SATURDAY, DECEMBER 11TH, 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.

The Influence of the Motor Bicycle.

Those of our readers who attended the Stanley Show last month and who carefully studied the motor bicycles exhibited there must have been struck with the way in which the motor bicycle and the motor car have influenced each other in design. Indeed, a careful perusal of the pages of *The Motor Cycle*, in which all the motor bicycles of the day have been described, would be sufficient to set the thinking man pondering. In these matters it is very easy to see a little and to over-estimate its importance, but there are two or three very interesting influences at work. First of all, to take the high tension magneto, there is no doubt that motor bicycle makers and motor cyclists generally were at least two years in advance of the motor car makers in their general adoption of the magneto. At a time when the majority of car makers and users looked upon the magneto with suspicion the motor bicyclist had taken it to himself as his sole means of firing his engine.

In lubrication, cars are as far in advance of motor bicycles as they were behind in ignition. The great majority of motor bicycles to-day use the old form of lubrication—the hand pump, by which the rider injects a charge or half-charge of oil every few miles, giving an extra dose when he wishes to make a special call on his engine either for speed or for hill-climbing. Owing to the high speed at which the engines run and to the fact that all of them are air cooled, constant and frequently copious lubrication is often more important than with the comparatively luxuriously circumstanced motor car engine; but, for all that, the hand pump survives, and only one or two motor bicycles have yet any form of mechanical lubrication. These may be but the precursors of a general movement towards more scientific lubrication of motor cycle engines, though, of course any fitting of this sort to some extent increases complication and robs the motor bicycle of its extraordinary simplicity. We say extraordinary advisedly, as there is nothing more remarkable in the motor world to-day than the all-round work of a good motor bicycle.

Then, again, ball bearings to the crankshafts are much more common with motor bicycle engines than with car engines, and seem to have met with greater success. We may be wrong, but we are inclined to the opinion that this is because in proportion to the work they are called upon to do the motor bicycle bearings are larger than those of the car. There is also a tendency to use roller bearings, but as there is at least one conspicuous and successful example of this in the motor car world we can only say we shall watch the behaviour of these bearings with very great interest, as it cannot be said that up to now the roller bearing has had a very wide trial on motor cars or motor bicycles, though it is undoubtedly better than a ball bearing for certain purposes, mainly because the roller bearing gives line contact and the ball bearing point contact.

There are other examples of the inter-action of the two types of motor vehicles upon each other, such as the wire wheel and the tubular frame member. There is also the multiple disc clutch which is now to be found upon a number of motor bicycles, while for the first time on record there was a motor bicycle with a pressed steel frame in the Stanley Show. However, in one respect at least the average motor bicycle is greatly ahead of the average motor car, inasmuch as the equivalent of a jack is a part of each motor bicycle. Excellent provision for the carriage of luggage, considering the size of the vehicle, also forms part of it. Then, again, number plates are practically a part of almost every motor cycle, so that, taken all round, the motor cycle as it leaves the works only requires its numbers to be painted upon it and a lamp to be purchased to render it complete and altogether ready for the road.

Scottish Practice in Motor Matters.

An Example which England in some respects would do well to follow.

Road Maintenance.

IN Scotland there are two bodies charged with the duty of road maintenance—in burghs the town council, in counties the county council, or rather the district committees of the county council, for wherever there are more than six parishes in a county it is divided into districts for road maintenance purposes. Each of these bodies—town council or district committee—maintains all the public roads within its territory, whether main or bye-roads. Every council or committee has its road surveyor under whose superintendence the work is performed by the local authority's own workmen, except in the case of large new undertakings which are often given out to contract. Nearly all the district committees and all the larger burghs have their own steam rolling plant. Many authorities quarry and break their own road metal, which is universally whinstone. Two at least do this on an extensive scale at central quarries, whence the metal is despatched all over their districts.

Carriage Licences.

In Scotland these licences are paid to the Commissioners of Inland Revenue at their office in the district in which the person liable for the licence duty resides.

By Section 20 of the Local Government (Scotland) Act, 1889, it is provided that the commissioners shall from time to time pay into the Local Taxation (Scotland) Account the proceeds of the local taxation licences collected by them in Scotland. These local taxation licences include beer and spirit licences, game licences, and licences for dogs, guns, auctioneers, male servants, pawnbrokers, armorial bearings and carriages. A proportion of the probate duties is also paid into this local taxation account. The application of the sums paid into this fund is set forth in Section 22 of the Act, various fixed amounts being allocated for particular purposes. *Inter alia*, £35,000 is to be distributed annually among road authorities in Scotland, according to the proportion the vouched expenditure of each for road maintenance bears to the total expenditure throughout Scotland. £155,000 is distributed in like manner among Scottish police authorities.

Prosecutions.

In Scotland all prosecutions under the Motor Car Acts must take place in the Sheriff Court within whose territory the offence occurred. No local police or Justice of the Peace Court has jurisdiction to try these offences.

The proceedings are by way of complaint at the instance of the Procurator Fiscal of the Sheriff Court, who is the Scotch equivalent of the public prosecutor, and who is a permanent salaried official. He moves, if he thinks there is a *prima facie* case of sufficient importance or gravity, on information supplied to him by the police or by private individuals. While the forms of complaint have been much simplified and shortened by the Summary Jurisdiction Act of 1908, still Scottish law is jealous that a proper relevant charge be presented, and that there should be no ambiguity as to the charge and the time and place of its happening. The *locus* especially must be carefully and exactly specified. It is not sufficient, as seems to be the practice in England, to give as the *locus* of an offence for exceeding the speed limit "in the parish of ." As a matter of practice in charges under Section 9 the beginning and the end of the measured distance are set forth. All witnesses are kept outside the court until their evidence has been given. The fines collected go to the Imperial Exchequer.

A new and very desirable feature has been introduced into the traffic regulations of Paris. Mounted Republican Guards, not gendarmes, are stationed at intervals along the centre of the road, and should any vehicle desire to turn round it has first to proceed to the front of either guard, no vehicles being allowed to pass between any one pair. The guards serve a similar purpose to that served by the familiar street standards in London.

Useful Hints and Tips.

Back Axle Design.

THE advice given from week to week in these columns is mainly intended for the user, but in some cases the hints conveyed thereby have been, and may again be, taken to heart by the designer on the *qui vive* for minor improvements. Now it will be freely admitted by all who are their own tyre slaves that jacking up a car preparatory to detaching a cover is a blood-to-the-head and button-bursting operation. It is frequently found difficult to plant and retain the jack in a convenient position beneath the back axle, particularly when the latter is fitted with tension rods. Now, as the comforts of life are made up of trifles, we would make a trifling but nevertheless comfort-accruing suggestion to designers when they are next expending themselves upon back axles. Let them arrange for a small flat, similar to, but of course smaller than, the spring table, on the underside of the live axle tubes or casing, in as convenient a position as possible, to take the head of the jack and give a good fair bearing for its lift. If they will do so, the owners of the cars so provided will, when it comes to jacking up, arise and call them blessed.—SENEX.

Safe Starting of Kicking Engines.

When attempting to start an engine fitted with magneto ignition of which the firing point is fixed there is always the danger of a back-fire happening and damaging the operator's arm. The reason is that when no arrangement is fitted for varying the time of ignition the magneto armature is set so that the spark takes place early—in fact, slightly forward of the end of the compression stroke. Consequently if the starting handle be cranked slowly a back-fire is obtained. This advanced position is necessary to enable the engine to run at high speeds. To safely start such an engine the course to adopt is as follows: Put the switch to the "off" position, then swing the engine crankshaft round smartly for a few revolutions after the throttle has been opened and the carburetter float tickled. Then put the switch to the "on" position, and pull the starting handle up smartly over the firing centre by means of a looped cleaning cloth. It will be found that a very smart pull over can be obtained by this method, and if a back-fire be accidentally obtained the cloth is snatched out of the hand without damage to the operator.

Easy Starting on Low-tension Magneto Ignition.

Although the low-tension magneto system is gradually being superseded by the high-tension magneto, there are still a great number of the low-tension magneto ignited engines in use, and a few firms are still turning out standard patterns fitted with this system. In some types of vehicles starting the engine appears to be a difficult operation unless the crankshaft can be swung over very smartly through a large number of revolutions. When the compression is good and the cylinder bore large this is an exhausting operation. To get an easy start it is not necessary to swing over the engine quickly except for the reason that speed is necessary for the magneto to give sufficient current to produce an effective spark when the mechanical break of the ignition tweaker takes place in the cylinder. If this spark could be produced without turning the engine over quickly little exertion would be necessary to start the engine. To get this effect all that is necessary is to provide an eight-volt battery and use it in conjunction with what is known as an intensifying coil. The accumulator coil and low-tension circuit of the ignition tappet system need only be then connected in series, and it will be found that if the engine be first cranked over smartly without the accumulator switch being on, and then the switch put on and a slow pull over given to the engine starting handle, an easy start will be effected. When pulling over slowly with the accumulator in circuit care must be taken to see that the ignition is first fully retarded.

Abraded Rubber behind the Control Pedals.

Practically every car has rubber matting over the footboards at the point where the driver's heels rest behind the clutch, brake, and accelerator pedals. In process of time the working of the heels abrades the rubber mat at this point, and ugly, ragged patches result. Tidiness can be secured by covering this portion of the rubber with a square of tough, thick leather. It is best attached by thin laths of steel across its top and bottom edges, perforated for screws which pass through the rubber into the wooden footboards beneath.

Changing Detachable Wheels.

I saw a fine car in serious trouble the other day because of clumsy work during the process of changing a detachable wheel. A small, narrow-based jack had been screwed up under a portion of the front frame, and the wheel with the punctured tyre had been removed. The side brakes were not applied, nor were any of the wheels scotched, and the spare wheel was left on its brackets until the other wheel was removed from the axle. In taking the spare wheel off its brackets, the car was inadvertently jogged a trifle, and immediately it slid off the jack, and one end of the front axle came down bang on the road. It was a very awkward job to get the axle lifted again, and when it was safely on the jack once more, it was found to be so bent that the wheel could not be fitted. It follows that when a detachable wheel is to be changed, the brakes should be applied, and the car stopped on a level patch of road free from excessive camber. The wheels should then be scotched, and the spare wheel laid ready to hand before the other wheel is detached.

Jacking Up Low Axles.

The front axles of some of the very low semi-racing chassis now manufactured come so near the ground that it is difficult or impossible to procure a jack which can be inserted under the axle, when a front tyre calls for repair. Up to date I have not discovered a jack stumpy enough in its closed position to pass under the front axle of my own car; and there is no convenient portion of the front chassis by which a front wheel can be jacked up off the ground safely. When I first discovered this, I was afflicted by a burst front tyre, and the exchange of the detachable wheel was effected with some danger to the chassis. The jack had to be screwed up against a front spring, and though it took a purchase on several leaves of the spring, any awkwardness in changing the wheel would have tipped the spring off the jack, and let the car down on one end of the axle. Consequently on reaching home I got the local carpenter to shape a wooden pyramid, with a semi-cylindrical depression across its apex, the height of the pyramid being just sufficient to lift a front wheel clear of the ground with its tyre fully inflated. When a front wheel has to be changed I now raise the car by jacking up the front spring, place the wooden pyramid under the front axle, and lower the car on to the wood block before touching the wheel.—ANON.

"The Autocar League."

Provisional List of Clean Counties. Motorists and the Election. Criticism and a Reply.

THE AIMS OF THE LEAGUE 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. THE RESULTS WHEN COMPLETED ARE COMMUNICATED TO THE GOVERNMENT OR OTHER AUTHORITIES CONCERNED, AND ALL THE CLUBS AND MOTOR ORGANISATIONS ARE NOTIFIED. ITS MAIN PURPOSE IS TO PROMOTE UNITY OF ACTION AND PURPOSE IN THE MOTOR WORLD. IT IS IN NO SENSE OPPOSED TO ANY EXISTING MOTORING CLUBS OR ASSOCIATIONS, BUT WILL DO ALL IN ITS POWER TO STRENGTHEN THEM AND TO HELP THEM TO TAKE COMMON ACTION IN TIMES OF STRESS.

Clean Counties.

IN these columns, as well as in correspondence, the Secretary has stated his intention to publish before the end of December a final list of counties in which motorists are advised to take out all their licences for next year in appreciation of the fair and reasonable attitude shown towards automobilism by police and county officials generally. The Secretary's original letter on this subject, which was sent to each member of the League, created no little stir in the minds of the councils of certain counties notorious for the persecution of motorists, and the indignation against our miscalled attempt to "intimidate" magistrates is a piece of shallow hypocrisy to cloak a real fear that if car owners and motor cyclists in these "dirty" areas will only resolutely combine and attack this vulnerable spot, namely, the Revenue returns, some attention will be aroused, and the harassed ratepayer will do well to enquire into and satisfy himself that immediate reform is needed. It behoves us to exercise the greatest care in compiling a final list of favourable counties, lest we unwittingly do injustice and possible damage to any county undeservedly. In our anxiety to avoid any charge of unfairness or prejudice, the list printed herewith is only *tentative* and intended to invite criticism, so that we may be absolutely sure that in its final form at the end of the month it will be as complete as we can make it with the information at our disposal.

There are some counties whose claims to be regarded as favourable it is difficult to reconcile with reports of traps and unjust prosecutions in particular localities —they are on the border line; for instance, Kent. In the south-east corner the motorist is fairly treated. On the other hand there are few "blacker" spots than Canterbury, and we hear of ugly instances of prejudice in the eastern and central parts of the county which do not tend to encourage the resident motorist to patronise the county. For the present we are leaning to the opinion that motorists in Kent receive fair treatment as a whole, and that they owe something to the county for its magnificent roads. We shall be glad to have the opinion of any members who are not in agreement with us. We shall also welcome information from anyone well acquainted with Bucks., which we think is also near the border line.

A claim has been submitted that Berks. should be included in the list, but from information received we do not think it is admissible. The traps between Reading and Wokingham on the Bath Road and the London Basingstoke Road are numerous and very objectionable, and it is difficult for anyone unacquainted with the country to proceed without molestation, even though driving in a careful and reasonable manner. The county reaps a considerable revenue from fines extorted from motorists out of all proportion to the gravity of the offences, while nothing is done to improve the bad state of the roads. The Highways Committee has hitherto turned a deaf ear to all protests on this important point.

In the larger counties, particularly in the North, there are many county boroughs which are quite "clean," though the county in which they are geographically situated may not be so. This favourable treatment of motorists deserves recognition, but the county boroughs in question are too numerous to specify, and we think it would be preferable that the individual motorist should use his own discretion. He is in a better position than ourselves, by reason of his local knowledge and experience, to know where, and where not, to spend his money.

In the last list of counties Cornwall, for very good reasons, was excluded; since then a new chief constable has been appointed, and we are informed that he is a man of sound commonsense and good judgment, and also a motorist. This leads us to hope for better things, and we desire to give the county a fair chance. In the hope, therefore, that conditions are improving, we are provisionally "whitewashing" this county. We feel sure that the spirit of reciprocity inherent in the nature of all true British sportsmen will be shown in the conduct there of motorists generally, and that they will not give the new chief constable or his subordinates any cause of complaint.

The East Riding of Yorkshire is again included, but we must take this opportunity to make a protest against the conditions existing at its capital town, Beverley, where we learn there is a five mile limit, and two strongly armoured gates at its Westwood entrance are closed across the main road without any warning lights at night time. Accidents have occurred at this spot, and it is a scandal that this frightful danger to strangers should continue. Surely the responsibility for accidents can be fixed by legal action when a suitable case arises.

From the Scottish counties we have purposely omitted Forfar, Ayr, and Elgin; and Stirling and Aberdeenshire have been added. In Stirlingshire conditions are not perfect, but traps are few, and the behaviour of the county authorities towards the itinerant motorist shows a pleasing contrast to the iniquitous persecution practised within the boundaries of its neighbour, Dumbartonshire.

The following is the provisional list of clean counties, with the address of their clerks, to whom intimation should be sent that licences have been taken out in their counties because of the consideration shown to motorists within their borders. Those counties which we still regard as doubtful are printed in italics:

ENGLISH COUNTIES.

Bedford, Shire Hall, Beds.	Dorset, Sherborne.
Bucks, Aylesbury.	Durham, Durham.
Cheshire, Chester.	Essex, Chelmsford.
Cornwall, Bodmin.	Gloucestershire, Shire Hall, Gloucester.
Cumberland, Carlisle.	Hereford, Hereford.
Derbyshire, Derby.	Herts, Hertford.
Devon, Exeter.	

ENGLISH COUNTIES—*(continued)*.

Isle of Ely, Wisbech.
Isle of Wight, Newport, I.W.
Kent, Maidstone.
Leicestershire, Leicester.
Lincolnshire (Holland), Boston.
Lincolnshire (Lindsey), Lincoln.
Lincolnshire (Kesteven), Sleaford.
Monmouthshire, Newport, Mon.
Norfolk, Shirehouse, Norwich.
Northants, County Hall. Northampton.
Nottinghamshire, Shire Hall, Nottingham.
Oxfordshire, Oxford.
Peterborough (Soke of), Peterborough.
Rutlandshire, Oakham.
Shropshire, Shrewsbury.
Somerset, Bath.
Staffordshire, Stafford.
Suffolk, E., Ipswich.
Suffolk, W., Bury St. Edmunds.
Westmoreland, Kendal.
Wiltshire, Trowbridge.
Worcestershire, Worcester.
Yorkshire (North Riding), Northallerton.
Yorkshire (East Riding), Beverley.

SCOTLAND.

