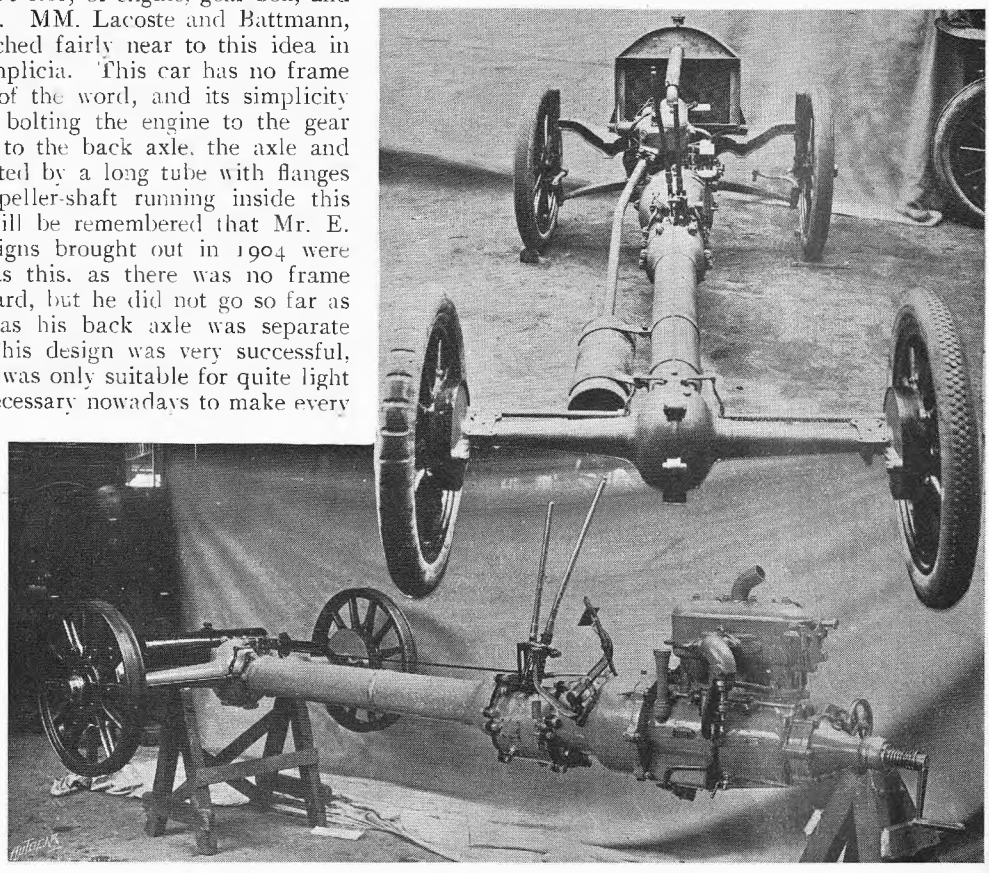


The A.A. car enclosure at Blackpool for the Flying week was evidently much appreciated by motoring visitors; about 300 cars were parked daily.

A Frameless Car.

A French Development of a Discarded English Design.

THE engine cast in a single piece, known as the *moteur bloc*, is now common enough. The engine and gear box in one unit are also nothing unusual, but it appears, if we go much further, we shall come to the *voiture bloc*, or engine, gear box, and back axle in one piece. MM. Lacoste and Battmann, of Paris, have approached fairly near to this idea in a car they call the Simplicia. This car has no frame in the ordinary sense of the word, and its simplicity apparently consists in bolting the engine to the gear box and the gear box to the back axle, the axle and gear box being connected by a long tube with flanges on each end, the propeller-shaft running inside this tubular casing. It will be remembered that Mr. E. W. Lewis's Rover designs brought out in 1904 were almost as ambitious as this, as there was no frame forward of the dashboard, but he did not go so far as the French designer, as his back axle was separate from his gear box. This design was very successful, but was dropped, as it was only suitable for quite light bodies, and it seems necessary nowadays to make every chassis strong enough to carry something approaching to a limousine, as the maker never knows how much it will be overweighted by dead or live load.



The upper view shows the Simplicia chassis as seen from the back, the lower view the "unit" without its front axle attachments.

The three great objections to the Simplicia appear to be the additional unsprung weight, as the whole of the back mechanism is unsprung, not merely the axle and wheels, while the body will necessarily be heavy, as it will have no support from the frame, as there is no frame to support it. Worst of all, what would become of the car if it met with quite a slight accident? An ordinary car which may may be damaged in an accident can have its frame straightened, and the engine, gear box, and back axle, being flexibly connected, come to no harm unless the accident be something quite serious. A twisted frame may be bad, but what is it compared with a twisted engine, gear box, back axle, and all connections? It will be seen that a three-point suspension is used, and that the engine is fitted on a sort of trunnion in front, while to prevent undue roll guides are provided somewhat similar in principle to the clever Sizaire-Naudin arrangement. Notwithstanding these two main objections, the design is interesting, though it is a very great question whether it is really practical, as the only frameless locomotive we know which is successful is the traction engine, on which the boiler is also the girder which connects the front axle with the back axle, but there is a vast difference between the large diameter steel boiler and the comparatively featherweight construction of a motor car, and it is questionable whether sufficient strength can be obtained by this system of construction unless the weight which is saved in the frame is not put into the series of cases and flanges which carry the engine, gear box, and back axle and connect them with the front axle. The engine is a four-cylinder 75 × 100 mm., and the weight of the chassis without body or tyres is stated to be 550 kilos (10 cwts. 3 qrs. 16 lbs., or practically 11 cwts.), by no means a miracle of lightness despite its weakness.

The Lords and the Development and Road Bill.

The House of Lords on Tuesday passed the third reading of the Development and Road Bill after several amendments. The Marquis of Salisbury moved to add to Clause 11 a new sub-section to take the place of the provision deleted from the Bill empowering the Road Board to acquire strips of land at the side of the road which they constructed. The proposed sub-section entitled the Road Board or Highway Authority to recover from any person whose property was increased in value by the construction of a new road a proportion of the expenditure on the road. Earl Carrington accepted the amendment. Another material amendment adopted at a previous sitting was that referred to in our "Notes" to the effect that the funds at the disposal of the Road Board would be available for the maintenance as well as the improvement of existing roads and the construction and maintenance of new roads.

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.

MOTORING AND THE SAFETY OF THE PUBLIC.

[14879.]—I think everybody will agree with me in saying that the safety of the public and of the motorists themselves is the first consideration in motoring, and lately, when there has been so much discussion about the roads, and what is best to be done to them, there is one very important thing, which I am sorry to say is very seldom done, and I do not think I am exaggerating when I say that four-fifths of the accidents which occur in the country districts are due to this omission.

What I refer to is no new suggestion, and my excuse in bringing it forward again is its importance. It is the trimming of the hedges at cross roads and corners, so as to give a clear view of not less than one hundred yards ahead, on all occasions where possible. In some cases where the road is sunk below the level of the surrounding land, it might still be done by removing the hedge altogether and substituting iron railings.

I feel convinced that this is the first thing that ought to be done towards improving the roads in this country. Sharp corners and narrow roads are not dangerous (at least not to the experienced driver) if you can see far enough in front of you. No doubt it would be better to have many corners removed altogether and roads straightened, but that would take more time and money, whereas trimming the hedges is such a very small matter, it might be done at once and leave other improvements to follow afterwards.

The danger signs that are put so lavishly about the country are, in most cases, quite useless, as experience and a great many accidents will show. Take, for instance, the lamentable accident to Col. Colville which happened some years ago in the neighbourhood of Aldershot. No doubt many will remember it. The colonel was riding a motor cycle, and he collided with a motor car at a cross road, where the view was obstructed by high hedges. All the parties knew the cross road quite well. Would a danger sign have made any difference? On the other hand, if they had been able to see each other one hundred yards before they got to the corner, would this accident have happened? Then, again, in regard to the recent accident to Lord de Clifford, if he had been able to see the carts one hundred yards away, the accident would not have occurred. In the suburbs of towns, especially large towns, where so many taxicabs are used, a good deal ought to be done where garden-walls or shrubs hide the view at corners.

A. E.

[14880.]—In the numerous letters that have appeared in your paper complaining of the so-called police traps, few of the writers seem to recognise that, as things are now, the public must have some protection, and they do not make any attempt to suggest how this protection could be afforded in any other way.

It seems to me that what is needed, as regards country roads at all events, is simple and not very expensive, and could be carried out by the funds to be provided by the Development Bill now before Parliament.