Aberdeenshire, Aberdeen.
Argyll, Loch Gilphead.
Berwick, Duns.
Bute, Rothesay.
Caithness, Thurso.
Clackmannan, County Buildings, Alloa.
Dumfries, County Buildings, Dumfries.
Edinburgh, Edinburgh.
Haddingtonshire, Haddington.
Inverness, High Street, Inverness.
Kincardine, County Buildings, Stonehaven.
Kinross, County Buildings, Kinross.
Kirkcudbright, Kirkcudbright.
Lanarkshire, County Buildings, Hamilton.
Linlithgow, Peebles.
Renfrew, County Buildings, Paisley.
Ross and Cromarty, County Buildings, Dingwall.
Roxburghshire, Kelso.
Selkirk, Selkirk.
Stirlingshire, Stirling.
Wigtownshire, Wigtown.

WALES.

Anglesey, Holyhead.
Brecknockshire, Brecon.
Cardiganshire, Aberystwyth.
Carmarthenshire, Carmarthen.
Denbighshire, Ruthin.
Flintshire, Mold.
Glamorganshire, Cardiff.
Montgomeryshire, Welshpool.
Pembrokeshire, Haverfordwest.
Radnorshire, Llandrindod Wells.

Hostility to "The Autocar League."

That "The Autocar League" does not commend itself to everyone is evident from a letter which the Secretary has received "for publication in full only" from Mr. James Elliman, of Slough. We may mention that the letter is the outcome of correspondence between Mr. Elliman and the Secretary, and we cheerfully give it space, but at the same time we must be permitted to append our reply to the points raised. Mr. Elliman's letter is as follows:

Slough, November 26th, 1909.

The Secretary "The Autocar League, 20, Tudor Street, London.

Dear Sir,—I have received your letter of November 22nd answering mine of November 17th, and will now explain my indictment of "The Autocar League."

The files of *The Autocar* contain attempts to intimidate the administrators of the law and unreasonable complaints of police traps.

I have travelled 23,000 miles in Surrey, Sussex, Kent, and Hants in the last three years, and I assert that all the traps complained of were fair under the circumstances.

I assert that no more short-sighted view could be taken of the true interests of motorists than one which champions the cause of bounder motorists and advocates such petty suffragette kind of retaliation as "taking out your licence in another county."

I say that the interference of *The Autocar* in matters that concern the public and the whole body of motorists, and which matters demand that the police should be supported in their difficult task of suppressing the hooligan motorist in the interest of the community generally is calculated to increase the stringency of police control.

The Autocar assumes too much.

The R.A.C., M.U., and A.A. can do all that any motorist can fairly demand in the direction of protecting his liberty, and are always busy in looking after the true interests of the motorist.

In the old days the cyclist scorcher was only arrested in his career by drastic treatment. Let the same happen to those who insist upon unreasonable speeds or are too lazy to be alert and drive by judgment.

I say that "The Autocar League" is not wanted, that it would strengthen by co-operation the selfish motorists, and that would result in motorists being all labelled RED, because it is always the noisy minorities that make the most row, like one gramophone in a street, or next door.

Let the press give news, criticise as much as it may please, but not step in and damn the recognised clubs by its implications of inefficiency to look after our interests.

England is a crowded country, its roads and lanes are wonderfully cris-crossed. The ways of communication are the common heritage, therefore the necessities of public safe travel must stand first, and speaking as one of the public I denounce the impudence of those who having extra pounds to spare to buy cars use them to the danger of other users of cars, but more especially to the danger of the general public.

If the public knew why the public come to grief upon the roads there would be fewer escape from verdicts of manslaughter. Too fast up to the object, sudden and fierce use of brakes, skid and ninepin action—there you have it.

JAMES ELLIMAN.

Our correspondent's misstatements of fact are so glaring and his conclusions show him to be so entirely ignorant of the aims and purposes of "The Autocar League" that it is difficult to take him seriously. Reference to previous issues of *The Autocar* since the inauguration of the League will show that every one of the points raised by him has been fully dealt with.

Nevertheless, if we were to dismiss our correspondent's objections in this summary manner our attitude might be misunderstood, and it might be assumed that we are unable to give an answer to the specific "indictment" he makes against "The Autocar League" and all its works.

Taking his charges *seriatim*, he first of all appeals to the files of *The Autocar*, and characterises as an act of intimidation our recommendation to motorists to take out licences in counties which treat them favourably. We have never put forward the suggestion in that light, nor is it, in fact, intimidation at all. The Legislature has given to every man the right to take out his licences where he pleases. Will our correspondent explain in what way the exercise of an undoubted right can be construed into an act of intimidation? Suppose our correspondent were compelled by law to purchase all his accessories at one particular shop or in his own particular street, or town, or county, would he not resent such an interference with the liberty of the subject, even though every shop in his county treated him with the utmost courtesy and consideration? If the particular shop at which he was in the habit of making his purchases treated him badly, or insulted him, or picked his pocket under the protection of the law, or otherwise heaped indignities upon him, would he not transfer his patronage? Provided our correspondent's pocket were not picked, he would probably continue to patronise his own store, but it would be presumptuousness on his part to find fault with those whose pockets had been picked if they preferred another store.

Our correspondent finds in his travels that all the traps complained of in certain counties are fair. This is not the experience of all motorists, and in this connection we would cite the experience of other correspondents who once shared the same views as Mr. Elliman, but who have altered their views after falling victims to traps which they had previously regarded as perfectly fair and justifiable. The correspondents to whom we refer are now among the staunchest supporters of the policy of "The Autocar League," and no doubt Mr. Elliman would be converted were he to experience similar treatment at the

hands of unfair police and prejudiced magistrates, and would throw all the fervour and zeal which he now wastes in denouncing the League into advocating its claims and inducing his fellow motorists to join.

To compare the motorists' tactics with those practised by the militant suffragettes is absolutely ridiculous. In the one case the action taken is perfectly lawful, and, indeed, it would be a grievance were it otherwise, while in the other the tactics are too often altogether opposed to the law. The motorist is only doing in regard to his motor car and other licences what everybody does in regard to their own private affairs—he spends his money where he receives the best treatment and gets the best value. To say that he is thereby "championing the cause of bounders" is a wild and reckless statement. Bounders are amenable to the law wherever they may be found, whether in the ranks of motorists or anywhere else, and the ordinary law of the land is just as potent to deal with motorist bounders as with others.

In regard to the so-called interference of *The Autocar* in matters which affect the public safety, we would point out that one of the chief functions of the public press is to expose abuses and to bring to light acts of tyranny wherever such acts are unjustifiably practised. Were it not for the exercise of this function of journalism in the past this country would now be groping in the night of the Dark Ages. There are other and more efficient ways of suppressing the hooligan motorist than by setting traps; indeed, the setting of traps is often as likely to catch the innocent as the guilty.

With respect to motor accidents, we would call attention to a short summary on page 968 of the present issue of a report prepared by the American Highways Protective Society, in which it is stated that all the accidents reported as occurring to motorists in New York have happened in the suburbs, where the police do not systematically control the traffic, while in the centre of the city, where there is efficient police regulation, no accidents whatever have occurred during the period covered by the report. This is striking testimony to the potency of the police in preventing accidents where they exercise proper control over traffic, but trapping is not controlling.

"The Autocar League" does not set itself up against any other motoring organisation. This has been stated over and over again, and the record of the League proves it. "The Autocar League" works in harmony with all other motoring organisations—plays, indeed, into their hands. But it does not follow from this that we should express unqualified praise and admiration of everything that every other motoring organisation does. While "The Autocar League" works in accord with other organisations, it reserves to itself the right to criticise whenever the necessity for criticism is seen to arise, and *The Autocar* also allows the same freedom to its contributors. Without this freedom of speech no healthy progress would be possible.

Our correspondent instances the case of the cyclist scorcher as being on all fours with the motorist of to-day in regard to the way in which he was treated, but we would point out that it is not the cyclist scorcher who has been "eliminated." As a matter of fact, the cyclists of the present day ride much faster than they did in the early days when they were persecuted. The cyclist scorcher existed in the mind of the fearful and ignorant constable who could not ride, but now the policeman has learned to cycle the scorcher has disappeared from his imagination. It is the ignorance and fear of the police and magistracy that have disappeared.

Our correspondent further suggests that "The Autocar League" is not wanted. Upon this point we would only say that when the day arrives that it is no longer wanted it will cease to exist, but at its present rate of healthy growth it seems to be the general opinion amongst motorists that it is very much wanted.

We cannot, of course, disagree with our correspondent when he says that England is a crowded country, but we may be permitted to point out that the best way of keeping a crowd in order is not for the police to conceal themselves from the eyes of the crowd, but to let the crowd see that they are there. The same remark applies to the attitude of the police towards motorists. If the police wish to keep motorists in order they must not conceal themselves behind hedges and ditches, but must show themselves in the open.

In regard to our correspondent's last paragraph, we would say that if the public knew the real reason why the public come to grief upon the roads they would often have a grave cause of complaint against the police for neglect of duty. As we have pointed out many times previously and proved from conclusive evidence, the majority of the accidents which happen to motor cars and other vehicles at dangerous spots arise through the police not being on duty to control the traffic, but hiding themselves away to trap motorists on the open, straight highway.

On the whole, we think that when our correspondent knows more of the work of "The Autocar League" and of the causes which have given rise to its existence he will not pour out the vials of his wrath upon it, but pronounce blessings on its head.

Motorists and the General Election.

At the moment of writing the announcement has been made that a General Election will take place next January, and in most districts the agents of the political associations are circularising owners of motor cars asking for the use of their vehicles on the day of election for the purpose of carrying voters to the poll. This matter has been referred to by a number of correspondents during the past few weeks, but no very definite propositions have been made. It is admittedly a difficult situation to deal with, particularly at the present time, when political feeling is running so high, and when adherents to either party may well feel that the issues at stake are of such paramount importance that the question of whether a candidate is opposed to motors or regards them fairly is quite of secondary importance. This view is one which all who have strong convictions either way must necessarily endorse, and it is therefore quite impossible to expect any suggestion that cars should be lent only to those who are well disposed towards automobilism to meet with general acceptance. On the other hand, electioneering is very rough work for a car. Quite apart from the ordinary wear and tear, petrol, tyres, and so forth, it may be stated that the average amount of damage done to a car in a town election is somewhere about £10. It can be lessened by specially preparing the car for the work by removing the hood and almost everything else which can be hung on or trodden upon, covering the upholstery, and so forth, but even then the car is almost certain to be damaged, and in any case it will require repainting, wholly or partially, according to the district in which it is used. As this is so, it is only reasonable that all who lend their cars

should endeavour to obtain an expression of opinion from the candidate and some sort of guarantee that he will oppose any further repressive legislation or taxation upon motor cars. We should be interested to have our members' opinion upon this difficult question, but we think it advisable at the moment to outline no definite course of action, as there is no doubt that the Royal Automobile Club and the Motor Union will bring the matter up for discussion and arrive at some decision, and as it is so necessary that in this matter all motorists should have a common policy, we shall, if we possibly can, adopt the policy recommended by the Club and the Union, provided the two institutions formulate the same policy. The chief reason for the existence of the League is to obtain uniform action, and the coming General Election offers an opportunity which we shall not neglect, and which we hope the Club and the Union will not neglect. We have purposely omitted reference to the Automobile Association, because it has more than once so clearly stated that it will have nothing whatever to do with political matters. At the same time the matter is really not one of politics at all, as a decision, to be a useful one, must be entirely non-political, and at the most it can be but a recommendation to the members, though we have little doubt that if a well-considered policy be adopted by the three organisations and also taken up by the League it will be loyally followed by so large a proportion of the motor world that it will to all intents and purposes result in concerted action.

Olympia Results.

That the League was represented at the recent Show to some advantage is proved by the very satisfactory increase in the number of its members, and if the present rate of increase is maintained the Secretary will in course of a few months be able to claim that the League is representative of a larger number of motorists in the United Kingdom than other organisations working in the interests of automobilism. Not the least among the advantages of the Show to motorists was the opportunity taken by a large number of members from the West and the Midlands, and especially from Scotland, to lay before the Secretary their views as to the future activities of the League, and to furnish him with a personal account of local conditions, which would otherwise have been obtained with difficulty. We desire to acknowledge the valuable help rendered to the League by those members who had the leisure and the interest to call at *The Autocar* stand.

In some cases we were able to correct the unfortunate and yet, we believe, widely prevalent idea that all subscribers to this journal, whose addresses are in the archives of our publishing department, are therefore members of the League. Notices have previously appeared in these columns contradicting this misunderstanding, and our only reason for again referring to it is our conviction that there are many not on our register who think that they are, and we would again exhort these readers to send in their signatures to the Secretary without further delay.

Some Extracts from "The Autocar League" Correspondence.

FAIR ADMINISTRATION OF THE LAW.

The short point is police traps would cease to exist if justices ceased to convict or tried cases fairly. To replace the justices' power by a properly qualified magistrate is the only remedy, and the proper constitutional step to take.

Motorists must recognise that laws peculiar to motoring will be enforced upon them for some years yet. Their best move is to secure the fair administration of these laws at petty sessions.

The arguments for such a combined policy by all motorists are irresistible, but I cannot develop them at any great length in a letter. I have no doubt that upon this point *The Autocar* ought to insist in every number it publishes. Secure a fair administration of the law (even as it now exists) and you stop police traps and all persecution.—A. MORESBY WHITE.

TAXATION PROPOSITIONS.

In my opinion all taxing of motor cars or of petrol is economically disastrous. Revenue could be raised by a fair tax on foreign cars, tyres, and accessories of all kinds, but even these taxes should not be very high. The benefit that such an industry as that of the motor confers, the wealth it brings into the country, the host of men of all sorts that it employs, the high educational effect it has on the rising generation of the country boys who, instead of living the limited life of grooms, coachmen, and gamekeepers, learn to use their brains on mechanical work, are brought into closer contact with the more intelligent of their masters, and wander all over England, Scotland, Ireland, Wales, and the Continent, learn to look at maps, measure distances, etc., etc.: all this richly compensates for the inconvenience to a few, which is caused by the transition period through which we are passing. Every village now already has one or two shops that live by motors chiefly. There are three or four in so small a place as Potter's Bar. Taxes in any form prevent just the people to whom motor cars are most useful from having them; doctors commencing practice, shopkeepers, mechanics, veterinary surgeons, etc. If only our rulers could understand that they would get infinitely more in the long run and benefit the country infinitely more by encouraging the motor industry, and by hastening the time when the motor shall supersede the horse, we should hear no more about taxes.

However, if money must be raised for the repair of the roads, I would propose £2 a year on all cars up to 20 h.p., £4 a year on all cars up to 40 h.p., £6 on all cars beyond that power, £2 per horse on all carriages used for pleasure, £1 on every riding horse, 2s. a year on every push bicycle, except those used by working men, £20 a year on all steam traction engines which haul heavy trucks along the road, a ten per cent. tax on all foreign cars up to £300 in value, and a twenty per cent. over the £300, a ten per cent. tax on all foreign tyres not made in this country, a ten per cent. tax on all accessories over the value of £5 coming from abroad, and some tax on all petrol not obtained from British dominions. Thus revenue would be obtained without distressing anyone, and the final coming of the motor car hastened by years.—MOHUN ASHFORDBY TRENCHARD.

THE EFFECT OF INCONSIDERATE DRIVING.

I should like to endorse the growing opinion that the curse of motoring is the "road hog." What has happened, and is happening, briefly and generally stated is this—the inconsiderate driver renders the road so dangerous and uncomfortable (we all know how) that sooner or later an outcry is made, the powers that be are appealed to, and a trap is set. The first man to be caught is probably a kindly inoffensive motorist doing 20½ miles an hour under perfectly safe conditions; he is "made an example of," and is naturally very indignant with the police and magistrates. But surely the people to blame are the "hogs" who caused the trap to be laid! I do not want to put into print all I have seen and know of scorching and scorchers, but this I do say, that if it were not for the traps and the police the roads would be neither tolerable nor safe for the public or motorists. In former days I have been splashed with mud, smothered in dust, run into the ditch, and otherwise so suffered at the hands of a few motorists that I vowed if ever I had a car I would think of other road users. Well, I have a car now, and make a special point of considerate driving, and the looks of grateful surprise I often get speak volumes. On a clear road miles from anywhere it is certainly annoying not to be able to "let her go" a bit without fear of a trap. Some day probably I shall be caught, and when I am it will be the "hogs" I shall blame, not the police. There is no effect without a cause. Traps are the effect of which inconsiderate driving is the cause. The moral is suppress the "hogs" and lay the dust (the road authorities are helping us here with tar, etc.), and the traps will die a natural death—in time. It is a motoring truism, but one which cannot be too often repeated, that if there were no inconsiderate driving there would be no traps and no speed limits. The real problem is how to suppress the "road hog."—4413.

Some Motor Body Criticisms and Contrasts.

A Series of Illustrated Critical Notes showing how Pleasing Appearance and Comfort go Hand in Hand.

ON October 3rd, 1908, we published an article, "What Constitutes a Handsome Car." So far as we know, this was the first attempt which was ever made to analyse the proportions of a car as a whole and to show why and how it looked well or otherwise. This article was so much appreciated that we have gone further into the matter, and the whole subject is dealt with in considerable detail on this and the following pages. At the same time, the following is not to be taken as an article, but rather as a series of illustrated notes on various points, which as far as possible have been grouped and dealt with collectively and comparatively. It should be clearly understood that the illustrations and notes deal only with open bodies, though, of course, many of the points raised apply equally to the closed types Although we deal mainly with appearance, it should be borne in mind that in practically every instance it and comfort go hand in hand. Those who doubt this need only look at fig. 3, which is typical of hundreds of bodies on the road to-day. The seats are too high above the floor, the doors are low and hideously shaped, the backs of the seats are quite wrongly curved for comfort, and it is a question whether anything much uglier or more uncomfortable could be devised.

The Harmony of Outline Curves.

FIG. 1.—The appearance of many excellent curve line bodies is spoiled by the contrast made at the dashboard, where the harmonious curves abruptly join the straight, angular lines of the bonnet. A bonnet which readily lends itself to the curves of most of the bodies with flowing lines is the taper type, which both in plan and elevation seems to adapt itself better to the curved outline.

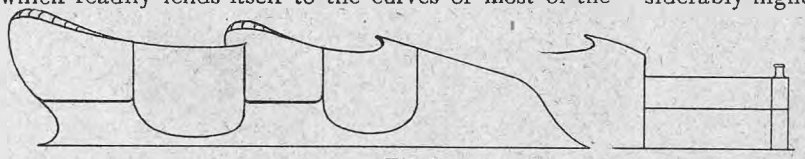


Fig. 1.

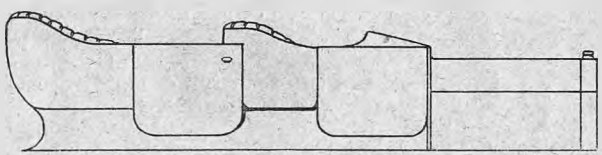


Fig. 2.

FIG. 2.—The vertical straight lines and flush sides of the modern boat and semi-boat body seem to be far more suitable for the ordinary angular bonnets.

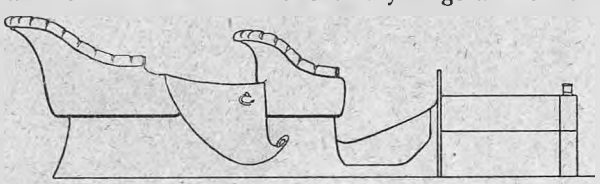


Fig. 3.

FIG. 3.—An example of a body with bad outline and proportions.

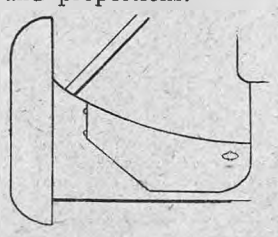


Fig. 4.

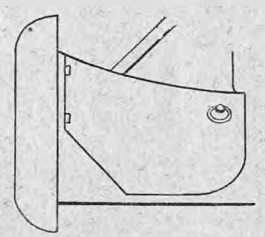


Fig. 5.

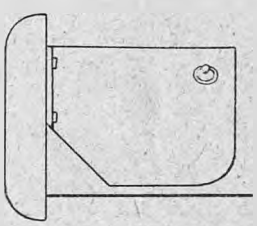


Fig. 6.

Side Doors.

FIG. 4 shows the shape of the ridiculous little side doors which even now are often fitted. They are so low as to be almost useless as a protection to the front seats, and their shape does not in any way improve the body lines.

FIG. 5 is an improvement on fig. 4, being considerably higher, and on some bodies the sloping curve almost harmonises with the rest of the body; but the straight high door (fig. 6) is much more of a protection, and really looks far better on a well-designed body.

FIG. 7 is a commonly mistaken attempt to beautify the body lines by taking a "bite" out of the top of the front doors, which only tends to break up still more the general irregularity of the lines of the average body.

Fig. 7.

Fig. 8.

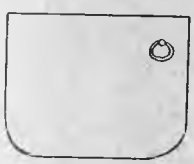


Fig. 9.

FIG. 8.—The curved top of the side door shown in fig. 8 is passable when fitted to a body where the general lines are curves, but should never be used with the severely straight flush sided bodies which are becoming so popular. For this type of body the square door in fig. 9 looks much better, and is much better, because it is higher, as there is no piece taken out of it.

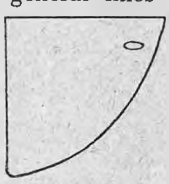


Fig. 10.

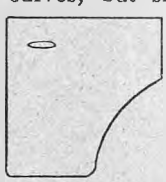


Fig. 11.

Fig. 12.

FIGS. 10 and 11 are examples of the cramped threequarter side doors which are nearly always fitted to cars of short wheelbase. They are both decidedly ugly, and spoil the appearance of a body, however good the general lines; but fig. 11 is by far the less unsightly. Of course, the coachbuilder must not be blamed for No. 11, as he cannot get a complete

door to his back seat if the wheelbase is too short, but there is no excuse for an abortion like fig. 10, which is as inconvenient as it is ugly.

The narrow door (fig. 12) is of the same proportion as figs. 10 and 11, but, being a complete door, it looks very much better.

FIGS. 13 and 14.—The arrangement of the change speed and brake levers in conjunction with a high

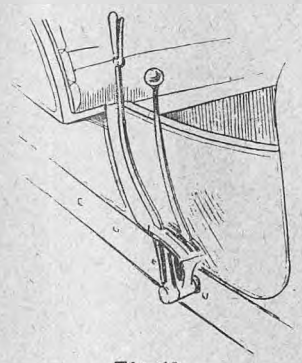


Fig. 13.

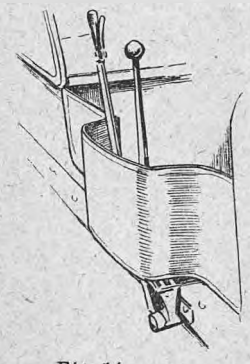


Fig. 14.

side door on the driver's side is perhaps one of the most difficult points in body construction. Figs. 13 and 14 show two distinct and rather makeshift methods.

FIGS. 15 and 16.—Fig. 16 is the neatest arrangement of the driver's side door, as it completely encloses the levers. The alternative is to keep both the levers outside the door, as in fig. 15, which is not so neat or accessible. Another method is to arrange the brake lever outside and the change speed lever inside the side door. The arrangement is generally governed by the design of the change speed quadrant. These four drawings are almost enough to make out a case in favour of placing the change speed and brake levers centrally on the footboard, as the

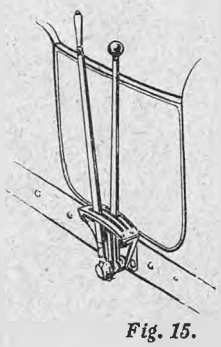


Fig. 15.

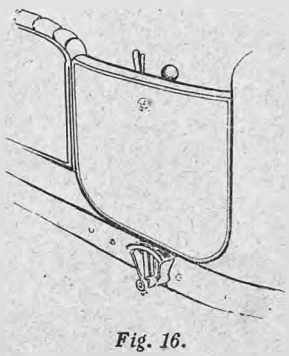


Fig. 16.

driver would be able to get in and out his side without climbing over the other occupant of the front seat, though, of course, it would necessitate the spare wheel being moved to the back of the car except in vehicles with very long wheelbases. This is where it is carried on a good many cars already .

Steering Positions and Leg Room.

FIG. 17 is one of the most uncomfortable driving positions imaginable. There is too much leg room, and the "far off" position of the steering wheel is very tiring to the arms, besides making it difficult to obtain any support for the back.

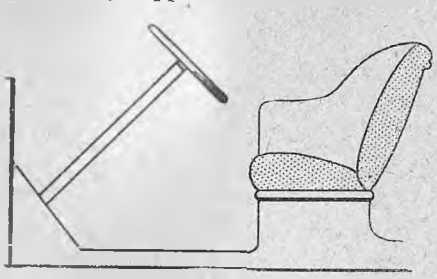


Fig. 17.

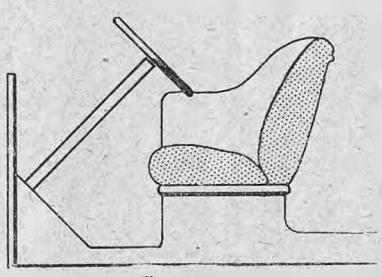


Fig. 18.

FIG. 18.—There is not enough leg room, and in this position driving is almost as painful as in fig. 17. The steering wheel rim is so close to the seat that the driver is said by a severe but waggish critic to have to get into his seat with the aid of a shoe-horn. Both these defects are generally the fault of the body designer, and it is surprising how frequently these mistakes are made.

FIG. 19 shows approximately the most comfortable position of the steering wheel and footboard in relation to the driving seat. There is just enough leg room, and the wheel is just close enough to the driver to allow the arms to assume a restful position.

FIG. 20.—When the seat is lowered, as in the case of the popular little two-seaters, the relative height of the steering wheel rim above the driver's seat remains exactly the same, although, of course, the steering column assumes a greater rake or incline, and, as can be seen in fig. 20, considerably more leg room is required. Undoubtedly this inclined position of the steering wheel is best from a driving point of view, but whether sitting so low is the more comfortable is a matter of personal choice. The four views (17 to 20) show the desirability of adjustable driving seats. Vertical adjustment does not matter, as so long as the seat is not too high an extra cushion will put matters right. Horizontal adjustment is most important, and if the seat cannot be adjusted in this way great care should be taken to see that it is put in the right position when the body is first fitted to the *chassis*.

Some advocate adjustable steering columns, and there is much to be said in favour of these, but there

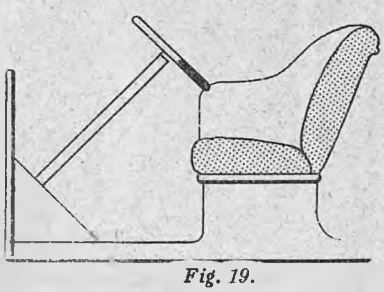


Fig. 19.

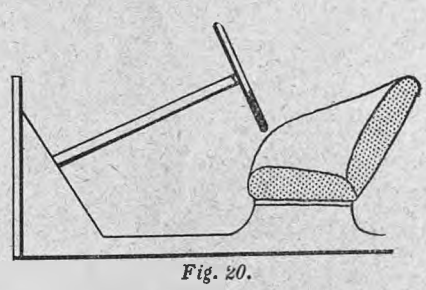


Fig. 20.

is still more to be said against them, as they would induce far more complication than an adjustable seat. Not only so, but no firm at present fits adjustable steering columns.

Wings or Mudguards.

The three types of mudguards shown in figs. 21, 22, and 23 are all quite wrong. The "splayed" form shown in fig. 21 is not used as much now as a few years ago. It has the tendency to allow the mud from the front wheels to shoot out, and consequently as a mudguard is hopelessly inefficient, and also whatever mud it collects is always on view, as though it were something to be proud of.

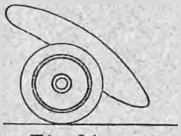


Fig. 21.

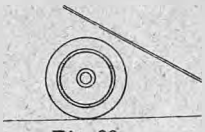


Fig. 22.

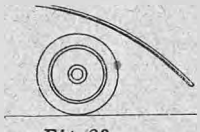


Fig. 23.

FIGS. 22 and 23 are merely plain guards, and, fortunately, are little used now on touring cars.

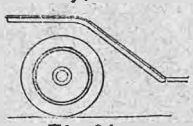


Fig. 24.

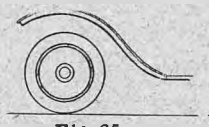


Fig. 25.

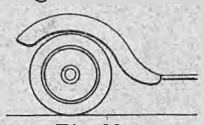


Fig. 26.

These front mudguards are all good. Figs. 24 and 25 are provided with deep flanges at the sides.

The rotund mudguard shown in fig. 26, if properly arranged, is the most efficient shape, and on some cars looks particularly in keeping with the body. It should be understood that this type of guard is not only curved round the tyre, but also across it.

FIG. 27.—This is one of the worst shapes of rear mudguards, yet it is often used. The turned up extremity is no improvement to the body appearance, and it naturally allows most of the mud thrown off by the rear wheel to splash out and smother the back panels and passengers.

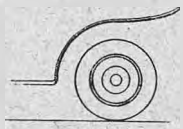


Fig. 27.

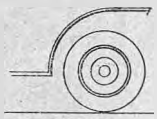


Fig. 28.

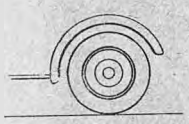


Fig. 29.

FIG. 28 is a little better in this respect. It is generally fitted with small mud flaps suspended from the extremity of the guard, and protects the body in the worst weather.

The best form is that shown in fig. 29, which completely covers the top half of the wheel, but is not efficient unless extended horizontally at the rear tip.

Upholstery Rolls.

The roll of the upholstery at the top beading of the panels is done in a number of different ways. From an appearance point of view the method shown in fig. 30 is undoubtedly the neatest, as it more or less follows the curve of the back panels.

The lipped method shown in fig. 31 is ugly, but not so bad as the large turnover roll shown in fig. 32.

Another point of upholstery finish which might well be improved is the method of terminating the leather roll on the arm rests shown in figs. 33, 34, and 35. Fig. 33 is a suggestion for letting the upholstery into a nicely rounded end at the top of the wooden body framework, which generally forms the door post. This method certainly gives a much neater finish to the arm rests than the abrupt end shown in fig. 34, which always looks as if it had been chopped off.

FIG. 35.—Another form of finishing the arm rest by a taper, which is an improvement on the full stop (fig. 34).

On the rear seats this same abrupt termination of the arm rests is also very noticeable, and is sometimes made more ugly still by another sudden "step" to meet the top of the low side door (fig. 36).

FIG. 37.—Here, again, the suggested termination in fig. 33 would come in very well when the top of the door is not upholstered. It is a matter of personal opinion whether the top of the side door should be upholstered or not. If it is upholstered, the method shown in fig. 38 is undoubtedly the neatest.

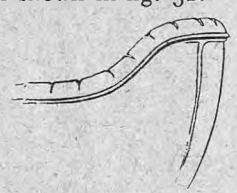


Fig. 30.

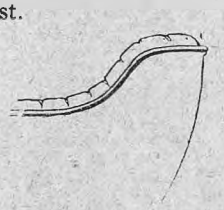


Fig. 31.

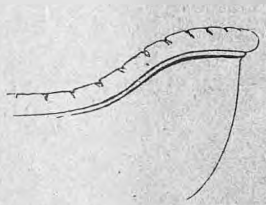


Fig. 32.

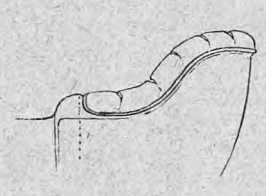


Fig. 33.

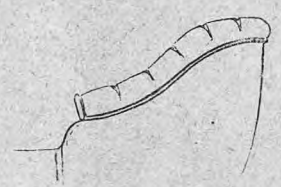


Fig. 34.

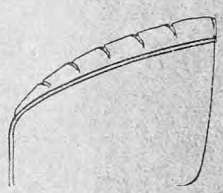


Fig. 35.

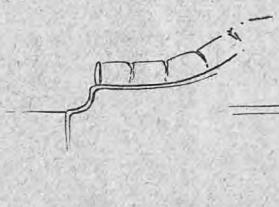


Fig. 36.

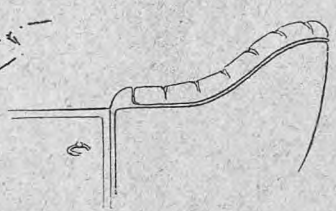


Fig. 37.

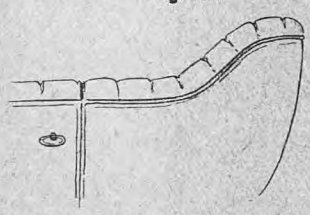


Fig. 38.

Dashboards.

The curved type of hollow dashboard generally known as the Daimler dash is now much used, but in a number of cases the shape is very much changed, and sometimes distorted from the original ideal. Fig. 39 is an example of how many of these dashboards are spoilt by flattening the top and sides, which does not compare well with a true Daimler (fig. 40).

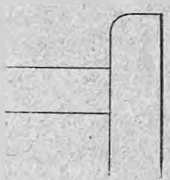


Fig. 39.

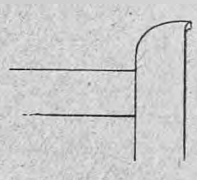


Fig. 40.

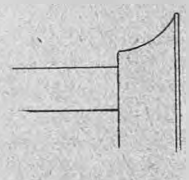


Fig. 41.

The inverse type of dashboard (fig. 41) should never be used under any considerations unless the body is entirely designed on similar lines. For instance, a clever designer might evolve a very pleasing combination for a Vauxhall, which has inverted curves to its bonnet, but if this curve be used, it should be maintained throughout the design.

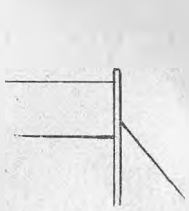


Fig. 42.

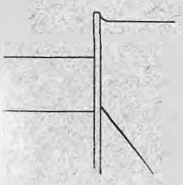


Fig. 43.

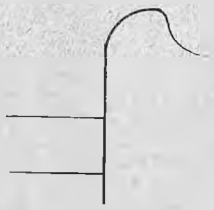


Fig. 44.

The scanty plain dashboard (fig. 42) is fast dying out, as it really offers little protection, but when fitted with high doors it looks very neat

FIG. 44.—Nothing looks more clumsy than a big, curved, hollow dash on a car with a low bonnet. Comfortable it may be, but in appearance it is hideous, and the case should be met by some form of tapered "scuttle" dash.

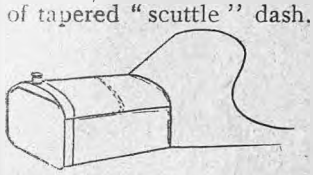


Fig. 45.