County councils should have power, and be required, at all road junctions and at all sharp curves, to reduce the height of the fences to five feet, for a distance, at junction roads of, say, seventy yards on each side of the junction, and on the inner side of all curves where there is not a clear view for seventy yards, or where desirable to remove and at the expense of the council to substitute for the live or other fence an open iron or suitable fence that permits a view of that part of the road to be obtained.

Each road junction should have a direction post nine feet high, painted white, which would in itself be a warning and render any danger signal unnecessary, and each sharp bend a red triangle at the commencement and end of the portion of the fence that has been reduced in height or renewed.

Power should also be given, where the road surface at such places is below the level of the adjoining land, to slope back the banks so as to give the necessary clear view.

The cost of this work would not be very great, and if made a first charge on the funds available under the Development Bill would soon be carried out. The landlords could not object, as they would benefit by getting certain lengths of fence maintained at the public expense. There might have to be some exceptions in connection with roadside buildings, but these would not materially reduce the benefit of the scheme.

For towns and villages speed limits might still be required, but for outside the only regulation, besides the present one against driving to the common danger, that would be necessary to protect the public and to stop road hogs seems to me to be some such regulation as this: "That any person driving round any corner that is marked by a red triangle or direction post who does not keep within the line of the centre of the road on his proper side shall be liable at whatever pace he be going, and whether there be anyone else on the road or not, to be convicted and fined or imprisoned, as the case may require, for dangerous driving." The fact of having to keep on the proper side round all corners would practically put an end to the main cause of accidents and reduce the speed round corners to a reasonable pace.

There is also another improvement that might be carried out in many small places at a small expense out of the funds of the Development Bill, and that is that wherever the county council consider a country road too narrow for safety they shall have power, where the boundary is a live fence to substitute an iron or other suitable fence at the expense of the fund. This fence to be fixed on the line of the centre of the hedge; the three or four feet from the centre of the hedge usually claimed by the owner of the land and occupied by the hedge and bank or ditch, being thus added to the width of the road on each side if necessary. Landowners would have no cause for objection, as they would get a fence maintained at the public expense, and such fence could be erected without prejudice to their claim to the ownership of the land thus added to the road, in the event of the land being required by the owner for building or other purposes.

MOTORIST.

[Our correspondent's opening statement suggests that no attempt has been made to show how protection may be afforded the public under existing circumstances except by the institution of police traps. Both we and numerous correspondents have suggested over and over again that the police would afford far better protection to the public by regulating traffic at really dangerous places than by hiding in ditches to trap unwary motorists on deserted roads where there is no suspicion of danger to anyone. With the practical suggestions of our correspondent we entirely agree.—ED.]

AN OLD ACT REVIVED.

[14881.]—In last week's issue of your paper, page 641, you have an article entitled "An Old Act Revived," and I have read it with great interest.

I am a constant reader, and also a member of "The Autocar League," and I hope a good motorist, fair alike to my brethren of the car and the general public. Any statements you have previously made relative to the relations existing at the present time between constituted authority and motorists I have always accepted in absolute good faith, and I should be sorry if any report you saw fit to issue in your columns (due always I doubt not to lack of complete accurate information) should in any way tend to shake my opinions or any other reader's opinions on any case about which they happen to know something. I rather take exception in your report to the following: "The course here adopted by the police is one calculated to make the motorist's life unbearable," and that "the affair was a pure accident, due entirely to the erratic behaviour of the woman herself."

My experience of Westmoreland goes to prove that the authorities are not ogres, desirous on every occasion of seizing upon a motorist and treating him as one "outside the law." I am sure that the present case was not taken under the Act mentioned, except after very careful consideration of all the circumstances.

Correspondence.

I am exceedingly sorry for the motorist who directly or indirectly was responsible for the terrible injuries Mrs. Troughton sustained, and I am sure it must be a great grief to him. I would not presume to adjudicate in this case, or express an opinion definitely, and I think that, had you reserved your strictures till after the case had been heard at Quarter Sessions, and you were in possession of a complete report of the evidence for and against, it would have been the wiser course. Are you aware that the defendant stated he was not driving more than fifteen miles per hour, and yet, notwithstanding this, after he collided with the woman he dragged her twenty-eight yards before he pulled up? I expect that by now this case will have been settled at Quarter Sessions, and I can assure you that it will not be tried by an anti-motoring bench of magistrates.

I know the road where this accident happened. I was there only a few days ago, and it is quite easy for a driver seated in a car to see over the bend in the road and on to the bridge quite well, and thus be able to take a calculation of and be prepared for any oncoming traffic. In fact, in comparison with hundreds of corners in this country, it can barely be described as "dangerous."

I am not personally interested in this case either for the woman or the driver, and I extend to the former (who, I understand, is disfigured for life) and also to the driver my heartiest sympathy. E C 271.

MISUSE OF PETROL CANS.

[14882.]—May we ask you to extend to us the courtesy of your columns to draw the attention of motorists to a matter which we think is of as much, or even more, importance to them as to ourselves.

We cannot help but think that there is an increasing use being made of petrol cans for the purpose of carrying water for filling the radiators of motor cars, taxicabs, etc., and also for the purpose of filling them with hot water for use as foot warmers. Whilst we take every precaution that is humanly possible by thoroughly rinsing all empty cans by means of our petrol washing machines which have been installed at every one of our filling stations, still we think that if motorists, garage proprietors, etc., would make a special effort to prevent such use of petrol tins, it would materially assist towards the elimination of trouble in the carburetters.

FOR BRITISH PETROLEUM CO., LTD.,
E. F. HINDMARSH.

INCONSIDERATE DRIVING.

[14883.]—Referring to your correspondence *re* careless driving, I should like to mention two instances of dangerous driving by chauffeurs which have happened to me within the past fortnight. The first was when I was approaching the dangerous bridge at Send from Ripley a big car came over the bridge from Woking at 30 m.p.h. at least. Had I not been going slowly enough to pull up just before the foot of the bridge there would not have been much of my Talbot or myself left. The second instance occurred on the 8th inst., near Worcester Park about 5.30 p.m., when rounding a sharp bend in the road I met a Charron cutting the corner on my side (*i.e.*, on his right) at what I consider a very dangerous speed. There could hardly have been eight feet between our bonnets, but having a small car he managed to jerk it over to the left, and I, being declutched, turned on to the path, and so a bad accident was avoided by perhaps an inch. Fortunately we both kept our heads. I was unable to take the number, as the car pulled up round the corner, and seeing I was all right it went off. Had there not been two ladies in the tonneau I would have gone after the car and given the chauffeur in charge. In my experience of motoring I have hardly ever met an amateur driver who has caused me the slightest anxiety. 12 TALBOT.

[14884.]—In reference to the question of inconsiderate driving may I give an example of my experience?

There are many chauffeurs who are told to drive fast, and are practically compelled to do so, probably at the risk of losing their situation. I am one of these, and although I absolutely hate driving above twenty-five miles an hour, I am getting censured almost every time I go out. I am at present in a place in Surrey with foreign people who either don't or won't understand decent driving, and whose only desire is to dash up hills and over muddy roads to the detriment of any respectably dressed people who happen to be walking along the roadside.

I came to my people with a clean licence of six years' standing, but I am afraid it will not be so much longer. As I am a married man with children to support I cannot afford to be independent. My car is of high power and capable of doing sixty, and I think it annoys my employer more than a little if I do not let it out.

I don't think I am the only tied chauffeur in this respect, but I can only say it is a thing I got tired of years ago.

CHAUFFEUR-MECHANIC.

REASONABLE MAGISTRATES.

[14885.]—Having frequently read in *The Autocar* of cases of rank injustice dealt out by magistrates to motorists, I enclose you a cutting from a Clitheroe local paper, showing that even in "trap-infested" Lancashire there are some magistrates who are fair minded and desire to judge motor cases on their merits instead of imposing heavy fines for merely technical offences. To be timed to drive a measured distance at a speed of thirty-one miles per hour and for the case to be dismissed is to the best of my belief a very rare occurrence. F. C. HUDSON.

[The cutting referred to is the report of a case against a chauffeur for exceeding the speed limit at Pendleton. The police alleged a speed of thirty-one miles sixty-one yards per hour, which defendant said he could not dispute, as the speedometer on the car was broken. As there were no previous convictions the Chairman (Mr. J. T. Tatham-Clegg) said the bench had taken into consideration the fact that defendant had a clean sheet so far, and they did not want to put a black mark against him. They dismissed the case on payment of costs.—ED.]