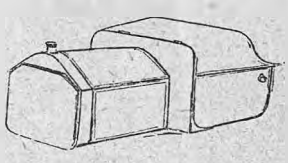


Fig. 46.

FIG. 45.—When the scuttle form of dash protector is used on small cars the seats should be very low and the bonnet high enough to allow the slope of the scuttle to lie as flat as possible, or it will give the effect of an inverted coal scuttle, as in fig. 45.

FIG. 46.—The scuttle dash can be fitted to a dashboard, but if not very carefully designed it looks like an ugly locomotive cab, and would almost be improved by completing the likeness by providing a couple of circular windows.

FIG. 47.—The true form of scuttle dashboard is found on the model of the Mercédès racing cars.

FIG. 48.—A good form of scuttle dash.

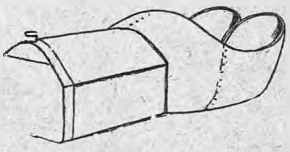


Fig. 47.

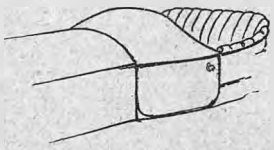


Fig. 48.

FIG. 49.—This form of protector looks well on some bodies, but renders the dashboard somewhat inaccessible.

FIG. 50.—There is really no more sensible protector than this, which has been used on the Lanchester and Riley cars, as it gives adequate protection, and at the same time, as it is hinged, it enables the seats to be entered and left

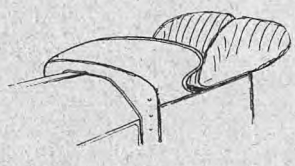


Fig. 49.

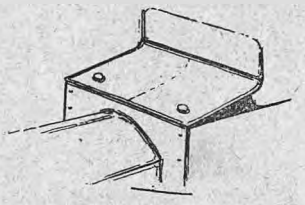


Fig. 50.

easily or the dashboard to be got at without diving into the hood on all fours. Indeed, dashes on the lines of figs. 46, 48, and 50 are not satisfactory unless they are hinged. When the motorists are seated the dash is closed down, and a wedge latch is snapped in each side to the doors or door posts, so that the scuttle top cannot move or rattle.

Petrol Tanks.

FIG. 51.—A petrol tank on two-seated bodies looks very unsightly when it is perched on the top of a couples of trestles.

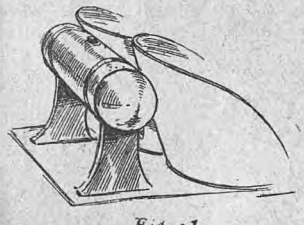


Fig. 51.

FIG. 52.—If the petrol tank must be placed behind the seats, it should

Fig. 52.

be kept as low as possible consistent with a good head of petrol.

FIG. 53.—On a two-seater the best position for a petrol tank is on the dashboard, where it can be most easily fitted, and makes an excellent position for the indicating instruments, etc.

For a pressure feed system the petrol tank should be carried behind the car (as in fig. 54) or longitudinally under the body and out of sight.

FIG. 55.—In most "torpedo" bodies the best place to carry the petrol tank is under the curved dashboard.

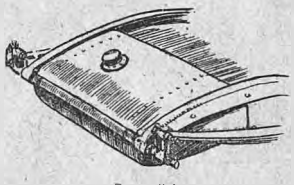


Fig. 54.

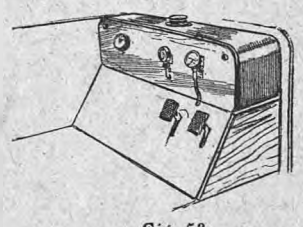


Fig. 53.

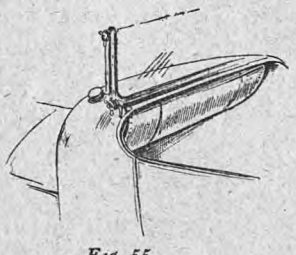


Fig. 55.

Body Dimensions and Seating Room.

The proportions of the first of these two bodies (fig. 56) show the number of distressing errors which so often occur in bodies even now. Although it would be difficult to find a new body with quite such distorted proportions as fig. 56, there are still many on the road as bad or worse.

The principal proportions lie in leg room, height and depth of seat, and height of sides, and also the angle and upholstery of the back supports. In fig. 57 the back and front seats are the same height and not too high, the sides of the car are deep to protect the knees, and the seat backs are nicely sloped and deeply upholstered to fit the small of the backs of the occupants. On 56 all these vital matters are wrong. The seats are much too high, leg room is excessive, and the back supports too straight to be comfortable.

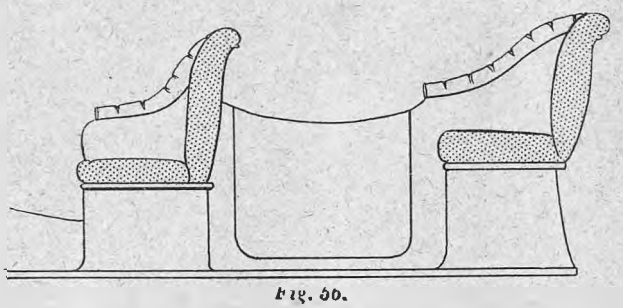


Fig. 56.

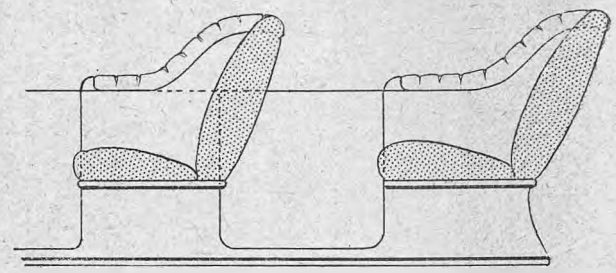


Fig. 57.

Two and Three-seated Backs.

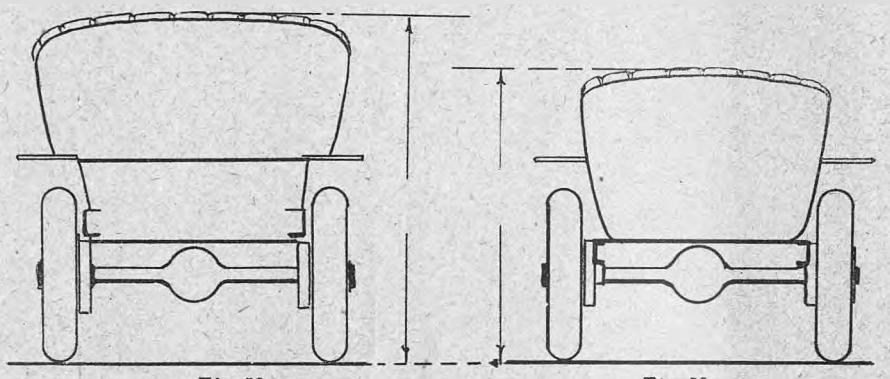


Fig. 58. Fig. 59.

FIGS. 58 and 59 show graphically that if a low body be desired it must be of two-seat width. If the back seat is wide enough to accommodate three, the level of the body must be heightened, as the seat projects over the wheels, and enough clearance must be given to allow the body to play up and down on the springs without bumping on the wheels. It is true an inch or two can be saved by "paddle-boxing" or cutting semicircular pockets in the side of the body to let the wheels clear, but this means that the cushion has no springs and very little stuffing on the outsides, so that it is of little service. Hence the back seat must be high to accommodate three occupants comfortably.

Magneto Making.

One day last week we spent a most interesting hour in the Simms factory going through the entire process of magneto manufacture. To say the least of it the whole process is a most interesting one, and even those who are well acquainted with manufacturing methods would be surprised to find how large an installation of modern machine tools is necessary for accurately manufacturing a magneto so that every part is truly interchangeable. A very high standard of accuracy is insisted upon in the Simms work, the limit being one hundredth of a millimetre, and as there are roughly speaking 25 mm. to an inch the nicety of the work will be easily appreciated. Every part is examined and tested after every operation, so that the possibility of any slightly inaccurate or otherwise defective part getting into a complete magneto is eliminated. An interesting example of the precautions taken to ensure accuracy was given by the treatment of an armature shaft complete. The integral parts are turned up in centres on the various machine tools, but when the armature complete with the condenser is assembled it is ground to absolute accuracy, so that any infinitesimal variation due to the assembling and fixing together of a number of parts is eliminated. The complete armature shaft is ground, not between centres but upon a pair of ball bearings precisely the same as those on which it will run when fitted into the magneto. Perhaps the most interesting operation of the whole process is the testing in which the completed magnetos are run for a number of hours at continuous speeds varying from two to six thousand revolutions per minute, and to make the test more severe very wide gaps are given between the sparking points. If anyone had the least doubt as to the high quality of the Simms magneto, half an hour spent in the factory at Kilburn would convince him that nothing is omitted which tends towards the production of a machine as near faultless as human brains and hands can make it.

Appreciation of the A.A. Controls.

The Lanarkshire county authorities, whose one idea is to protect the public and not to exploit the touring motorist for the purpose of monetary gain by speed traps set on safe open roads, were approached by the Automobile Association some time ago with a view to the regulation of motor traffic being left in the hands of A.A. patrols. This arrangement has now been in force for two seasons, and is working most satisfactorily. The happy relationship existing is evidenced by the following testimonial, which has been sent quite voluntarily to the Association by a number of well-known local residents, some of whom were once agitating for drastic action against motorists on account of the behaviour of a few reckless drivers:

"As the patrol which your Association has stationed in this village will shortly retire, we desire to express our appreciation of his services. We have reason to be highly satisfied with his vigilance, and believe that motorists have had no cause to complain of unnecessary interference. Cars used to pass at a speed which endangered people walking on the road, especially children, and we are glad to state that this cause of complaint has been almost entirely removed. The numerous visitors, as well as permanent residents, are unanimously of opinion that his presence has been a great advantage, and hope that you will replace him next season, and support him by dealing with motorists who disregard his instructions."

It is gratifying to note that other county authorities are following the example set by Lanarkshire.

The Law and the Motor Scout.

Some Legal Difficulties which the A.A. will doubtless overcome.

IN the issue of this journal for the 11th January, 1908, I drew attention to the legal aspects attaching to the duties of the "motor scout." The question was considered from two points of view: (1) Where the scout warns a motorist of the proximity of a police trap, and the motorist is at that time exceeding the speed limit. (2) Where the scout warns the motorist of the proximity of a police trap, and the motorist is not at that time exceeding the speed limit.

The second question I was able to answer in favour of the scout, basing my reasons on the decision in Bastable v. Little, reported in the *Solicitors' Journal*, Vol. 51, page 49. In answering the first question I based my reasons on general principles of law, as there was not at that time a reported decision directly bearing on the point.

The reasons I then laid down have been amply justified by the recent case of Betts v. Stevens, reported in the *Times* of the 14th October last. This was a case arising out of the conviction of a motor scout of obstructing the police in the execution of their duty, and was put in the form of a case stated by the magistrates for the opinion of the High Court. It seems that the scout stationed himself close by the police officers on duty at the mouth of the trap, and by reason of the warnings he gave the drivers of several of the cars, these cars passed through the trap at speeds less than twenty miles an hour. Another fact of extreme importance, and which had to be assumed by the court, was that, even apart from the timing, many cars were proceeding before the warning was given at speeds in excess of twenty miles an hour, but, as the Lord Chief Justice said, "there were many cases in which the statements of those giving evidence of the speed of motor cars was so much questioned that it was absolutely necessary to have some corroboration. . . . . Proof of the commission of an offence depended on the evidence given. The evidence of the man by whom the car had been passed might be questioned, and one knew that it would be impossible to obtain a conviction unless there was some corroborative evidence, such as the timing of the cars. In his judgment, the man who, finding at the same time as did the police that the car was breaking the law, warned the car so that it slowed down so as to prevent the police from obtaining the only evidence on which, according to their experience, the courts would act, was obstructing the police in the execution of their duty." The result was that the conviction was upheld.

The difference between this and the earlier case of Bastable v. Little is that in the latter there was no evidence that the cars were at any time exceeding the limit. The mere fact that they slackened speed after being warned was not in itself sufficient to raise the presumption that they were, previous to the giving of the warning, exceeding the limit. But in Betts v. Stevens there was held to be sufficient evidence that the cars were exceeding the limit when the scout and the police first saw them, and the scout, by interposing himself—not physically, be it understood—between the police and their quarry, prevented or obstructed them from obtaining complete evidence of the guilt of the drivers of the cars.

In conclusion, I would remind readers of the warning I gave in my previous article, that an association or the persons employing the scout might be charged with conspiracy if the scout were convicted, and as we now have a conviction recorded, it behoves associations and persons employing scouts to be on their guard.

K. C.

TORKSEY CASTLE, LINCOLNSHIRE. Torksey Castle is one of those things which are misrepresented by their names. It is not and never was a castle, but was a fine Elizabethan house, destroyed during the civil wars, and of which only the front remains. It stands on the bank of the River Trent, in the middle of a field at Torksey, near Retford, on the Great North Road. The photographs are respectively front and back views of the remains.

What a friend in need is a Stepney! It is only when one, alone, sustains a burst tyre in the small hours of a pouring wet morning that the blessedness of that particularly ingenious invention comes right home. Such an incident was ours one day last week, and we were fain to note the interest evinced in this device by two horny-handed sons of toil, who came to our aid upon that occasion and helped us to back our car upon and over a pneumatic jack that had ceased to function. Said the more intelligent of our aids, as he watched the Stepney being quickly clipped on to the flanged ring, "The man that invented that, sir, must have had a fine headpiece!" We agreed, and left rejoicing after rewarding our helpers.

On the Road.

Something about the Immaculate Salesman.

Provincial Garages.

NOTHING shows the development of motoring so much as the improvements made each year by the proprietors of the big garages and repair shops in the provincial towns of England. In Bristol, for instance, the Daimler depot has gone across the road to a beautiful new habitation befitting its dignity, while Mr. Johnson, who used to look after the premises in Victoria Street shared by the Daimler, has gone nearer to the station to take over the new motor department of that big concern known as the Bristol Waggon Works. The company are about to build a new "exhibition hall," and he did me the honour to ask my opinion as to the best one to copy. I promptly told him to go and see Mann and Egerton's at Norwich, or, nearer at home, the huge one at Bridgwater. Not but what there are plenty more worthy of copying, but these two were the first that occurred to me. Concerning the Bristol Waggon Works, I heard the following yarn. A certain very rich lady living in an adjoining county once came into the shop. "What!" said she. "Motor cars here? I'm one of your biggest shareholders and I've bought machinery and farm things here for years, but motors——. No. I can't buy my motors where I buy my milk carts." Whereupon the company promptly determined on separate premises for both, and now await her custom in all departments. Now this has a moral to dealers, and it is one I never cease to preach. Keep automobiles and other kinds of machinery apart, otherwise your rivals will allude to you as "ironmongers." Why the gift of making turbines, milk separators, portable engines, and the like should not be of assistance in the repairing of motor cars I do not know, but the fact remains that these modern young frock-coated gentlemen who chat of limousines and points of suspension regard it as several degrees worse than blacking boots or even writing for the papers.

Not that there are not limits in the other direction. Many an earnest seeker for a good small car has been absolutely frightened away by the plush, glitter, and soft carpets of the places their vendors inhabit. Perhaps their courage permits them to enter. They wait in awe and silence. Suddenly the great velvet curtains that drape the further wall are thrown back, and an irreproachably dressed young gentleman, smoothing his immaculately brushed hair, approaches. His manner cannot be improved on, his voice has a charm of its own, but all the same one feels that many waters have come about, and that one is dealing more with an unseen power than a sympathetic human being who would be easy of access and amenable to reason in the event of repairs, flaws, or the requiry of spare parts. Therefore, not being used to such semi-state, and awed by the sight of luxurious thousand guinea cars and high-powered chassis, the possible purchaser takes the first opportunity of flight, and the man who gets his order is the man more like the human beings he usually meets in ordinary business.

Photograph (by permission) *W. J. Edwards.*

SHOOTING AT SANDRINGHAM. His Majesty the King, after the day's shoot, riding back to the waiting Mercedes.

The Daimler "Hurroosh."

The first of December this year was a day of great peace and amity in the motor world. Indeed such a harmonious gathering never was before, and the sight of three hundred friends, competitors—or adversaries as Mr. Manville described them—and gentlemen of the press, all wandering about the works and marvelling at the size, order, and scale of everything was wonderful in itself. And when we, like the Queen of Sheba on her visit to King Solomon, had been shown all, lunch was ready, and a more cheerful meal I have never had the luck to be at. Afterwards speeches galore, which were only ended by the necessity of most of the guests having to catch the special train back to London. An enormous fleet of Silent Knights drove us to and fro, the most interesting of all being the new Daimler motor 'bus, which looked and behaved exactly as a model motor 'bus should. Returning to the station I was one of the first to enter it, and the way each new arrival rang the bell and said "Fares, please!"

was a lesson in cheerful humour. I bade the amateur conductor set me down at *The Autocar* office, and inspected the machinery that turns out numerous tons of this paper each week—to say nothing of its many other brother and sister journals. The rotary machines, by the way, are even more wonderful than any motor car engine I have ever come across, and the way that rolls of plain white paper go in at one end and come out at the other complete copies is even more marvellous than the pianola-like type-setting machines that seem to do everything but write their own copy.

To return to the Daimler speeches, one could not help being struck by the Mayor of Coventry's reference to the value a manufactory employing three thousand hands is to the town, and when one takes into consideration the languishing state of other places, such as Swindon, with over a thousand empty houses, the worth of the new motor industry cannot be overstated. And yet from the statistics in this journal a few weeks ago about forty-nine per cent. of the cars exhibited at Olympia were alien, which cannot but mean that British motorists keep as many foreign workpeople and manufacturers in employment as they do their own fellow countrymen. It is something to know that half our money is spent on our compatriots who work in factories which with few exceptions are models of what hygienic workshops should be. Long and many as the speeches were, I was surprised that no allusions to these advantages were made, all the more since those stout democrats Earl Russell and Mr. A. E. W. Mason (Coventry's retiring member) sat each side of the chairman. But they passed it by in silence, and the great Mr. Knight, who described himself as the "retiring bridegroom," even announced his intention of going home to America this week to bring back to England an entirely new stock of—stories.

Photograph (by permission) *W. J. Edwards.*

SHOOTING AT SANDRINGHAM. Her Majesty the Queen arriving in her Siddeley to witness the drive before luncheon.

Altogether this happy, amenable, and social love feast of rivals, sworn enemies, and adversaries has proved beyond a doubt that there is no business in all the world set on a more stable, honest, and sounder foundation than that of the motor industry of the British Isles. We forgot to drink its health on Wednesday—one cannot remember everything. Perhaps "if the train had been even later the toast list would have been even greater.

OWEN JOHN.

The 21 R.A.C. Rating Class.

As we announced last week in "On the Track," the Brooklands A.R.C. has established a new Brooklands standard class, to be known as the 21 R.A.C. rating class (maximum bore: four-cylinder, 3⅝in. or 92.075 mm.; six-cylinder, 2 31-32in. or 75 mm.; minimum rating allowed, 18 h.p. by R.A.C. rating), and to open for competition long and short records for this class similar to those for the 26, 40, 60, and 90 h.p. classes. The short record is for a flying half-mile, and the long record for ten laps (standing start).

The "weight" for this new class is fixed at 1,800 lbs., and the fees for attempting these records will be four guineas for the short record and six guineas for the long record, if taken separately, whilst guineas for the long record, if taken separately, eight guineas if the two are attempted upon the same day.

There is a large number of cars which have 90 mm., or a fraction over 90 mm., bore, though there is a large variation in stroke which ranges from about 100 mm. up to 140 mm., so far as the standard makes of to-day are concerned. It should, therefore, be made a regulation for all the classes that the stroke should be declared, and this should certainly be included on the timing certificate, as a 90 × 100 mm. engine would not stand a chance by the side of a 90 × 130 mm., not to mention some of longer stroke. However, we welcome the new class, and we should like to see a 15.8 class, that is, one for four-cylinder engines of 80 mm. bore, as we should say there are more of these among 1910 standard cars than any other size.

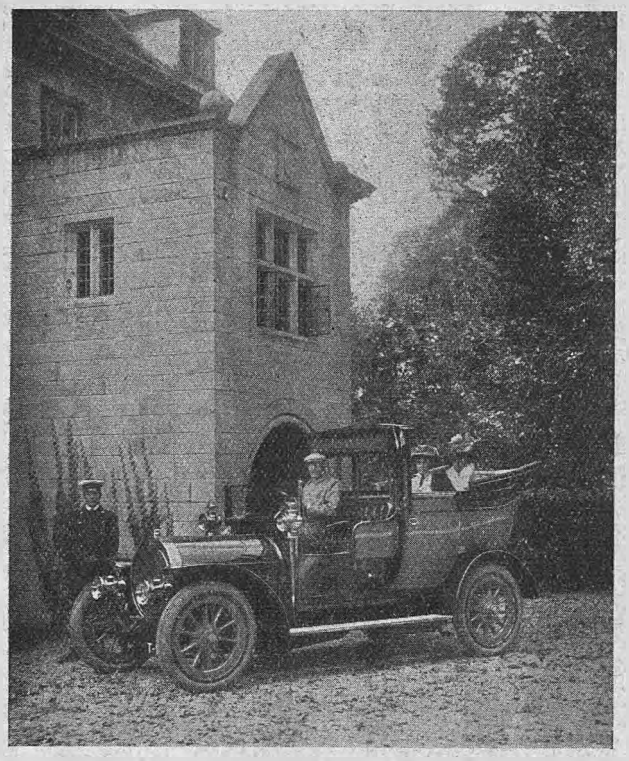
The General Committee of the M.U. will meet on Wednesday next at the Hotel Great Central, London. In future, meetings of the General Committee will be held in the new offices at Caxton House, Westminster, where commodious committee rooms are being provided.

The granite chippings complained of by several correspondents may be splendid for the tyre trade, but they lead to many a tirade against surveyors who use them. They create the evil which tarred roads overcome.

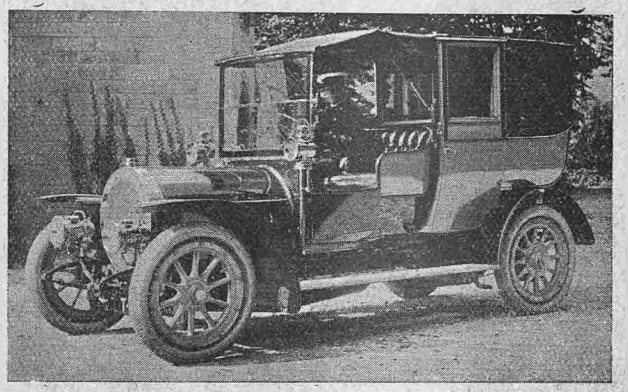
Body Design and Construction.

A Car for All Weathers.

A VERY interesting landaulet is owned by Mr. W. E. P. Bastard, of Lyneham, Yealmpton, who was one of the earliest motorists in Devon, and also one of the originators, and chairman of the Devon and Cornwall Club. The body is fitted on a 25-30 h.p. Maudslay chassis, and its special interest is that it can be used as an entirely open car or as an entirely closed car. That is to say, while there is no fixed canopy there is, nevertheless, full protection for the front seat when desired. The front extension is practically a collapsable hood which folds back flat against the two main window posts of the landaulet. By an ingenious sliding arrangement the hood when folded back does not project above the front of the landaulet body, and a short strap keeps everything firm and free from rattle. When open the front fastens with two finger latches to the top of the folding screen. There are also some side curtains which can be fitted to further protect the front seats in very bad weather. The back portion of the body requires no special comment, except to say that Messrs. W. and T. Thorn, the builders, have kept weight down as far as possible. The car is finished in the owner's family colours, with yellow panels and bonnet, and under-carriage dark blue, and Mr. Bastard is exceedingly pleased with the complete car, which has ample power for the steep hills of Devon.

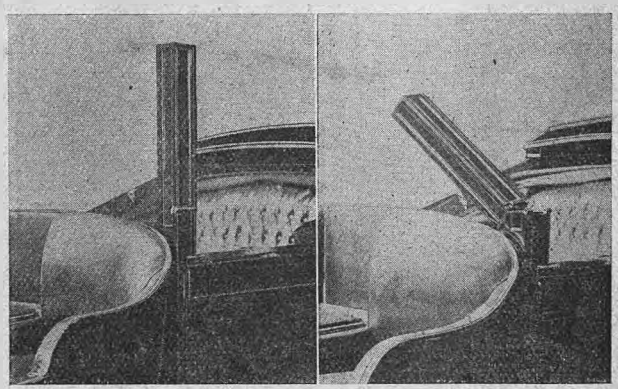


Mr. W. E. P. Bastard's 25-30 h.p. Maudslay. This photograph was taken outside Lyneham, one of the oldest houses in the neighbourhood of Plymouth. The owner is at the wheel, and Mrs. Bastard and their adopted daughter are in the landaulet.



Another view of Mr. Bastard's car, showing the landaulet closed and the collapsable front extension in position.

An observation made by Sheriff Sym at Perth recently, in addressing a jury which was inquiring into the death of a drunken man who had been knocked down by a motor car, is likely to give a wrong impression as to the rights of the public on the highway. "People could stand and talk in the road and do no wrong," he said. This is a dictum which is not only open to question, but very misleading. The lawful use of a highway is for passing and repassing, and it is laid down by the leading authorities on the subject that to use it for any other purpose is to commit a trespass. To stand and talk can scarcely be described either as passing or repassing. A pedestrian is therefore clearly not entitled as a right to loiter about on the highway—whenever he does so he infringes the rights of others. Nevertheless, it is equally true that any other user of the highway is not entitled to run down a loiterer. All must exercise due care for the safety of each other, and every case is taken on its merits, but it is dangerous to suggest that people are doing no wrong when they "stand about and talk in the road." It is because they are not doing right that the policeman orders them to "move on."



BODY DESIGN AND CONSTRUCTION. When a landaulet is fitted with a detachable canopy in the ordinary way the folding pillar joints are subject to considerable stress. In order to overcome this defect the Lanchester Motor Co., Ltd., have devised a pillar with small lugs on the outside of the joint similar to a hinge. When the landaulet is closed these lugs are locked by means of a thumbscrew, thus saving strain and stopping rattle.

Motor Union Notes.

(Communicated by the Secretary.)

Dangers of the Highway.

The causes are numerous which contribute to those accidents on the road from which no class of vehicle is exempt. Of these causes many might be removed, and the Motor Union is doing its utmost to secure conditions which will conduce to the greater safety, not only of motorists, but of the general body of the public using the highway. During the last few weeks three particular dangers have been brought prominently to the notice of the public.

The first of these is the latent danger of tradesmen's carts being allowed to remain unattended by the roadside. This resulted in a fatal accident only a few days ago, when the horse attached to an unattended cart took fright and bolted, dashing into a pony carriage, whose occupant was killed. There exists a legal remedy for this evil. Under Section 78 of the Highways Act of 1835 it is an offence

> "If the driver of any carriage whatsoever on any part of any highway . . . . shall quit the same . . . . or wilfully be at such distance from such carriage . . . . that he cannot have the direction and government of the horses or cattle drawing the same."

In view of the gravity of the present case, the Union is instituting legal proceedings against the driver responsible for the horse which caused the accident. It is significant that, whilst the authorities have taken no action in this case, a motorist was recently summoned for leaving his car unattended, the alleged offence being that, although the engine was stopped, sufficient steps had not been taken to prevent the car from starting in his absence!

The driving of sheep or cattle along the public road after dark, with no light or other signal sufficient to indicate their presence to approaching or overtaking traffic, is another practice, the danger of which has repeatedly been proved. The risk attending it is sufficiently obvious, and whilst a horse and cart must exhibit a light in front, and whilst the motor car, more completely under control than any other form of vehicle, must show lights both to the front and to the rear, a flock of sheep may perambulate the highway after dark without any warning being given of its presence. The Union recently forwarded a petition to all County Councils urging the desirability of a byelaw requiring that the drivers of sheep, cattle, or other animals along the highway after dark should carry a lantern or lamp to indicate adequately the position of the animals. Although this has not yet resulted in the framing of fresh regulations, it has brought the matter prominently before the notice of the authorities, and it has opened a discussion which it is hoped will bear fruit.

The recent accident in which the Hon. Ian Archibald Gordon was seriously injured has again attracted attention to a third danger. The Union has long sought the removal from the highways of the element of danger constituted by high hedges at the junctions of country roads. It has made urgent representations to the authorities, and, in more dangerous places where the lowering of the obstruction could not be obtained, it has supplied special signs warning drivers of the existence of a "dangerous corner" or "concealed turning." For although under the Highways Act, 1835, a local surveyor may apply to the magistrates for an order compelling the owner of a hedge to cut it down if it cause an obstruction, or overhang a road so as to prevent its drying after rain, there are many corners which, though dangerous to traffic, do not constitute an obstruction in the eyes of the surveyor. The Union has been able to secure an improvement of many dangerous corners, but the chief hope of systematic improvement in this direction lies in the new Road Board which will be constituted under the provisions of the Development and Road Improvement Funds Act. In the meantime the Union will take up any specific case brought to its notice, and will use its influence to secure the safety of all users of the public highway.

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Two mirrors similar to that recently erected jointly by the Motor Union and the Harrogate A.C. are being supplied by the Union for erection at the corners of High Street and Hertford Road, Huntingdon. Such mirrors tend to minimise the risk of accidents at blind corners in urban districts.

◇ ◇ ◇ ◇

A new route to the picturesque and interesting chateau country of Touraine is being opened to motorists by the G.W. Railway Co., who have instituted a service of steamers between Weymouth and Nantes. The situation of Nantes, at the mouth of the Loire, makes it an excellent starting place for a run up the valley of that river, and, when the necessary arrangements are made for the prompt issue of licences to motorists landing at that port, it is probable that considerable use will be made of this new route. At present the steamers are leaving Weymouth every Saturday afternoon, and Nantes every Tuesday afternoon, and the service is likely to be extended.

◇ ◇ ◇ ◇

The responsibility of a garage proprietor for customers' cars, stored in the garage, was discussed recently in these pages, but it seems desirable to enlarge somewhat upon what was then stated. The Union is advised that, in the absence of any special agreement, the garage proprietor is an ordinary bailee, and as such is only liable for customers' cars where negligence can be shown. If the proprietor has an insurance policy covering his own and his customers' cars, the customer would in certain cases be able to recover his share of the policy. It should, however, be remembered that the insurance policies of most companies only cover "cars held in trust by the proprietor *for which he is liable.*" If, therefore, the proprietor is not liable for the customers' cars, these are not covered by the ordinary policy. A policy of insurance is a contract of indemnity, and where there is no liability there can be no indemnity. In the opinion of the Union it is advisable for the owner of a car himself to insure it and not to rely upon the policy which the garage proprietor may have taken out.

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The new Aviation Committee of the Union held its first meeting last week, thirty-three members being present. Sub-committees were elected to deal with the various branches of aviation.

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The Union was represented at the Local Government Board inquiries held at Three Bridges on the 3rd inst., and at Partridge Green on the 4th inst., into applications for ten mile speed limits at these places.

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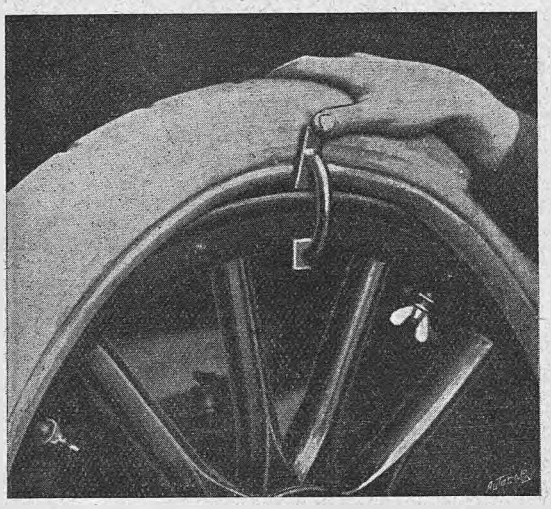
The following is an analysis of the special road signs issued by the Union during 1909: Special caution, 317; school, 379; concealed turning, 51; carriage drive, 34; total, 781. A grand total of 1,406 signs have been issued to date.

◇ ◇ ◇ ◇

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

The Pneu Tyre Grip. A Handy Tool.

We have received a sample of a new tyre manipulating tool which is certainly one of the most handy accessories we have seen for some time. The Pneu tyre grip, an illustration of which appears herewith, is but 4¾in. long, and is designed to supersede the first lever which is used in replacing outer covers,



The Pneu tyre grip in use.

and which has usually to be held in place by a second person while the ordinary levers are manipulated. As shown in the illustration, the grip merely pushes back the cover and slips into and grips the inturned lip of the rim. The lower part rests against the felloe of the wheel as a fulcrum, keeping the cover securely in place until it is levered on. A slight push with the hand releases the grip.

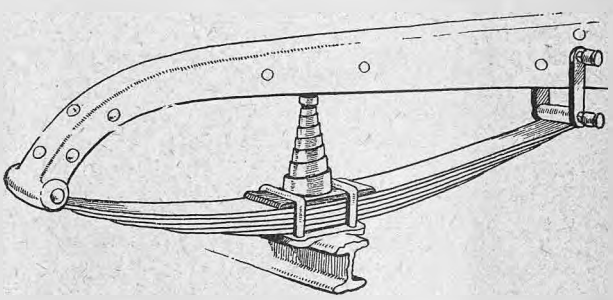
This handy little tool has been well tested on wheels up to 920 mm. and found very efficient. It is made of malleable steel, and has been designed by Mr. W. A. Smith, jun., 3, Newark Drive, Pollokshields, Glasgow.

Police Protection against Accidents.

We have on many occasions urged that the neglect of the police to regulate traffic at dangerous corners while they are trapping motorists in safe places is responsible for a great many of the accidents which happen to motor and horse vehicles and to pedestrians. Evidence in support of this view is forthcoming from America, where the National Highways Protective Society has published a list of the killed and injured in New York during the month of October by automobiles. The total number killed was twenty-two and injured thirty-three. Within the traffic lines, where the police are stationed at intervals, there are no accidents, but in the suburbs, where there is no such protection, the accidents chiefly occur. The society has decided to endeavour to secure legislation creating a Highway Commission with power to issue licences to chauffeurs and to regulate the operation of automobiles in cities and villages. Now if the remnant of the Highways Protection League, which we believe still exists in this country, were to take the American body as their pattern and collect statistics on the lines indicated by this report no one would complain. Indeed, the League might possibly receive a considerable accession to its membership, and again reach the magnificent total of four hundred which it once possessed.

The Nevajah Spring Buffer.