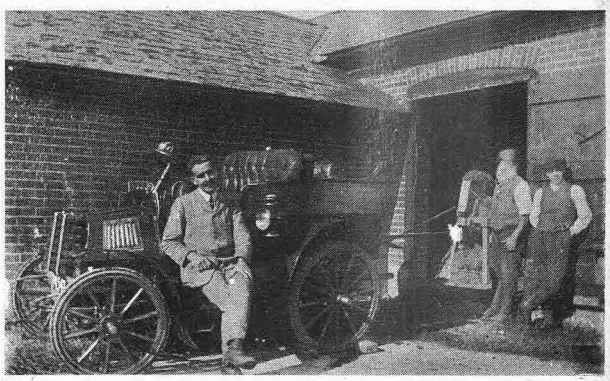
THE SALISBURY PLAIN ACCIDENT.

[14886.]—Now the Salisbury motor calamity trial is over it seems to me an extraordinary fact that so little allusion was made to the fact of the officer in charge ordering his men "to scatter." The only possible order should have been "left incline," which would have given the driver of the motor van some chance to pull over to his right, even at risk of smashing up himself to save the men. But think of anyone's feelings who is driving a car to see a crowd scatter right and left and ask him how he can possibly decide which way to put his car. Granted, he was driving much too fast under the circumstances of fog, etc.

J. KINGSTON BARTON.

TO WHAT BASE USES.

[14887.]—I thought perhaps the enclosed photograph might be of interest to your readers. The car is an old M.M.C. with a two-cylinder engine of about 7 h.p., and belongs to Mr. Ayling, of Little Heath Farm, Oxshott. He has made



a most ingenious wooden wheel of about 2ft. 6in. diameter, which he pushes on over the hub of back wheel of the car and lashes to the spokes. He made a special jack with extra large base, so as to keep the car steady whilst the engine was working. The belt is made from some old harness traces, and connects the car up to a Bentall's chaff-cutter. The whole arrangement works extremely well, and will do as much work in one hour as two men would do in a whole day, and at the absurd cost of about 7d. or 8d.

H. G. MILLS.

HOGGISH HORSE DRIVERS.

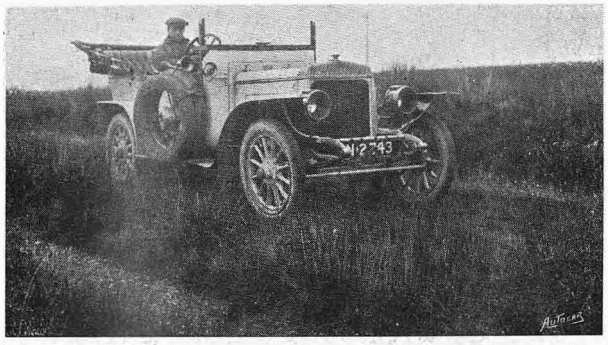
[14888.]—On Sunday last my son was driving my car near Wilmslow, and on coming to a blind corner sounded the horn and slowed down, when he suddenly met a governess pony cart on its wrong side. To avoid a collision he turned into the hedge, thereby scratching the paint, of which I am rather proud. To the surprise of all, the occupants of the pony cart simply grinned, evidently gratified that they had made a

motor car give way to them, not realising the danger to themselves if my son had stuck to the right of the road.

If such an experience should happen when I am in the car I shall demand the name of the driver of the horse vehicle and test the question whether a motor car is always in the wrong. A. BUXTON.

UNFIT ROADS.

[14889.]—Whilst touring in the Lake District last month I had an experience which may be of some use to your readers who find themselves similarly placed. Motoring from Seascale to Newby Bridge, Windermere, we expected to have to go all round by Bootle and Millom, but came across a good looking road marked "Broughton ten miles." As we had to go through Broughton, and it saved quite a



long distance, we decided to try it, more especially as the telegraph poles go that way. The road began to deteriorate, and on asking a farmer what the surface was like farther on he said it was all right. The road gradually got worse and worse, there was nowhere to turn, the gradients became very severe, and we finally found ourselves on the fell side, with nothing but the telegraph poles to show us the way. This continued for about five miles, and it took us about one and a quarter hours to complete the distance. Clearly this is a road that needs marking as unfit for motor traffic. I enclose you photograph showing the nature of the surface.
F. C. HUDSON.

CYCLIST THIEVES.

[14890.]—I should like to draw your readers' attention to a serious disadvantage in allowing cyclists to hang on to a motor car in districts unfrequented by much traffic. Last week when going between Farningham and Wrotham, on the Maidstone Road, I. insisted upon two cyclists letting go their hold of the back of the car after having carried them up several hills. Afterwards I discovered that the strap holding a bag on the luggage grid had been unbuckled and the bag had gone, and no trace of it has been found. I have no doubt this had been done by the cyclists in question.
LN 6472.

THE BALLACHULISH FERRY.

[14891.]—With reference to letters Nos. 14851 and 14875, I should like to point out for the benefit of your readers who may not be aware of the fact that a very easy and expeditious way exists of avoiding the danger and inconvenience of crossing by this ferry. They have merely to put their car on a truck at Bridge of Orchy Station on the Glencoe route and train across Ranoch Moor to Tulloch Station—less than 30m. journey. From Tulloch it is an easy run down to Fort William, and the total cost works out at about 16s. 6d. for the transhipment by rail in a covered truck, compared to 25s. by the ferry, to say nothing of the saving of time and temper. A wire to the stationmaster at either place twenty-four hours beforehand will insure a truck being in readiness, and no delay will be experienced in getting the car on and off, as there is an easy approach at both stations. I took my car north to Fort William by this route last year without the slightest difficulty or delay. A. C. D.

[14892.]—I have been considerably interested in the little paragraphs published in your journal in reference to the Ballachulish Ferry. I well remember my amazement when, in 1901, I arrived at this ferry *en route* for Glencoe. It is true my car was only a 3 h.p. De Dion; but, judging from the amount of care which was necessary in getting even so small a vehicle on to the boat, I can quite understand the alarm which the owner of a 40 h.p. with 11ft. wheelbase would feel under the same circumstances. I can only imagine that the charms of Glencoe are such that they outweigh one's fears, and make one willing to pay the preposterous sum charged for the crossing. Presumably the owners of the ferry prefer to use an antediluvian and most inadequate tub so long as they are sure of the traffic, and it must be very pleasant to be able to write down "nil" under the heading of depreciation of plant each year. It is a pity that there can apparently be no competition. HUBERT EGERTON.

WEST SUSSEX.

[14893.]—In your list of clean counties you err in adding West Sussex. Without detailing "all" the county traps, I will give you twenty-five "open road" ones, which may be legal, but certainly are blackmail or highway robbery. They have all been big money-raisers this year:

Worthing Road.—Southwater, West Grinstead cross road, Ashington, Washington, Findon, near Broadwater.

Bognor Road.—Near Billingshurst, Codmore Hill, North Heath, Pulborough, top of Bury Hill, down Rewell Hill, Balls Hut, Woodgate.

Petworth Road.—Near Northchapel, Cocking Causeway.

Portsmouth Road.—Near Liphook, Rake, Sheet. Also traps at Henfield, Cowfold, Steyning, Aldingbourne, Durrington, Rogate, all roads into Arundel, and both sides of Chichester.

I spent my holiday in France. G. T. LANGRIDGE.

[As explained last week, "West" was a misprint for "East" Sussex.—ED.]

ROAD HOGGERY.

[14894.]—On the evening of the 23rd inst., in a dark lane between Croydon and Beckenham, I had some experience of real road hogging. A car approached us at a terrible rate, and tried to pass. Even in bright daylight this is rather a difficult proceeding, as there is hardly room for two cars to stand next to each other, leave alone pass, unless in specially selected spots. In trying to get in front they nearly smashed us up. When finally they did succeed they at once drove off at the rate of thirty-five to forty miles per hour. My wife and chauffeur, as well as myself, carefully noted the number. D 469.

[The number has been communicated to the secretary of "The Autocar League."—ED.]

DOUBLE IGNITIONS.

[14895.]—In your issue of October 9th there is a letter [14822] headed "Double Ignitions," in which it is suggested that if one has two ignitions with separate sparking plugs the set of sparking plugs which is not in use will quickly become sooted up and useless when the second ignition is switched on. This is not my experience on six-cylinder Napier cars, which are frequently fitted with the Napier synchronised ignition and magneto ignition. One can run on either at any time and both plugs in each cylinder keep equally clean, it making no difference which ignition is being run upon. Used or unused, the plugs keep equally clean, and I think many other people could endorse this experience.
S. F. EDGE.