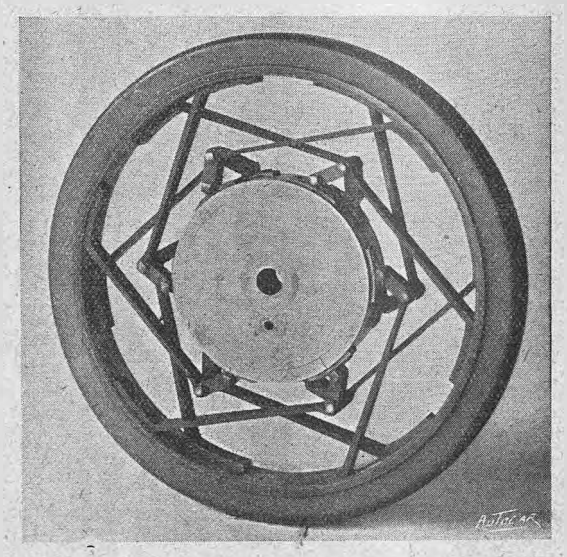
A very neat and simple spring buffer, made by Messrs. A. W. Chapman and Co., of Church Street Garage, Inverness, is the subject of the accompanying sketch, which illustrates the method of fitting it to a front spring. The buffers are made of the best Sheffield steel fitted to a malleable iron base plate, and



have at their upper ends fibre blocks of a length to suit the distance between the spring head and the underside of the frame under normal load. This extra spring relieves the load on the main springs very considerably, and the buffers may be fitted to many cars with great advantage, particularly when such cars are habitually driven over roads of rough surface. A bracket is provided with them when necessary, which enables any type of car to be easily and inexpensively fitted up with these spring buffers.

The Ashton Resilient Wheel.

The accompanying illustration is from a model of a resilient wheel in which tangential spring blades are riveted to the underside of the rim by means of an elbow, and are attached to the wheel hub by rocking links as shown. The spring blades are set reversely and tangentially to the rim, and the swinging links in a similar manner to the hub. The effect of loading up the wheel is therefore obvious. The



claims made for the spring wheel by its inventor are equal resilience and comfort to the best pneumatic tyre, freedom from punctures, cheapness of construction, simplicity of parts, etc. We are not aware that a practical trial has yet been made of this wheel, but those interested can obtain full particulars of Messrs. Womersley and Lewis, 72, Cheapside, E.C.

Small Car Talk. By Runabout.

Semi-racer Screens.

MR. SCHOFIELD, of Ainsdale, near Southport, is the only maker who has written to say that he makes a single-pane wind screen of the type I recommend for scuttle-dashed two-seaters. His screen has been advertised in *The Autocar*, though I managed to overlook it. It differs slightly from my sketch, in that the pane swings on a self-contained joint at the top, instead of being supported by slotted arcs. It is singularly inexpensive.

The Throttle as a Brake.

I see "M.I.M.E." falls foul of me for careless diction in respect of closing the throttle for braking purposes. If it be sinfully inaccurate to talk of "compression braking," at least I sin in good company, for that is how most motorists speak of the effect of running a car with the throttle shut. I suppose all who use the term, and allied inaccuracies, are roughly aware of the facts. A few cars transform their engines into true compression brakes by using a special camshaft, designed to avoid at the driver's will the compensating effects of the descending stroke of the piston after compression is surmounted. On cars devoid of such special conveniences, what is commonly called "compression-braking" is no doubt really a "friction" brake. It was surely obvious that I am interested in the practical side of the question rather than the technical side, in the fact that with the throttle shut on one gear or another we can safely descend any hill without other brake assistance, provided no emergency compel the car to be brought to a standstill on the slope. If "M.I.M.E." will invent an accurate tabloid word to express "friction braking by means of the throttle," I promise to confine myself to it exclusively in future.

White Edges to Tarred Roads.

Most motorists are already discovering that tarred roads by no means facilitate night driving. A year or two back most roads appeared by the glare of acetylene as white ribbons shading off gradually into the distant gloom. Nowadays they are much less easily discerned for any distance ahead even when wet, as tar glistens less than ordinary metalling, and, when dry, the tarred road is often indistinguishable from its borders for more than fifty yards ahead, even under the rays of a couple of 10in. *phares*. I have struck a few miles of road along which only a broad central strip has been tarred, a band a yard or so in width at each side being left white. Wet or dry, these roads are considerably easier to visualise than the all-tarred variety, and motorists must wish this system were universal. I am not so sure how it will strike cyclists, as whenever a discourteous driver squeezes them off the tar they will strike ruts in bad weather.

Radius Rods.

I have traced quite a number of rattles on well-worn small cars to excessive wear at the point where the radius rods take their abutment on the frame. Many owner-drivers do not understand the *rationale* of radius rods, perhaps because in many instances no lubrication is provided for the working joint; but few portions of the frame undergo more constant strain, and their ample lubrication is absolutely essential. Their function is simple. The back axle is connected to the chassis by the rear springs and the propeller-shaft. Every bump compresses the springs. If every bump were absolutely vertical—a simple up and down motion—there would be less need for radius rods. As it is, not one bump in a thousand is truly vertical; the majority of bumps tend either to knock the back axle off the tail of the car, or to drive it forward towards the engine. The springs yield partially in the direction of each bump, and do not confine it to the vertical plane. Consequently each bump tries either to haul the propeller-shaft backwards out of the gear box, or else to hammer it forwards to knock a hole through the clutch. The radius rods anchor the axle to the chassis in such wise that its movements are strictly confined to a small arc, its distance from the anchorage on the frame remaining equal under all shocks. It is thus obvious that good lubrication is required at the moving joints by which the radius rods are attached. On many small cars no lubrication device is provided at these points, and the owner-driver should take careful steps to cope with the problem. If he do not, wear will be rapid and noise excessive. When no greasers are provided the joints are sent out packed with grease, which will last for a month or two.

Multiple Jet Carburetters.

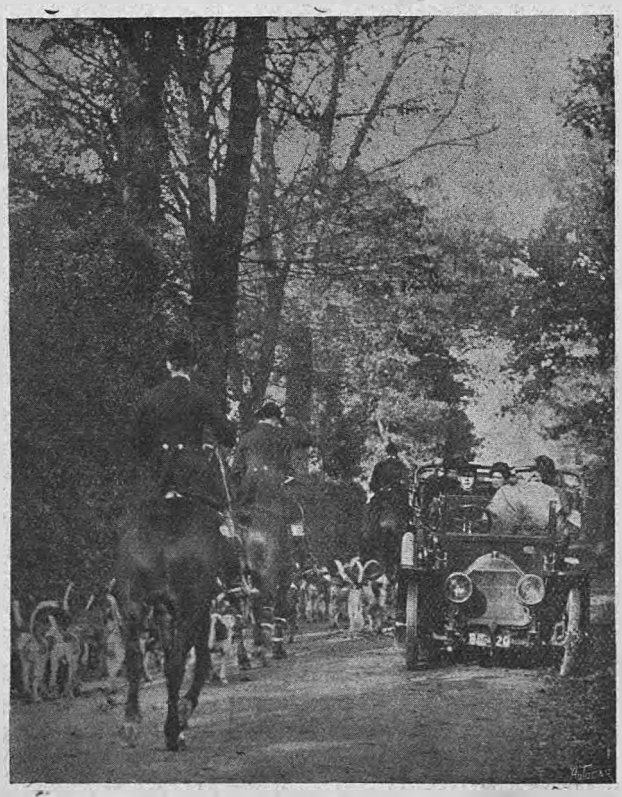
Fresh from enthusiastic tests of a triple jet carburetter, I pestered one or two makers of small cars at the shows with queries about their motives in remaining content with a single jet, especially as a two-jet device at any rate can be constructed at a very small increase in cost. With remarkable unanimity they informed me that a single jet is as good as a multiple jet, since suction varies with engine speed, and consequently all single jets are really variable. A prolonged test on a motor bicycle in the spring of this year impelled me to give them the retort courteous. I was riding a motor bicycle with single jet carburetter, and it regularly jibbed at a certain notorious hill. I finally persuaded it to make the ascent, by removing a perforated cone threaded over the jet and substituting a nozzle of more generous orifice. On the supposition that variable suction atones for a fixed orifice this ought to have been unnecessary. Worse was to follow. The engine, indeed, developed additional power, and could climb with certainty the hill it refused on a smaller jet: but, *per contra*, it had lost all flexibility, and no adjustment of the air intake orifices could restore it. A movement of the throttle stopped the engine dead unless the air lever were correspondingly altered. I deny that, with any carburetter I have yet tested, a single jet can represent maximum efficiency in combination with maximum flexibility and economy. Varying suction does not atone for an invariable orifice, nor does a variable jet work efficiently with an invariable choke tube. As many of my readers know, the average multiple jet carburetter now possesses three jets of different sizes, each provided with its separate choke tube. Perhaps in time we shall arrive at a single variable jet, mounted within a single variable choke tube. In the meantime, the multiple jet carburetter provides greater efficiency and greater flexibility than the single type, provided with a whole range of interchangeable jets and choke tubes. I am not referring to one or two patented types of single jet carburetters, as they achieve success by means peculiar to themselves, but to the ordinary pattern single jet device.

The Eastbourne Automobile Association has been admitted to association with the R.A.C., and the Quaker City Ladies' Motor Club of Philadelphia has also become affiliated.

The De Dion Patents in this Country.

Application to Revoke one of them Refused.

THE Comptroller-General of Patents has given his decision in the case in which R. Reynold Jackson and Co., Ltd., and R. Reynold Jackson, of High Street, Notting Hill Gate, applied under Section 27 of the Patents and Designs Act, 1907, to revoke Letters Patent No. 22,762 of 1900, on the ground that the patented article is manufactured mainly or exclusively outside the United Kingdom. The present owners of the patent are the De Dion-Bouton (1907), Ltd., of 10, Great Marlborough Street. The patent in question relates to improvements in valve operating mechanism, the object being to provide means by which the length of the stroke given to a valve, particularly the exhaust valve of an explosion engine, by the operating cam may be regulated. The Comptroller-General, while unable to revoke the patent, said he could not see that the owners or their predecessors had done much to help British industry. The owners of the patent gave as their reasons against revocation that the patent was now no longer used for any practical purposes, and had not been in general use since 1906, and that as the patented article could only be used in conjunction with engines of a more or less complicated type, it would have been useless and wholly unjustifiable expense to have set up a manufactory in this country for its production. The Comptroller said it was clear to him that by common agreement between the parties there was at present no practical utility in the invention, and that it would not be commercially practicable to produce the patented article in this country. He held the patentees had satisfied the onus cast upon them of giving reasons for non-manufacture in this country.



HUNTING AND MOTORS. At the Hambledon Hunt Meet. A car pulled up to allow hounds and riders to pass. The master is seen saluting the occupants of the car.

The applicant, however, claimed to meet this point by alleging that the patentees had abused their monopoly rights in this country. They urged (continued the Comptroller) that I ought, therefore, to disregard the excuses offered for their inaction, and revoke the patent on the ground of the abuse of monopoly, coupled with the fact that there was admittedly still some manufacture of the patented article carried on abroad. The abuse of the monopoly, they alleged, consisted in the following facts: (1) That neither the present holders of the patent, nor their predecessors in title had ever manufactured in this country, but that the entire manufacture had been carried on in France; (2) that the English De Dion-Bouton Company were possessed only of the English patents and had utilised their monopoly by importing wholly from abroad and charging the buyer a higher price than the price at which the machines could be obtained in France; that they had acted, in fact, merely as distributers, making a profit on the transaction; further, that inasmuch as the importation of French cars except through them was an infringement of their rights, they were enabled in very numerous cases to commence actions against innocent purchasers of French cars which had not been obtained directly through them. These actions, it was alleged, were continuing to be brought against the purchasers of old De Dion motor cars in this country, which happened to contain this patent, in cases where the purchaser had merely asked for the repair of the machine or the patented mechanism in this country. It was urged that upon these facts the patentees' conduct had been in restraint of trade and was, in fact, an abuse of their monopoly rights. I feel considerable sympathy for these arguments, but after the most careful consideration I have come to the conclusion that I ought not to allow them to weigh with me to such an extent as to induce me to brush aside the reasons given by the patentees for their inaction, which would in my view be otherwise satisfactory. I am by no means prepared to hold that even where satisfactory reasons are given at the time of the hearing, these cannot be rebutted, or their efficacy destroyed by proof of direct abuse of the monopoly. I think, however, that, generally speaking, the abuse of the monopoly relied on must be an abuse which is connected in some way with the non-working of the patent in this country.

Sign-posting.

The sign-posting of Watling Street having now been carried out by the R.A.C., the General Committee has adopted a report of a sub-committee with regard to the sign-posting of the Great North Road. The original proposal was to post with direction signs the road from London to York, but it has now been decided to extend this work to Edinburgh if the S.A.C. concurs. The sign proposed to be used is rectangular in shape and divided horizontally into three panels, the central panel containing the name of the town or village at the entrance to which the sign is placed; the uppermost panel gives the number of miles to Edinburgh and the name of the next village in a northerly direction and the distance to it; while the bottom panel indicates the mileage to the next village south and to London. The rectangular plate is surmounted by a semi-circular head-piece bearing the initials R.A.C. and the name of the county branch in whose area the sign is placed.

In Search of the Unclimbable.

Scottish Hills Conquered.

THE Scottish Automobile Club is quite rightly convinced that a motor car worthy of the name should be able to climb any hill which a horse-drawn vehicle can ascend.

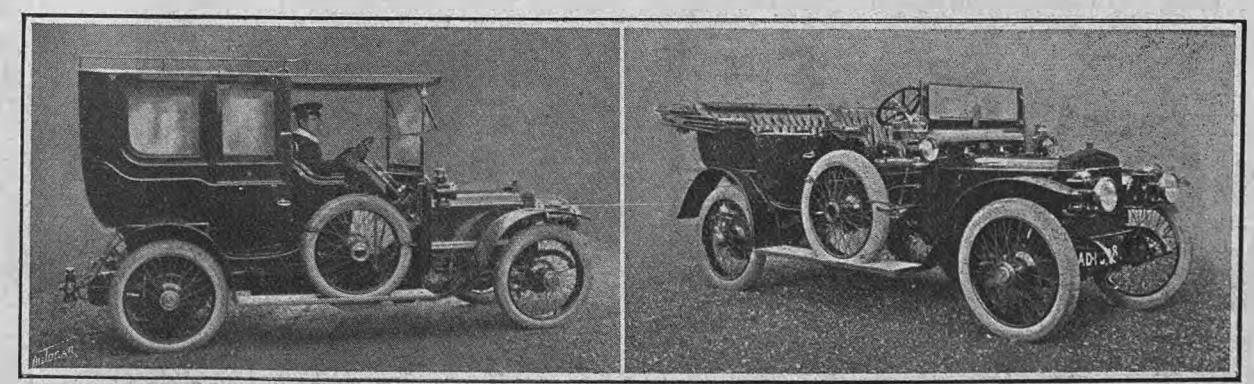
It was for this reason that in the Thousand Miles Trial last June the club included in the route to be followed by the competing cars the steep known as Glendoe, near Fort Augustus. The cars were timed over 980 yards of this hill, which presented an average gradient of 1 in 7.54, and offered a section close to the start of 1 in 5.83. Again in the centre of the section occurs 1 in 5.7, while the timed portion wound up with a select little bit of 1 in 5. Rolls-Royce, Ltd., who have been in the habit of gearing their 40-50 h.p. six-cylinder chassis with a twenty-two teeth bevel pinion in the back axle for heavy limousine and landaulet bodies, and twenty-four teeth for open bodies, recently carried out a series of experiments to ascertain how far a chassis fitted with an open body would be suitable if fitted with a back axle having a pinion with twenty-six teeth.

The relative speed in m.p.h. at 1,500 r.p.m. of the engine are as follows:

No. of teeth of pinion.	Speeds in miles per hour. 1st gear.	2nd gear.	3rd gear.
22	17.5 ...	... 29.8 ...	... 49.5
24	19.1 ...	... 32.5 ...	... 54
26	20.7 ...	... 35.2 ...	... 58.5

We are informed that the car having the highest of these gears easily ascended Glendoe carrying four passengers. Subsequently the car was laden with six passengers and again ascended Glendoe without trouble. While sighing for fresh and steeper hills to conquer, the other side of Glendoe beyond the Lodge and the Bridge was tackled. On this incline there are two ascents so steep that it is said that the ascent had seldom been made on a motor car, and when this climb was made, members of the Scottish Automobile Club who were passengers stood ready on the steps to dismount. On tackling these two ascents the high-geared Rolls-Royce, with its six-fold living cargo, ascended without faltering, not with the passengers on the steps, but more or less comfortably seated in the car. Two interesting photographs of the descent of the above hill are given on this page

Two views of a 40-50 h.p. Rolls-Royce car, with Mr. Claude Johnson driving, descending a test hill, up which six passengers were carried on this car, the latter being fitted with a ratio of gearing primarily intended for speed work.



A 38 h.p. Daimler, with convertible body, built to the order of Mr. Elliot Mackirdy, of Birkwood, Lesmahagow, and Abbey House, Malmesbury. The body is extra wide behind, allowing seating accommodation for three persons, detachable arm rests being fitted. The bodywork was by Messrs. W. G. Bridges, Ltd., Cirencester.

On the Track. By H. C. Lafone.