[We should like to confirm Mr. Edge's statement by the light of our personal experience of a 17-21 h.p. Daimler and a 30-40 h.p. Spyker. Each had two independent ignitions, and we never found the plugs of the system not in use to soot up.—ED.]

CONTINENTAL HOTEL CHARGES.

[14896.]—Some little while ago I read in *The Autocar* that as the charges for garage on the Continent were irregular and sometimes disagreeably excessive, tourists should make a point of ascertaining the garage charge before "descending" at an hotel. It may therefore interest some of your readers to learn that I have recently toured for thirty days in Brittany—that I have never once asked the charge for garage, and that only one of twenty-five hotels we slept in charged for garage, the charge in this solitary instance being one franc from Saturday till Monday night.
FREDK. A. BELLAMY.

THE SHOW CATALOGUE.

[14897.]—If not too late, I wish you would deal editorially with the question of the official catalogue at Olympia Show. The unwieldy and bulky volume we have hitherto had is quite useless as a guide to the exhibition until one can get it home and lay it out on a table, nor can it be stowed in an overcoat pocket. A book of quite a different shape would be much better, say 3½in. wide by 9in. or 10in. long, the matter put much closer together, and if such a mass of musical and meal

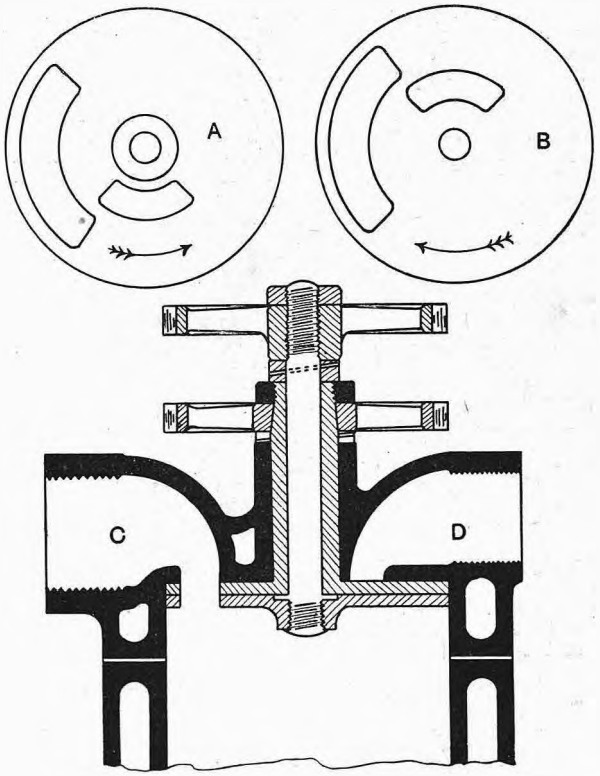
Correspondence.

menus are necessary let them be printed in much smaller type. A reasonable sized catalogue would be a great boon to those who like to look up particulars of exhibits as they pass along, and perhaps make a few notes. WALTER DENNY.

[While in entire agreement with our correspondent that the show catalogue is too bulky for convenience, we are afraid that it is too late now for any alteration to be made this year. Perhaps the S.M.M.T. will take the hint at their next show.—ED]

A ROTARY DISC-VALVE ENGINE.

[14898.]—In describing my invention, relating to valve gear for internal combustion engines, under the name of "The Rotowell," or Rowell's rotary disc valves, provisional patent No. 22,241, I would point out that all the valve faces and the inside face of combustion chamber are first turned flat, then accurately ground. By this process they are made compression tight, and will remain so. The inlet port is smaller than the exhaust, although of large area. In driving these valves in opposite directions the opening and closing is made at twice the speed of any single or poppet valve. The inlet port opens and closes dead on centres, having a radial opening of 90° × width of port (see drawing). During the compression and firing strokes, the ports on opposite sides of the combustion chamber are substantially covered by the plain solid parts of valves, thereby losing nothing of compression or firing pressures—in fact the heavier the pressures of compression and explosion the less likely are they to pass any of the gases. I allow a lead of 10° on the exhaust port of each valve. By doing so I obtain a radial opening of 20° × width of port (see drawing), which will at once be seen to give a very large opening with a lead of 20° to crankshaft. This



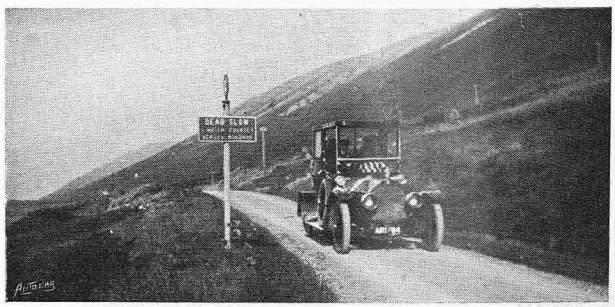
A. plan of top valve
B, plan of lower valve
C, exhaust port
D, inlet port

amount of lead can, of course, be altered to suit engines for any purpose, the 20° lead being about the usual amount. By the time the piston has travelled half way up the cylinder on the exhaust stroke, there is a radial opening of 100° × width of port (see drawing). For high speed, racing, and, in fact, all petrol engines, this will at once be seen to be a very large and quick exit for exhaust gases. The valves are drawn up to each other by spring washers, which would at once give way to any expansion should it occur, therefore putting no undue stress on engine or driving gear. These valves take from 50 to 75% less power to drive than spring-controlled poppet valves, having no stiff spring or direct push against the pressure of the explosion. Also by doing away with reciprocating valve motion in the crank chamber and cylinders I obtain silent running. I hope shortly to announce that I can run these valves without oil, by using a special metal for the valve A, and relying on a film of burnt oil and carbon only as a lubricant. In this case making it adaptable to light air-cooled aeroplane and other light engines. I am at present experimenting on an air-cooled engine with the above valves, and, if successful, can then make an engine of 10 h.p. considerably under 3 lbs. per h.p. The entire absence of side pockets and heavy castings will enable me to do this.

ARTHUR F. ROWELL.

NECESSARY SIGNS.

[14899.]—The accompanying illustration may perhaps be of interest to your readers as showing what may be expected on the road from Fort Augustus to Spean Bridge, in the Western Highlands. The sign is very necessary, as the



"8 water courses across roadway" are little ditches, which, unless taken at very low speed, would smash the springs of any car. Another sign indicating three more "water courses" will be found further up the road.

LA BUIRE.

HOW TO AVOID RETFORD.

[14900.]—In reference to the trapping at Retford, I advise motorists going north to leave the main road at Newark and proceed by Ollerton and Worksop to Doncaster. They will pass through some of the best scenery of the Dukeries, and run no risk of trapping. C. J. P.

HORSE-POWER RATING.

[14901.]—There seems to be a widespread feeling that some account should be taken of the stroke of an engine in computing its h.p. for taxation and other purposes. Your contributor Prof. Henderson (October 23rd, page 620) recommends the adoption of the S.M.M.T. formula, and it might be of interest to observe that this formula can be made a matter of mental arithmetic for whole numbers in English measure by a slight readjustment of the terms employed.

The form arrived at in the report is $\frac{D(D-1)(R+2)}{6}$ h.p. per cylinder. By replacing the R by $\frac{L}{D}$ and simplifying we get $\frac{(D-1)(L+2D)}{6}$. Thus for a 4in. × 5in. engine we have (mentally) 6½ h.p. per cylinder or 26 h.p. for a four-cylinder engine. For racing engines the report suggests a denominator which is practically 4, and this would cancel out the number of cylinders for all four-cylinder engines. Thus, for a 4 × 8 racing engine of four cylinders the power would be $(D-1)(L+2D) = 3 \times 16 = 48$.

This seems to me to be a much simpler formula than any other that has been suggested, and it gets rid of squares and square roots, which are a terrible bugbear on the slide rule. I need hardly add that the readjustment suggested has no effect on the accuracy of the formula.

CHAS. E. G. HOUSE.

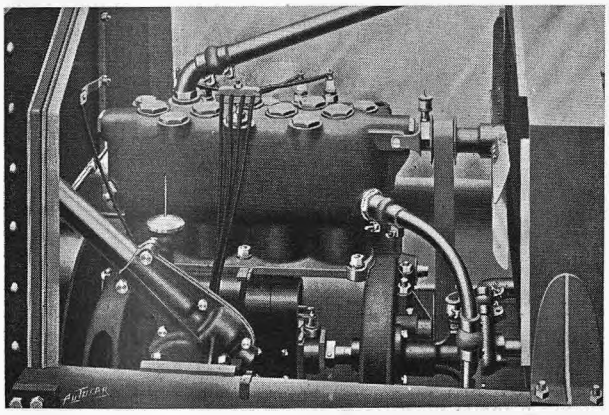
HENDERSON'S PETROL ECONOMISER.—In reference to the statement made by a correspondent under query No. 1093, that the maker of Henderson's economiser claimed to have supplied 2,000 of these articles in ten days, Mr. Henderson asks permission to correct this statement by saying that he received orders for 2,000 in ten days. These orders, he explains, came unexpectedly as the result of a notice in *The Autocar*, and some delay (for which he craves forbearance) has been occasioned in meeting the demand.

The New 14-16 h.p. Darracq.

A New Pattern of Frame and a "bloc" Engine.

THERE will be no chassis at Olympia which will attract more attention than the latest 14-16 h.p. Darracq. Extreme simplicity and great accessibility are the dominating features in the design. The car practically bristles with interesting points, chief of which is the unique frame construction. This is pressed cold from a single steel sheet—a wonderful job—and although a thinner gauge steel is used, so reducing weight, the frame is claimed, and with reason, to be considerably stronger than the usual composite type.

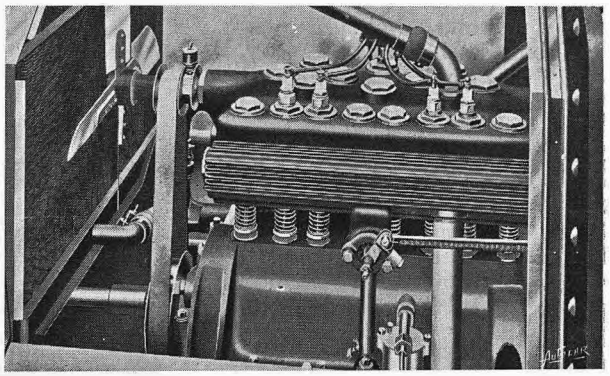
The illustrations give a very clear idea of the general form of this frame, which in rear of the dashboard has something of the section of a flanged hollow railway rail, the ∩ section being vertical and not horizontal as in the ordinary channel section frames. The flange formed on the outside serves to take the body, which is thereby brought some 4in. nearer the ground—a point to be considered in these days of low bodies.



The right side of the Darracq engine, showing the block casting steering box and magneto.

On the inside face the sheet is pressed out to serve as an underframe to carry the engine and gear box, after which it sweeps below both to form a perfectly protected undershield. This frame is not only interesting in itself, but it is a natural development of the pressed steel frames with widened flanges which were first introduced by Darracq and Co. some years ago, and have now, in one form or another, become common practice with most of the leading makers.

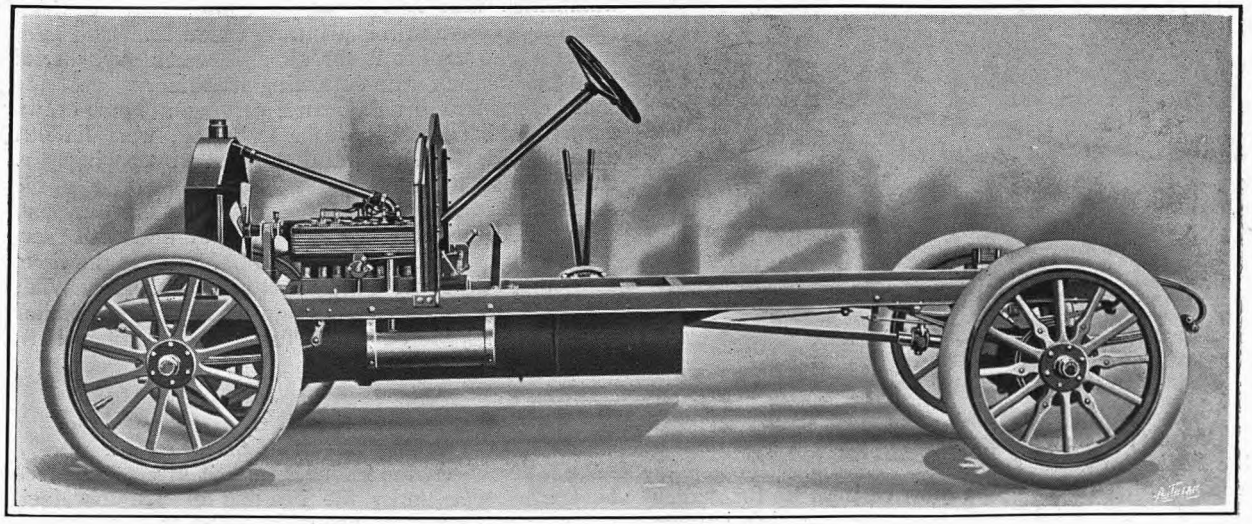
The four-cylinder engine, cast *en bloc*, has all valves on one side, the bore is 85 mm., stroke 100 mm., and the R.A.C. rating is 18 h.p.



The left side of the Darracq engine, showing the inlet and exhaust arrangement and carburetter.

High tension Bosch magneto is fitted, and the lubrication is entirely automatic. The crank case is formed with an under cover used as a sump, from which a constant level is maintained in the crank chamber by means of a pump operated by the camshaft. A level gauge is provided in the form of a float projecting through the cap of the oil filler shown in the right-hand view of the engine. A centrifugal pump driven off the half-time shaft provides the water circulation, and the fan runs on a spindle screwed into a boss on the cylinder casting.

An eccentric arrangement is provided for taking up the slack of the belt. The carburetter is remarkably simple, for it consists merely of a float chamber into an extension of which the jet is screwed, and round the



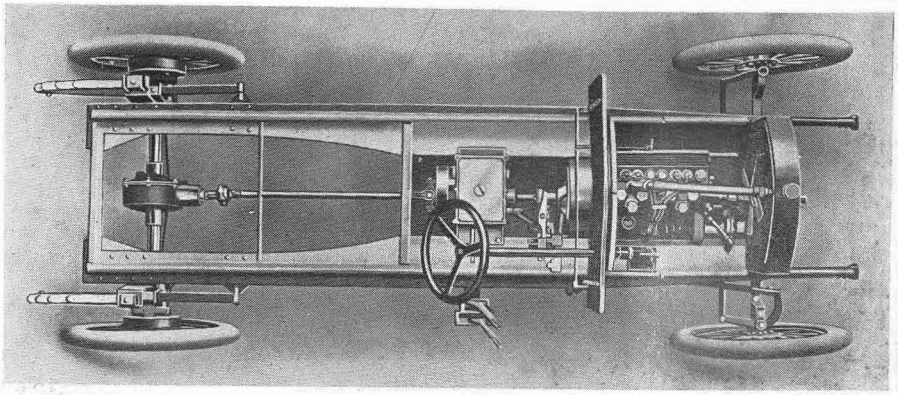
A side view of the 14-16 h.p. Darracq chassis. This and the plan view clearly show the new frame.

top of which a suction tube is fitted, running to the throttle, cast integrally with the cylinders. The jet can be removed and replaced in a few seconds.

The gear box affords three forward speeds and reverse controlled by a gate change. The top speed is direct by internal toothed wheel, permitting very short shafts. The whole of the selector mechanism is enclosed in the box, and works in oil. The gear box is bolted to the frame, and no long sprawly arms are necessary, as the frame flanges come close up to it, and the box can be entirely removed from the chassis by the removal of four bolts.

The brakes are internal expanding metal to metal, the foot brake acting on a drum fitted immediately behind the gear box.

The rear springs are threequarter elliptic, long and flexible. The drive passes to the rear axle by means of a propeller-shaft with universal joints fore and aft.



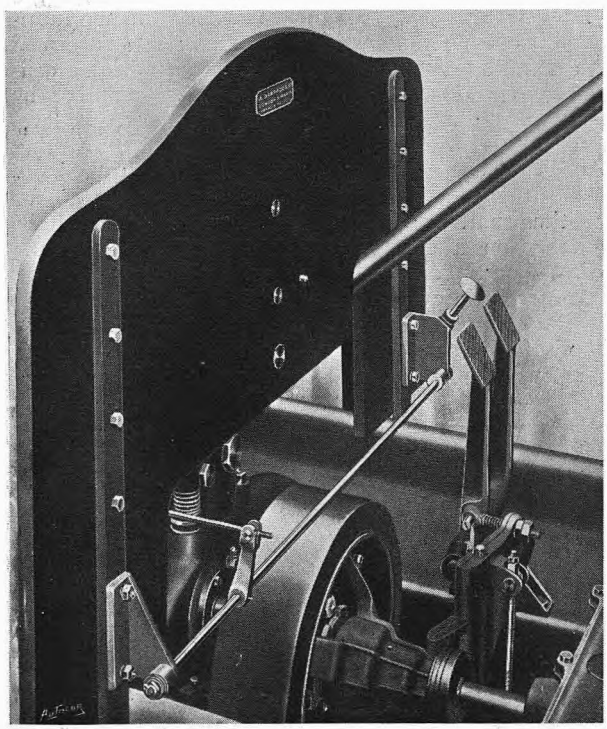
A plan view of the 14-16 h.p. Darracq chassis showing the peculiar frame construction.