THIS is not a time of year at which there is, as a rule, much to chronicle at Brooklands. Just before the Olympia Show there is generally a frantic rush to beat records and put up all kinds of wonderful performances, in order that there may be some talking points to elaborate when the cars are displayed at Kensington to a weary and foot-sore public. But after the show there is a decided slump in track activities. Now, in my opinion, December ought to be the most crowded month of the year on the Weybridge course. Dozens of orders have been placed at the show, and dozens of innocent purchasers know nothing about their new cars, except a few scraps of information gleaned from enthusiastic salesmen who are themselves frequently ignorant concerning their machines' real capabilities. I don't want to labour the subject of Brooklands as a private purchasers' trial ground, but the importance to the buyer of a genuinely searching test run is so transcendent, and often so utterly unappreciated, that I cannot refrain once more from suggesting that every man who proposes to buy a car shall place his order subject to a demonstration at Brooklands before delivery is accepted that the vehicle is really capable of doing everything claimed for it. If a manufacturer says that a certain car will run at, say, 40 m.p.h., that it will climb a gradient of 1 in 4 with four up, that it will cover twenty-five miles to a gallon of fuel, and that it will run at five miles an hour on top speed, let him prove his words at Brooklands, where instruments for recording all the performances are installed ready for use at an hour's notice. Supposing that for a thorough test a fee of £3, or even £5, has to be paid to the B.A.R.C.—well, it is better for a purchaser to pay a few pounds extra at the outset than to take over a car which proves unsatisfactory. Of course, the buyer should stipulate that, if the machine fails in any one of the tests, the vendor shall pay the trial fee!

Again, in purchasing a second-hand car in the neighbourhood of London the value of a trial run at Brooklands is enormous. A case in point occurred only a day or two ago. A Devonshire man wanted a four-seated second-hand car, which had to be very good on hills, and which must have a maximum speed of at least thirty-five miles an hour. He found what seemed a very nice machine, and he would have purchased it outright had not he been advised to take a trial run to Brooklands. Here the car proved that its top speed was thirty miles an hour, and that the 1 in 4 section of the test hill was far beyond its powers. That man will go back to his own mountainous district blessing the track and the opportunity afforded him by it of saving his good money. I am quite sure that there must be many others who are now wishing that they had not parted with their cash without knowing the real limit of their car's powers.

On Friday last week the War Office put a 22 h.p. Daimler through its facings on the track, and the car's performance, when the figures are all worked out, will, I think, prove to have been highly satisfactory. The test, through which every motor car has to pass before it is accepted by the W.O., consists of a flying two laps (rather over five miles), a flying half-mile, a slow speed half mile on top gear, a petrol consumption test, acceleration tests both on the flat and up the test hill, and brake tests on the hill. The W.O. say, "The car must do so and so in each test," and the makers know that this is the final word, and that any failure will imply cancellation of the order.

Messrs. Neale and Wickham have been continuing their aviation experiments with some success. The high winds of last week were all against beginners in the science, but several short flights were achieved. The other morning Mr. Neale did very well, on one occasion covering between 200 and 300 yards at an altitude of about 14ft. Mr. Neale's trouble appears to me to be inability to steer a straight course when his machine is running along the ground. He keeps his helm too hard over for too long a time, and checks a swerve in one direction only to turn it into a swerve to the opposite side. The ability to overcome this tendency will come by practice. Both Mr. Neale and Mr. Wickham have their monoplanes fitted with Anzani three-cylinder engines. Mr. Astley's engine has now arrived, and we shall probably see him at work in the course of a few days. Mr. Ballin Hinde's Humber monoplane has now arrived. Major Lloyd tells me that he has seen the Humber aeroplane in course of construction at Coventry, and that the workmanship and finish of the planes, woodwork, and engines are simply splendid. The Humber machines are monoplanes of the Blériot type, and the Coventry firm will probably standardise a three-cylinder air-cooled engine much on Anzani lines.

The B.A.R.C. is presenting Paulhan with the most delightful little gold cup to commemorate the first aeroplane flights at Brooklands. The cup is a small replica of the silver Brooklands cups which have been awarded as prizes during 1909. If Paulhan is a man of taste he will cherish his latest cup as one of his most precious possessions.

On the occasion of the Daimler lunch last week numerous Knight-Daimlers were requisitioned to convey the visitors from the station to the works. The first view shows the cars lined up outside the Daimler Co.'s Radford Works, and the second the cars outside Coventry Station.

The 1909 14-20 h.p. Wolseley-Siddeley.

An Appreciation.

ON October 3rd last year we published an article describing the behaviour of a 1908 14 h.p. Siddeley during a half-year's hard use. Though eulogistic, that article did not fail to criticise the little vehicle under consideration, and no opportunity was lost of finding fault where necessary. This year our task is considerably harder, as there is little of which to complain in the 1909 model, one of which came into our possession in the early part of the spring of this year.

It was clear at the show that nearly every single point criticised in the 1908 model was corrected or improved in this year's fourteen. The torque rod which rattled was rehung, and was silent, the square coupling between the clutch and gear box, which sometimes jammed after it had squeezed out all the grease with which it was lubricated, was made grease retaining, while the mechanical system of trough lubrication saved the driver from all anxiety. Touching this, however, the awkwardly placed oil level tap at the bottom of the crank case remained inaccessible, and it is to be hoped that in future models an extended handle will be fitted which will allow it to be controlled without the owner soiling his clothing.

The 1909 body was exceedingly comfortable, and, being slightly larger at the back, accommodated five people comfortably. However, it had not a single pocket or recess in which to stow wraps and sundries, and the front seats, minus comfortable side doors, were draughty in the winter time. After purchase an excellent folding wind screen and hood were fitted by Melhuish, of Camden Town, N., which have given great satisfaction.

The greatly improved gate change was altogether delightful, but changing down needed careful manipulation, concerning which specific instructions might have been given by the makers. The method of changing which we are about to describe will sound complicated, but it is in reality quite simple, and merely a means of enabling the driver to change from third to second or second to first without a sound. The driver must first depress the clutch pedal, then move the gear lever into the neutral position, let the clutch in again and touch the accelerator lightly with the foot, declutch again, and the gears will engage with absolute silence. While on the subject of gearing, the ratios seem to have been particularly well chosen, as every ordinary hill could be comfortably negotiated on top speed, and yet a very good pace could be maintained on open roads. But on one occasion, on one of the best known passes into Italy, the second speed was found to be too high and the low speed too low. Since this happy state of affairs lasted for over sixteen miles, it impressed upon the writer the desirability of a four-speed gear box on a car this power, not to get extra speed on the level, but to allow the gap between the three speeds to be reduced considerably. A fourth speed would have made the car perfect in this respect.

In the early part of the year some little trouble was experienced with the radiator fitted, which was inefficient, and allowed the water to boil at times. This, however, was remedied, as it was replaced by the well-known Zimmermann radiator which the Wolseley Co. now fit to all their smaller cars. All trouble with the water instantly vanished, and not a trace of the boiling ever returned, save one gentle simmer near the summit of the long pass referred to above. In a word, the thermo-syphon circulation as now carried out is perfectly satisfactory.

The car under review was fitted with the Bosch dual magneto ignition system, which of course necessitates fitting an advance spark lever, and the fact that the timing of the spark was variable allowed the car to travel three or four miles an hour faster than was the case with our 1908 model, on which the firing point was fixed. For the Bosch dual ignition we have nothing but praise, as not a moment's trouble was experienced with it.

The engine and carburetter were even better than in the old car, but when .760 spirit was used the engine was often hard to start from cold, and needed an injection of petrol in the morning. In actual working the carburetter was as good as could be desired.

One day, under the unofficial observation of a prominent official of the Royal Automobile Club, the car was started from standstill on top speed, and, when once under way, was taken round a square block of buildings at so low a pace that the Jones speedometer did not register, while the R.A.C. official watched that the driver's feet did not trespass on the clutch pedal. Every cylinder fired with absolute regularity, and on the accelerator pedal being suddenly pressed the car shot away with perfect smoothness and regularity. One often hears of this being done in tests of special carburetters, but the fact that it could be and was done with a standard car and carburetter speaks volumes for those responsible for the adjustment and manufacture of both.

As regards actual running, the car behaved as nearly perfectly as a reasonable person could wish. Suspended on long well-balanced springs, improved as to the rear by Pyatt's "Simply" shock absorbers, the riding was delightful, and it is interesting to note that, though the car was cruelly overloaded at times, they gave absolutely no trouble. The engine and transmission were wonderfully silent, and kept so, while the whole car, even after eight months' very hard work, was devoid of all unpleasant rattles. In last year's car the big ends showed signs that they would need attention at the end of the summer, but the 1909 engine was found to be as sound as a bell, after having the cylinders removed for inspection.

Altogether while in our possession about 6,000 miles were traversed, of which 1,600 were in France, Savoy, and Northern Italy, during which time five adults and luggage were carried. The time has arrived when the car must be sold, as we wish to try a 1910 model, but we shall part with it with regret, and look back to it as one of the best cars for the man of moderate means which has ever been designed.

The Mayor of Arundel (Mr. J. N. Hare)—may his power increase!—has publicly expressed his disapproval of the trapping of motorists. Four cases came before the borough bench on Monday last week of exceeding the speed limit over a measured distance at Angmering, and the defendants were fined £5 10s. each and costs. The Mayor said he did not agree with the decision, as he thought convictions should only be registered for driving to the public danger, and from his seat on the bench he exclaimed, "The fines are too excessive."

The Concentric Pilot Valve.

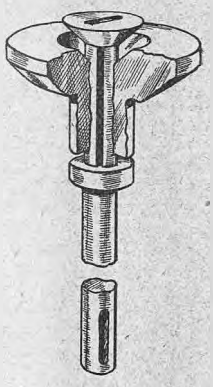
Comparative Tests Required.

AN invention aiming primarily at increased engine efficiency has been submitted to us for examination by Messrs. J. C. Lyell and Co., Ltd., 55, Victoria Street, Westminster, S.W. A sketch of the device accompanies this description.

The Concentric Pilot Valve is designed to take the place of the usual poppet valve, more especially on the exhaust side, as fitted to internal combustion engines. In the sketch it will be seen that the valve consists in reality of two valves, one within the other, that of smaller diameter being directly connected with the valve stem. The larger "mushroom" is lifted from its seating, after the small one has received some movement, by a collar fixed at a suitable point on the valve stem. The latter is deeply grooved above this collar, with the effect that when the smaller or pilot valve is first opened, some of the exhaust gases—then at high pressure in the cylinder—escape by way of these grooves or passages. The lift of the valve stem, by way of cam and tappet, continued beyond a certain point opens the larger or main valve, when the remaining gases escape in the usual way.

The designer of this concentric pilot valve claims that by reason of the smaller valve, with its smaller area exposed to the interior of the cylinder, opening at a time when the pressure of the exhaust gases in the cylinder is anything from 40 to 120 lbs. per square inch, and the fact that the larger valve does not open until this pressure is considerably reduced, increased power and efficiency of the engine are the result.

The claim that lifting the smaller area against high pressures results in increased efficiency is, of course, reasonable, but only when one takes no other point into consideration. The merits or demerits of the device can only be decided upon by a brake test on an engine fitted with these valves and another similar test of the same engine with ordinary poppet valves. We may be wrong, but we are inclined to the opinion that the inventor's theory would not be altogether maintained in practice.



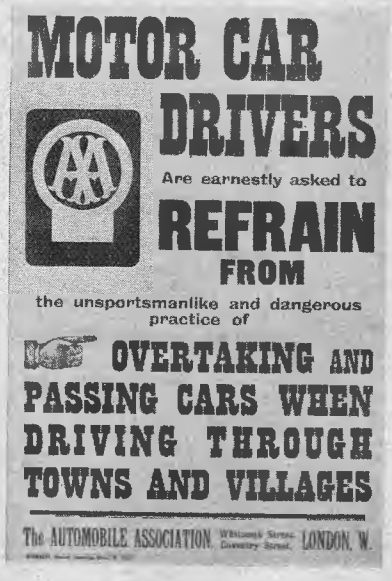
Even, however, if power were increased there are other possibilities of derangement which would require lengthy use of the device to dispose of or confirm. One of these possibilities is whether or not the grooves or passages referred to would be choked by deposit due to over-lubrication of the engine.

We are hoping to receive results of comparative tests of this and the ordinary type valves in the near future, and will publish any particulars which may be available.

We may mention that among other advantages claimed for this valve are: less noise from valves and exhaust, less need of grinding in, and longer life.

Another Poster.

The Automobile Association is circulating the poster given herewith for exhibition by the leading repairers and hotel garages, throughout the country.



The investigation of many complaints of improper driving by the A.C. Committee of Public Safety has shown them that much trouble and ill-feeling have been occasioned by bad drivers thoughtlessly overtaking and passing other cars in narrow village streets as they would do quite properly on the open road. The committee are issuing this poster with a view to persuade motorists to refrain from a practice which causes annoyance to the general public besides being productive of public danger and to the occupants of the cars concerned.

The committee will cordially welcome the assistance of all motorists in distributing these posters, copies of which may be had on application to the secretary, Automobile Association, Whitcomb Street, Coventry Street, London, W.

Contrasts in Justice.

At the Chichester Police Court recently, a case was heard in which the driver of a cart was summoned for driving on the wrong side of the road. The evidence for the prosecution was that defendant, driving on the right-hand side of the road, ran into another cart, breaking both shafts and damaging the wheel and the body. Both occupants of the cart with which he collided were thrown out. The defendant pleaded guilty, and the report significantly concludes: "Defendant, who had two sailors with him, had been drinking." Fined 10s. and 16s. 6d. costs.

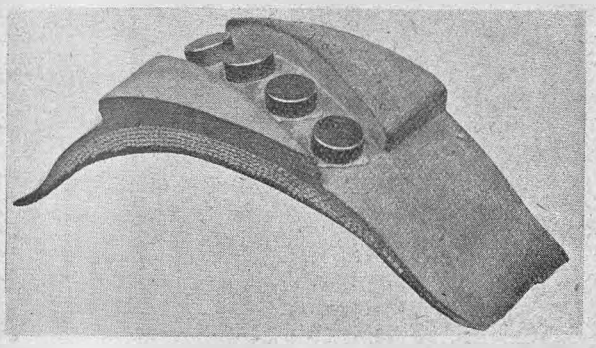
At the same court, on the same day, several motorists were summoned for exceeding the speed limit by a few miles an hour, and were each fined £2 and costs. It is apparently less serious, even in the eyes of such a fair-minded bench of magistrates as those sitting at Chichester, to do serious damage by recklessly driving a horse and cart than it is to commit a technical breach of the law by driving a motor car at twenty-five miles an hour, where neither danger nor inconvenience is caused to anyone.

Referring to these proceedings, Mr. Stenson Cooke, the secretary of the A.A., writes: "It is sometimes said that the motor car is far more dangerous than the horse vehicle. Our records show that this is not so, and I may mention that during the first three weeks of November no less than twenty fatalities and seventy-four cases of personal injury in connection with horsed vehicles are reported. These figures are compiled from press cuttings, and are necessarily incomplete, as a large number of horse accidents are not reported. It is surely time that drivers of motor cars and of other vehicles were treated on a common basis, and that the fines imposed on each should bear some relation to the nature of the offence."

The ROM Non-skid Tyre.

A Combination of Steel Studs and Rubber Flutes.

UPON examination of the accompanying illustrations it will, we think, be fully admitted that considerable thought and care has been given to the design of the ROM non-skid tyre. It will be seen that in the tread proper the crosswise slots are made across the cover at an angle of about thirty degrees, and are divided from each other by shoulders



of rubber standing just over ¼in. proud of the bed of the slot and necessarily running across the tread at the same angle. On the centre line of the slot are set three or more hardened cheese-headed steel studs standing up to about $\frac{1}{32}$in. below the level of the diagonal shoulders or strips. It will be realised, then, that in lieu of digging the depths of their heads into the road before the bulk of the surface of the tread of the tyre can take a bearing, the load is first carried on the rubber portions of the tread themselves, and that the cheese-headed steel studs only come into gripping action when the rubber has been sufficiently displaced by side stress to permit of this. Therefore, there is no constant wear on the studs, and the road itself is saved from the punishment accruing from the usual steel-studded tread, where the studs stand proud of the whole surface of the cover. Again, the diagonal setting of the slots, ridges, and lines of studs exerts a distinct and independent non-skidding effect, for in moving laterally the diagonal walls of the ridges exert a pressure against the road surfaces sufficient in itself to prevent mishap.

As shown in the complete section, it will be seen that the casing is built up on moulds in the usual way, the canvas employed being of the finest obtainable quality. The tread is made separately from the cover, the cheese-headed steel studs being fitted to the band when in a semi-vulcanised state, after which the tread is fitted upon the casing and the whole vulcanised together under hydraulic pressure, which ensures great cut-resisting qualities. Quatre-foil washers are placed beneath the stud heads as shown, as they have been found to limit the movement of the studs and so remove the chief cause of their pulling out. The tyre and treads are made and sold by the ROM Tyre and Rubber Co., Ltd., 31, Brooke Street, Holborn, E.C.

In the King's Bench Division of the High Court on Tuesday, a special jury found for Lord Curzon in regard to both claim and counter-claim in the action brought against him by French's Garage to recover damages from him for the results of a motor car accident. Negligence was alleged on both sides, the suggestion on the part of the plaintiffs being that the powerful actylene headlights on Lord Curzon's car were a source of danger to the public. The damages awarded were £100 for personal injuries suffered by the defendant and £155 for damage to his car, the absurd plea that good headlights were a danger being very properly brushed aside.

International Conference of Automobile Clubs.