The control of the car is effected by foot throttle only, and the dashboard is entirely free from all mechanism.

The standard body is a very stylish, attractive double phaeton, handsomely painted and upholstered.

The new model will be shown fitted with various types of bodies at Messrs. Darracq and Co.'s Stand, No. 62, at the forthcoming Olympia Show (Nov. 12th to 20th), where it is certain to attract the attention of all who are interested in motor car development and design.

Drunk and Sober Drivers.



The dashboard of the 14-16 h.p. Darracq. The pedal bracket is also visible.

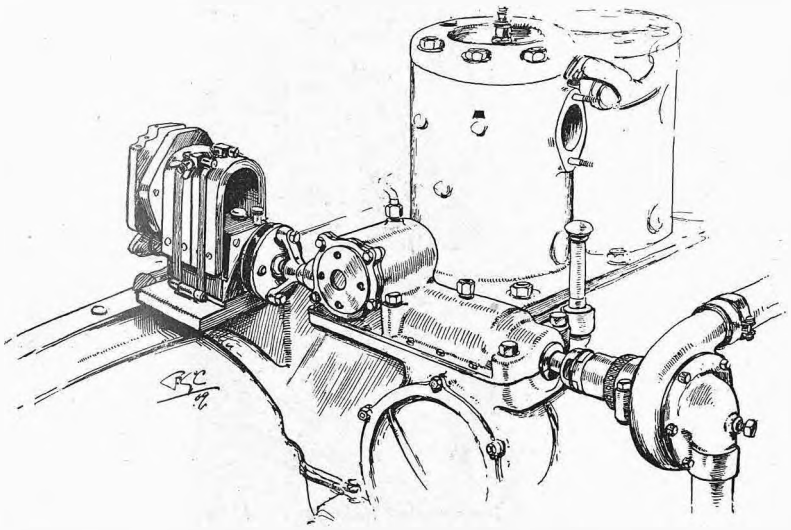
At Shoreham it is much cheaper to be drunk and drive a horse and van to the danger of the public than to be sober and drive a motor car without any suggestion of danger. At a recent sitting of the bench a large number of sober motorists were brought up and charged, not with endangering anyone, but with merely exceeding the speed limit at Southwick and Kingston-by-Sea, where they had been trapped by the promotion-hunting police. Fines amounting to some £33 were inflicted, and an interesting sidelight is thrown upon the spirit in which these prosecutions were undertaken by a remark of the owner of one of the cars whose chauffeur was fined: "These men (meaning the police) seemed very pleased to catch us; they came up very serious, and went away laughing." No doubt the magistrates and the authorities who benefit would smile, too, to think that they possess in this arbitrary speed limit and their minions who exploit it for all it is worth such useful adjuncts to their rate-collecting machinery. At the same court two drunken men driving a horse-drawn van, in which a child was also riding, were let off, the one with a 5s. fine, and the other by paying £1. In this case the men had so little control over the horse that it ran away, threw one of them out, and endangered the lives of the child they had with them and the people who happened to be about at the time. The police were serious in this case. Query: What would motorists be called upon to pay under similar circumstances, where the police do not feign seriousness and go away laughing?

One of the newspapers most hostile to motorists is the *Yorkshire Post*. Its "Motor Accidents" are always a feature, but the compiler must be hard up for matter when he has to fill up with accidents which happen to world's records. Thus on October 24th a Reuter's telegram was received from Oakland, California, stating that a racing motorist had broken a world's record. Next day the information was given first place in leaded type under the heading of "Motor Accidents," the suggestion probably being that it was, or perhaps ought to have been, the motorist's neck, and not the record, that was broken.

The New Daimler Carriages.

Dealing Principally with Improvements for Next Year.

WHEN the Daimler Motor Co. announced the adoption of Mr. C. Y. Knight's slide valve engine just over a year ago it was felt that a very important step in automobile engineering had been made, and some doubted its wisdom. However, it was quickly realised that the engine had its points, and the question was then, How would it last in every-day use? The answer is found in the hundreds of Daimler cars with the new motor running to-day in this country, the wonderful tests which a 22 and a 38 h.p. motor underwent at the hands of the Royal Automobile Club, and the 2,000 odd workmen who are now fully employed in producing the cars.

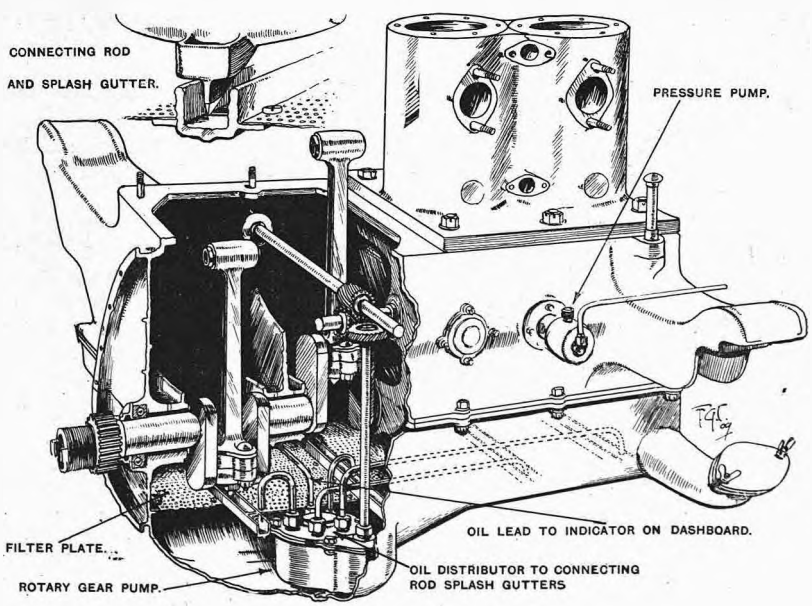


The new six-cylinder 33 h.p. Daimler engine for 1910, showing the cross shaft in front of the engine driving the magneto, water pump, and fan (not shown) through a central friction coupling and spur gearing.

For 1910 the 22 and 38 h.p. cars remain unchanged in their broad design, modifications only having been made in the engine lubrication system, and improvements effected in the springing arrangements and the pedal brake arrangements. The only dimension difference is found in the 22 h.p. chassis, which now has a wheelbase of 10ft. 6in. as against 9ft. 6in. in the 1909 car. This alteration gives more body space and a side-entrance door with unbroken lines.

The lubrication system is still by splash, but the oil level is maintained at a constant level by a pump which draws oil from a sump and feeds it into channels cast in the lower half of the crank chamber beneath each crank throw. The accompanying sketch of a 38 h.p. motor shows the arrangement very clearly, and the detached sketch shows the big end of a connecting rod with the fin on its base which serves to splash up the oil from the channel beneath it; the oil scoop which picks up oil for the lubrication of the big end bearing and the oil ways to the crankshaft bearings will also be noted. The positively driven oil pump contains a distributer and five oil leads; four of these carry oil to the above-mentioned channels, and the fifth to an indicator placed on the dashboard. Once in every revolution of the pump oil is sent through the indicator, so that, as long as oil is seen to be passing through the indicator, it will be known that lubrication is being properly carried out. The provision for replenishing the oil in the crank chamber is found in the large diameter pipe cast on the crank chamber; this, as well as affording easy means of replenishment, also gives an unerring oil level, as it is impossible to over-fill the crank chamber for the simple reason that the oil would overflow at the filling pipe.

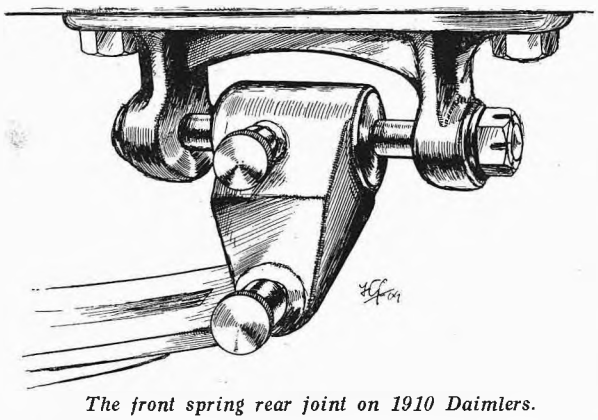
On the 33 h.p. six-cylinder engine we noted a different arrangement from this. The oil filler is formed in one of the engine supporting arms, and a float and indicating rod are provided for showing the oil level in the crank chamber. At the induction ports on each pair of cylinders will be noticed a small brass oil cup provided for carrying lubricant to the upper ends of the valve sleeves at starting only. It is really important that the mission of these oil cups should be fully understood. They are provided as a precautionary measure rather than a necessity, and an abuse of their use might possibly result in a dirty engine. After standing for half a day or so the upper ends of the sleeves may be a little dry, so to ensure their being lubricated almost immediately on starting up the motor, the oil cups should be filled a little more than half full; the engine is then started and the taps are at once turned on, and the ingoing charge of gas carries



The lubrication system employed on all the 1910 Daimler engines.

with it a small amount of oil which is projected on to the walls of the sleeve. A too frequent use of the oil cups may result in dirty cylinder heads and piston tops.

The petrol supply to the carburetter is by pressure, which is maintained by a pump actuated from one of the valve sleeve connecting rods at its connection with the valve operating crankshaft. The air pump projects horizontally from the side of the crank chamber,

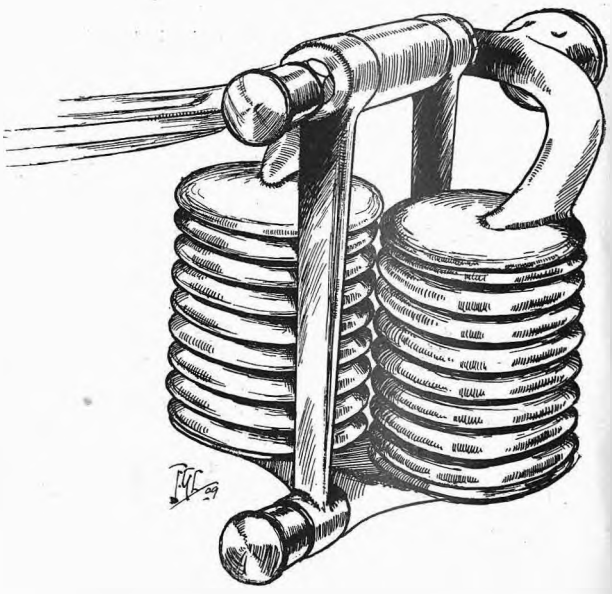


The front spring rear joint on 1910 Daimlers.

as depicted in our sketch; it is fitted with non-return and relief valves, the suction valve being the piston itself opening a port cut in the body of the pump barrel. As air is drawn from the interior of the crank chamber there is no fear of particles of dust being passed into the petrol tank. The pressure may be varied by altering the clearance in the pump by screwing in or out, as the case may be, the pump barrel.

In the 15 h.p. four-cylinder and 33 h.p. six-cylinder motors the driving mechanism for the valve-actuating crankshaft has been moved to the rear end of the crank chamber, and a shaft has been fitted across the front of the engine. This shaft drives at its right-hand end the magneto, at its left the water circulating pump, and in the centre the gear-driven fan, which is quite an innovation. This fan is positively driven by gearing, but a spring is very ingeniously introduced to give just that amount of free motion a fan requires at starting and stopping. With the gear-driven fan all belt troubles and rattling are done away with.

Apart from the engine, the new features are the improved springing and pedal brake. The shackles at the rear ends of the front springs are abolished, and a simple slide takes their place; this slide allows the spring to have any twisting movement it pleases, as well as fore and aft action. The resulting smoothness on the road is really extraordinary, and the steering is rather improved than otherwise. The introduction of a pair of coil springs at the rear ends of



Rear spring links on the 1910 Daimler cars.

the back springs to take up the first minor movements of the springs gives most luxurious riding to the car and obviates the use of any other shock absorbing devices.

The complete list of Daimler cars for 1910 is as follows:

15 h.p., four cylinders, 80 × 130, 9ft. 8in. wheelbase.
22 h.p., four cylinders, 96 × 130, 10ft. 6in. wheelbase.
38 h.p., four cylinders, 124 × 130, 10ft. 6in. wheelbase.
33 h.p., six cylinders, 96 × 130, 10ft. 6in. wheelbase.
57 h.p., six cylinders, 124 × 130, 11ft. 6in. wheelbase.

A New Piston Valve Engine of Merit.

Amongst the many interesting objects to be seen at the forthcoming Olympia Show will be a new piston valve internal combustion engine, in which the vital points necessary to the success of an engine of this type have been very carefully studied and provided for. In this engine the valve piston rings are never exposed to the full heat of combustion, while the entire set of rings is set between the combustion head and the ports at the point of highest compression and firing. The ports themselves are opened and closed proportionately to the suction or scavenging action of the main piston. The walls of the valve trunks are as well cooled as those of the main cylinder, and the difficulty which might be expected in connection with the exhaust ports has been met with the particular engine of which we speak. We shall be in a position to illustrate and describe this engine in an early issue, and feel sure that it will have much interest for those of our readers who are on the look-out for new features and improvements which mark advance in the design of internal combustion engines. We are most credibly informed that the first engine built has given remarkable and most satisfactory results in its bench tests.

An Iris car is about to undertake a severe and interesting test under Royal Automobile Club observation. It is intended to run the car 2,000 miles on the road under ordinary touring conditions without an engine stop. It will be a ordinary 25 h.p. Iris with touring body and a standard chassis, with the exception that an auxiliary petrol tank will be fitted. This is, of course, necessary, as the petrol supply is forced, and it would only be by means of a second tank that the makers' ambition to run the engine continuously could be realised. The trial was to commence on Tuesday next, the 26th inst., and the London-Harrogate road will be traversed. It will last five days, and 400 miles will be covered in each twenty-four hours.

Flashes.

An enthusiastic band of motorists in Johannesburg have secured a site on which they contemplate laying out a South African edition of Brooklands.

* * *

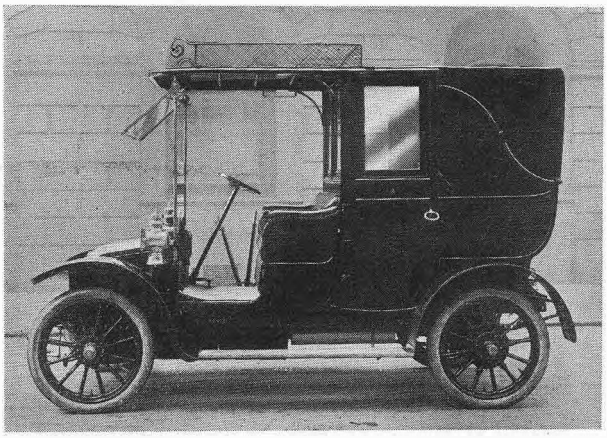
Automobiles were imported into Java in 1908 to a value of about 1,000,000 florins (£83,000). All kinds of motor cars are bought, but preference is given to the double phaeton, with four cylinders, of 10-15 or 12-16 h.p., costing about 4,500 florins (£375). Voiturettes are not much in demand. Cars should be sold through an agency possessing a repairing shop and stocking interchangeable parts.—*Board of Trade Journal.*

* * *

"The mere abstract attention to an arbitrary rule, regardless of appearances and the necessities of the occasion, was not one that he could entertain any highly conscientious respect for," said Sheriff Campbell Smith in dealing with a motorist brought before him at Dundee for driving at a speed exceeding ten miles per hour in the village of Birkhill.

* * *

There is no district in the South of England more popular with motorists than the New Forest, and from what has transpired lately at Lymington it is obvious that the hotel proprietors and tradesmen in that locality are aware of the fact. A recommendation was lately made by the Highways Committee of the Lymington Town Council that they should apply for a ten miles per hour speed limit in the borough. Owing, however, to a petition signed by practically all the local tradesmen, the council referred this back to the committee, with the strongly-expressed wish of many of the members that the matter should be shelved.



A smart single landaulet built to the order of Lord Wemyss by Messrs, J. Rothschild et Fils, Ltd. Lord Wemyss, although in his 92nd year, personally attended at the works and offered several useful suggestions during the construction of the body. The screen is fitted with Beatonson's patent joints.

A Reuter's telegram from Santiago de Chile states that in the district between Chilos and the south of the River Paullin valuable petrol springs have been discovered.

* * *

The first ordinary general meeting of the London Branch of the Graduates' Section of the Institution of Automobile Engineers for the session 1909-10 was held on Tuesday, October 19th. The chair was taken by the president of the Institution, Dr. H. S. Hele-Shaw, F.R.S., and an interesting paper was read by the chairman of the section, Mr. Chas. E. G. House, on "Indicators for Petrol Engines," illustrated by lantern slides. The following took part in the discussion: Messrs. H. Burchall, R. H. Deane, R. B. Hayles, L. H. Baskerville-Cosway, F. A. Beecham, and the Chairman.

* * *

The second annual dinner of the Agents' Section of the Society of Motor Manufacturers and Traders will be held at the King's Hall, Holborn Restaurant, on Tuesday, November 16th. It is one of the finest saloons in London, and will hold 400 comfortably, and there is little doubt it will be full as last year, when a smaller room was engaged; on that occasion some 200 sat down to dinner, and another 200 were unable to gain admission.

* * *

The Westerham Road is now in good condition. It is tarred all the way, including the hill, and is much sought after for trial spins.

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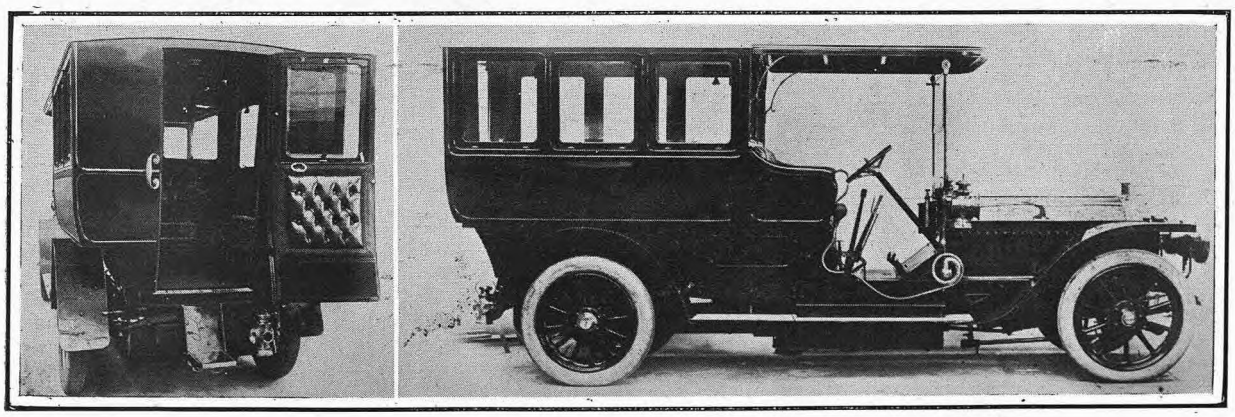
The Committee of Management of the Society of Motor Manufacturers and Traders has agreed to make a donation to the graduates' prize fund of the Institution of Automobile Engineers.



BODY DESIGN AND CONSTRUCTION. *This handsome Napier limousine is now on its way to Bangkok to the order of the Queen of Siam. Contrary to general design now-a-days, the door is placed at the back, allowing the seats to be ranged along each side, the Queen's seat being placed with its back to the engine. Light and ventilation are amply provided for by numerous bevelled plate glass windows, all of which let down. Spring roller blinds are provided for all windows. The chassis is the 1910 45 h.p. six-cylinder model.*

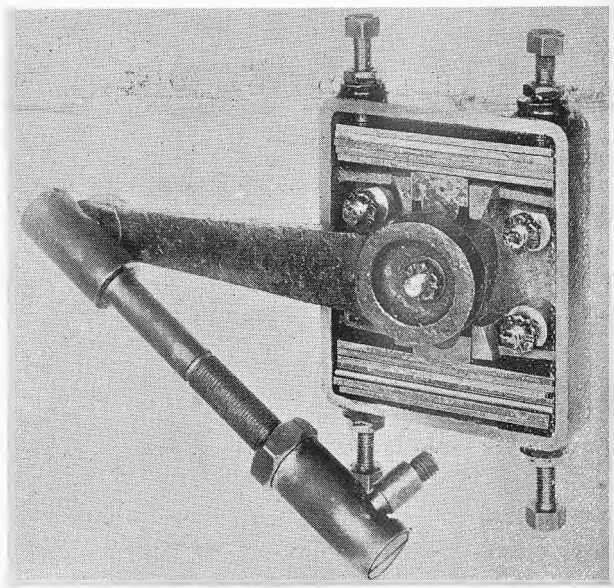
The New Mors Cars.

THE special features of the 12-15 h.p. Mors as modified for 1910 are the casting of the four-cylinder engine 80 mm. × 90 mm. *en bloc*, and the adaptation of the Zenith carburetter to this engine. The mixing chamber is hot water jacketed. Large inspection doors are fitted to the crank chamber. The well-known and long tried Mors band clutch is improved in detail. A special form of lubricator set on the dashboard is driven off the camshaft, and is provided with adjusting studs marked for drop delivery per minute. These studs take the form of plungers, and by being depressed deliver a charge of oil into the fore or back portion of the crank chamber. The water circulating pump is fixed to the front of the crank chamber and driven by the projecting end of the camshaft.

The new pattern Mors, the 15-20 h.p., has its cylinders 85 mm. × 120 mm. cast and set in pairs on the crank chamber. All the valves are on the left of the engine with one camshaft. The adapted Zenith carburetter is on the right, and the induction leads pass through the cylinder castings between the cylinders. The exhaust trunk has separate backward curved leads from each exhaust chamber. A tray diaphragm stretching from the crank chamber to the frame serves to keep the engine safe from all dust and mud. In addition thereto is a sheet steel undershield instantly detachable by undoing four sling clips. The magneto and pump are eminently accessible, the latter being driven off the magneto spindle. A very neat and simple method of adjusting the brake shoes of the pedal brake is adopted. The drive is delivered to a cross member of the frame from which the rear of the gear box is supported by the spherically-headed propeller-shaft casing which acts as radius rod and torque member. This permits the threequarter rear elliptical springs to be shackle swung at each end. The side lever applied back wheel brakes are compensated by a swinging crosshead of large dimensions. The frame is doubly inswept, once just before the dashboard, and again further forward, so giving a particularly generous lock.

The Mihi Shock Absorber.

Besides the Smart Set lamps, Messrs. André Godin are responsible for the introduction of a new type of shock absorber known as the Mihi. This shock absorber works on an entirely new principle. On referring to the illustration, which shows the device with the cover removed, it will be seen that the lever arm is mounted centrally on a square. This square works upon sliding blocks provided with rollers which bear upon the square. The blocks in turn press up against the laminated springs which are seen in the top and bottom of the casing. The springs are seven in number, and should they be found to be too strong for their work, as many as necessary can be removed. It will be seen that in the top part of the illustration two have been removed for this purpose. Set-screws on the outside of the casing serve to press the springs up against the sliding blocks. The shock absorber is said to be soft in its action and extremely effective, though at present we have had no opportunity of trying it. All the parts are interchangeable, and the interior mechanism is very easily accessible. When ready for fitting the whole of the interior is packed with grease. Messrs. Godin inform us that they find these shock absorbers to be far more effective than those working on other principles, being more easily adjusted and less likely to get out of order.



The Mihi shock absorber with cover removed.

A Durable Hood Material.

Some fourteen months ago we referred to what was then a new Cape hood material known as Kamac, and made by the Kamac Mfg. Co., of Cross Lane Mills, Bradford. We had then had the material in use for some six months, and the same hood has been in constant use in all weathers ever since. It is one of those satisfactory materials which are really up to their manufacturers' claims. The makers told us that the material was rotproof, that it would not stain, and that it was much more durable than the ordinary cloth used for hoods. Not only so, but as it was rotproof, they further asserted that it did not matter about the hood being furled when it was wet. This is about the worst possible thing which can be done to the ordinary hood, as it begins to crack and rot if it be not left up till it is perfectly dry. Every-one of the claims for Kamac have been absolutely substantiated. It does not stain in the least, and ours is as good a colour as it was when it was new, while there is not the faintest suspicion of rotting or breaking of the material, and the extra cost of the cloth as compared with the ordinary cloth is a good investment. A year ago we said we should estimate it would probably wear three times as long as the average material. We have come to the conclusion that we under-estimated its durability. We should not think of using any other material unless some-thing more durable could be produced, and Kamac certainly has no rival at present that is likely to trouble it to any serious extent.