An International Conference of recognised automobile clubs was held at the headquarters of the Automobile Club of France on Tuesday. It was decided that all short-distance records must in future be timed by instruments such as the automatic electric chronograph at Brooklands. The records which have already been made according to the latter instrument will also be officially recognised. It was decided to buy an electric timing apparatus for renting to provincial clubs. The Automobile Club of America presented a scheme for stock car races, abolishing the need for building special racing cars, but the proposal was received too late for consideration. With regard to touring, each club in the Federation is to present a scheme for an international triptych by February 1st and to use its influence with the Home Governments. The effect of such an arrangement, if it be accepted, will be that motorists will be able to go from one country to another without the usual formalities. A committee was appointed to consider the question of the relation between the National Automobile and Aero Clubs. The British delegates were Colonel H. C. L. Holden and Major Lindsay Lloyd.

Dignity and Impudence.

During the recent boisterous weather a sailing barge with 150 tons of cargo got foul of Sir Cuthbert Quilter's floating bridge at the mouth of the River Deben in Suffolk. Mr. C. R. Garrard's motor launch *Barbara* was moored close by, and the skipper, Arthur Newson, happening to be aboard, shouted to the barge, "You'd better have a tow up, skipper." "I would if I could; but what with?" "Why with this!" came from the *Barbara*.

Twenty minutes later the party were making over six knots, and the procession reached Woodbridge (twelve miles) in 1h. 51m. from the start.

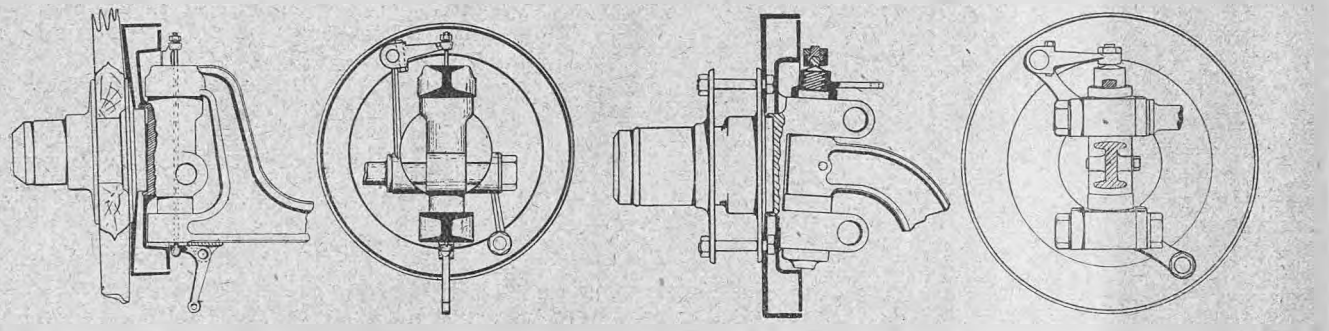
"Well," remarked the man on the barge, "that's the dandiest craft I've struck yet."

On another occasion the little launch saved the situation by towing a barge loaded with 140 tons of coal to Woodbridge against a foul wind.

Front Wheel Braking.

The System applied on Two Types of Axle.

THE two drawings we give are those of the front axle of two well-known makes of car. They are interesting, because they show how easily a well-designed front axle can be adapted to the peculiar requirements of front wheel braking. The brake is, of course, the Allen-Liversidge and the adaptive design Mr. P. L. Renouf's. It is hardly necessary to explain the drawings, but we may point out that in the case of the jaw axle the fixed disc which acts as a cover to the brake and also as a foundation for the brake pins is secured in rather a novel way. The eye through which the steering arms are bolted to the steering socket is used as a mooring, to which the brake anchorage is fixed. With the jaw stub type the conversion is even better, as on the right-hand side the steering head or socket has two eyes, one for the steering arm and the other for the cross coupling rod arm, so that two fittings are provided for the brake plate. By using the same head on the opposite side the same rigid foundation is secured. Everything else is explained by the drawings, though we may point out that the drawing of the jaw stub steering shows that there is no necessity, when such an arrangement is inconvenient, to bore through the steering pin.



Pneumatic Springs.

On Wednesday Mr. Archibald Sharp read a paper before the Institution of Automobile Engineers. This was of particular interest, as in the main it dealt with a pneumatic spring device of the author's, and therefore it gave the results of a number of practical trials and experiments. In summing up the strong points of air springs, emphasis was given to the fact that the air spring has a much flatter road compression curve than a steel spring, and therefore the downward force exerted in keeping the tyre on the ground after it has surmounted an obstacle is greater than with steel springs. As the tyre is kept more closely to the ground there is less wear and tear; that is to say, as a spring the air spring gives the effect of a steel spring of extraordinary suppleness, which would be impossible to use in ordinary practice without a more or less elaborate system of spring checks, and on account of its flatter road compression curve it saves the tyres and axles, and therefore it should be possible to use smaller and lighter tyres without reducing durability. The objections are complication and the fact that to get the best results some adjustment of air pressure may be necessary from time to time. These, however, are troubles which could soon be surmounted, and will no doubt be surmounted in the near future, if, indeed, they are worth calling troubles at all.

Prince Henry Trophy.

The route, programme, and dates for the 1910 Prince Henry Trophy event in Germany have been drawn up as follows: June 1st—Assembly of the competing cars, Berlin. 2nd—Berlin to Brunswick; first speed test. 3rd—Brunswick to Cassel. 4th—Cassel to Rothenburg. 5th—Day's rest at Rothenburg. 6th—Rothenburg to Strassburg. 7th—Strassburg to Coblentz. 8th—Coblentz to Homburg; second speed test. There is, however, an agitation on foot amongst some of the competitors in previous contests to get the "rest day" abolished. The second speed test is fixed to take place between Limburg and Weilburg on the Taunus Circuit. Entries close on April 1st at single fees (400 marks per car) and on May 1st at double fees. Among the conditions are the following: A re-weighing of cars after each speed test; a limit of the fuel used to a maximum specific gravity of .680; a limit of the diameter of the front aperture of the headlights to a minimum of 100 mm.

During the interval between the dissolution of the present Parliament and the election of the next, the petrol importers have decided to continue to pay the tax, as it is practically certain that it will be enforced whatever Government is returned.

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.

AXLE DESIGN.

[15012.]—I have noticed in *The Autocar* recently some references to arched back axles, their chief claim to favour being that they enable the back wheels to be splayed, *e.g.*, to lean outwards at the top. Some people seem to think this is an excellent feature and makes for strength. They are quite wrong, and the feature is quite out of place with the present type of wheel. The motor car wheel was evolved from the carriage wheel, I take it; and here is the difference.

Carriage wheels are "dished." Why? For strength.

Carriage axles are arched. Why? So that the spokes doing work, *i.e.*, those between the axle and the point of contact of tyre and ground, may be at right angles to the ground to eliminate side strains.

Motor car wheels are not "dished." Why? Because it is not necessary for strength owing to slightly different methods of construction. Therefore if an arched axle be fitted, the spokes supporting the weight or doing work are not at right angles to the ground. Therefore there must be a side strain on them, and consequently on part of the tyre. The tyres will get worn more on one side than on the other, which is undesirable.

Another disadvantage is that it reduces the track between the wheels, thus increasing the chances of overturning when rounding corners.

The bicycle wheel is the only wheel on the road which runs under approximately ideal conditions. Theoretically, the weight is always pressing through a line drawn through the centre of the hub and the point of contact of tyre and ground. Now it is impossible to make a motor car with wheels which are capable of being moved to fulfil this condition, so most manufacturers took the position in which the wheels should be when the car is at rest or travelling in a straight line, as a compromise, and they were right.

"Now," you say, "what about front wheels? Practically every car on the market has its front wheels splayed."

This is merely a crude way of getting over a difficulty which has, I think, been faced by only one firm. A correctly designed front axle should have the centre line of the wheel and that of the steering swivel in the same line. Front wheels are splayed so that these two centre lines may meet or come very close to one another at the point where the tyre touches the ground, and thus secure easy steering. I am surprised that no British firms have taken the trouble to correctly construct a front axle. It is quite simple.

H. W. LOCKE.

AN ACCIDENT.

[15013.]—I see in *The Autocar* of December 4th (page 947) you give an account of my unfortunate accident. I do not know who gave you the account, but he evidently did not know anything about the witnesses at the inquest or what they said. Not one of them made any suggestion that I was driving so dangerously that I could not stop the car. Every witness said I was going at a very moderate pace. I consider that a statement like this is very unjust to me.

G. R. LEYLAND.

WANTED, A SPORTING CAR.

[15014.]—Occasionally, when driving in a taxi, I have realised what cars will really stand in the way of ill-usage, and it seems to me unnecessary that every car should be built strong enough to stand so much careless and brutal handling.

Surely some firm can see its way to make a light sporting car with fairly powerful engine, of which the makers do not guarantee the chassis, but which they are prepared to make for sale to careful and sympathetic owners who drive themselves.

Such a car as the new 12 h.p. Humber, with its comfortable body and its 90 by 100 engine, if fitted with the same firm's 16 h.p. engine of 1909, cylinders 90 by 140, would become a charming car to drive. There would be none of that horrid lagging, which one experiences with the average car, when with a fairly heavy load one has to slow down for traffic on a slope. The extra horse-power would enable one to accelerate quickly anywhere, and convert the car into a really sporting mount, like the Tourist Trophy and Four Inch racing cars.

Most people are content with a speed of thirty to thirty-five miles per hour, but there are not so many cars that will quickly rise to this speed on any but the straightest and flattest of roads.

I for one would be quite willing to do without a maker's guarantee in order to obtain a really enjoyable car which would be worth treating with gentleness and care.

H 2061.

CHAUFFEURS' QUALIFICATIONS.

[15015.]—I notice in your issue of December 4th, page 928, a paragraph having reference to a correspondent requiring a driver who is also to act as sexton, also gardener, and look after the church. Will you allow me to quote a similar case, but if anything a point worse. On advertising for a chauffeur's berth, I received a letter from a gentleman who stated that he required a quiet, steady man, careful driver, willing to be useful in house and garden in spare time. He must have good manners, and be a good cleaner. He also states, "My drivers have found their own coat, peaked cap, and gloves," and he offers wages to the extent of 22s. weekly (live out) with the promise of a rise (amount not stated) next April if he is satisfied with the man. Of course, comment is needless. As five out of six chauffeurs' situations nowadays seem to be open only to men who can also claim to be either gardener, coachman, groom, valet, carpenter, "housemaid," or handy man, I am wondering whether motoring in my case would not be far better left alone, as I cannot lay claim to any of the above trades.

A DISGUSTED CHAUFFEUR.

ROAD METALLING.

[15016.]—As you have thought fit to send a proof of my letter [15006] regarding road metalling in Dorset on to the county surveyor, and to publish at the same time Mr. Fletcher's comments on my letter, I must ask for space to reply to Mr. Fletcher.

Firstly, I would remind Mr. Fletcher that self-defence, whatever else it may be, is not contemptible, and the paying of our licences in what county we choose is a motorist's self-defence. I have no doubt that Mr. Fletcher is very faithful—faithful, however, to the road-making of twenty or thirty years ago before the advent of the pneumatic tyre, and not up to date in his methods. I cannot refute that a memorandum such as you quote from may have been sent round by Mr. Fletcher to the road foremen, but I do distinctly declare that if it has been sent round not the slightest notice is paid to it up to now, and it is Mr. Fletcher's duty, I should say, to see that his instructions are carried out.

I have never suggested that I know more about road repairs than an official like Mr. Fletcher, but I do notice the great difference in the manner in which the Dorset roads are mended from that in which the roads of other and more up to date counties are repaired, and I cannot let Mr. Fletcher's claim to the gratitude of motorists pass unchallenged. Might I now state two facts that have come under my notice within the last week?

This day week (Friday, November 26th) I was motoring from Bournemouth to Bath between 9 and 10 a.m., and before reaching Blandford, at a village called Spettisbury, came across a considerable length of road laid right across with broken field flints. Not only had no attempt been made to roll these in, but there was no roller in evidence whatever. Furthermore, a large road tractor, owned by Burden, of Poole, had actually broken down in endeavouring to get across this obstruction. Whilst I was delayed, three carts came up with further loads of flints to deposit, and I leave you to judge how my tyres were cut about when I tell you that we were driving a heavy car weighing nearly two tons. About a week before this I passed over the same road with a light car, and cut a new set of Dunlops very badly.

Correspondence.

On Wednesday coming back from Bridport, at 4 p.m., on one of the broadest roads in Dorsetshire, between the Lytchett railway crossing and the Causeway at the top of Poole Harbour, a stretch of road was covered with broken metal right across, heaps of stones in most places being even unraked over.

I would, therefore, particularly draw your attention to the fact that in the first case I instanced the time was early morning. No roller had rolled the stones either overnight or during the morning. In the second case, the road was broad enough to be done a third even at a time, but no attempt had been made to do it half at a time. Further, that the time was 4 p.m., or sunset, when, according to Mr. Fletcher's orders, road metal should have been properly rolled in.

These cases are but typical of others that occur constantly to anyone motoring during the road-mending season on the Dorset roads, and I contend they absolutely bear out the statements in my previous letter.

I can only hope and trust that the attention that has been drawn to the roads by my letters and telegram to Mr. Fletcher, and by this correspondence, may result in an improvement which one may be able to describe as "better late than never." ALAN BRADBURY.

THE RENARD TRAIN AND ROAD WEAR.

[15017.]—On page 909 of your issue of November 27th, in mentioning a proposal to run a dozen Renard road trains for the conveyance of Kent fruit produce to London, you state that this will hardly improve the roads. If you mean that traffic of any kind must damage the road surface, I agree with you, but as the chief object of the Renard system is by reducing axle weight to minimise road damage, and that wherever the trains have been run constantly this has been abundantly proved to be a well-founded claim, your remark is calculated to convey a wrong impression, which I am sure you will be glad to give me an opportunity of contradicting.

You will find that this important fruit traffic which must be carried on the roads can be carried on Renard trains with less damage to the road surface than by any other means. The whole question is one of maximum axle weight. At present much of the work is done by deservedly successful motor lorries. In their case the maximum axle weight allowed by the Local Government Board regulations is 784 lbs. per inch of tyre width. In the Renard trains this figure has been reduced to one-half, with the result that wherever these trains have been used a given nett tonnage carried has produced less than one-half the road wear usually observable when the traffic is carried in the ordinary manner, whether by horse-drawn or by mechanically-propelled vehicles.

R. E. CROMPTON.

FRONT WHEEL BRAKING.

[15018.]—One point in connection with the above subject which I have never seen debated in print or mentioned in conversation is "what effect front wheel braking will have on tyres."

It has been usual to use smaller tyres on front wheels of certain makes of cars of higher horse-power. My opinion is that these lighter tyres will not stand serious braking effect, especially in certain positions, and it therefore appears as though equal tyres will have in future to be fitted.

JNO. H. HALL.

MOTOR CAR BODIES.

[15019.]—We have heard a great deal lately as to the cost of motoring, and I certainly think some exaggerated ideas have been circulated which have deterred men from purchasing cars, or, at any rate, large ones. For their guidance I would like to say that I own, manage, and drive entirely by myself, a six-cylinder car, although I have no mechanical knowledge. I can assure owners that if one dispenses with the services of a chauffeur one's expenses are very much reduced in every way. It stands to reason that the owner will drive the car more considerately than a paid driver, and this greatly tells in upkeep, also if one keeps within, say, twenty-five miles an hour, the wear and tear on tyres are very much less.

There is, however, one point I want to refer to, and that is that the owner-driver is obliged to put up with the ordinary weather protection afforded to chauffeurs, and I think some better provision might be made in landaulet bodies, giving the gentleman driving his own car a better cover in case of rain, also the window behind him should easily lift up and down so that he may form one of the party inside—in fact, the body should be so constructed as to take away the "man on the box seat" appearance.

If there are such bodies I have never yet come across them. The owner-driver wants one car to do for all purposes and in all kinds of weather. It must therefore close up effectually for rain and open for summer sunshine, and the gentleman-driver must not be made to look like a chauffeur. Can any of your readers in the same position help me to get what I want? STANDARD.

BODYWORK ON SMALL CARS.

[15020.]—May I be allowed to sympathise with "Country Doctor" with regard to the above, but I would advise him "to join the noble army of motorists at once" without waiting for the next show, as his difficulties would only be increased. There are at present on the market many cars of his description. My own is a 10 h.p. Star two-seater, with high side doors (level with the dash, which is a wide one) and leather hood and screen. The mudguards are well shaped with shields on inner side.

If "Country Doctor" has not seen a Star car with special doctor's victoria body, I should advise him to ask the company to forward him a photograph and details; but should further information of the car be desired, then I will be only too glad to let "Country Doctor" have what knowledge he wants. ANOTHER COUNTRY DOCTOR.

THE DEVELOPMENT OF THE TORPEDO BODY.

[15021.]—In connection with the above discussion, it might be of interest to state that in the Prince Henry Trophy competition of 1908 there were two or three bodies precisely the same as the present torpedo.

In *The Autocar* of June 20th, 1908, and the *Automotor Journal* of June 20th and 27th of the same year, will be found bodies which are identical with those which Captain Masui "invented" in December, 1908. E. W. W.

BODYWORK AT OLYMPIA.—THE HEWITT ENGINE.

[15022.]—With reference to letter No. 15001, I should like to draw attention to the following, which I think may be of interest, having regard to the paragraph headed "Uncomfortable Seats."

On the Davy Engineering Co.'s stand, one which no doubt escaped his notice, there were two exhibits which, to my mind, were among the most interesting and novel at the show. One of these exhibits was such a body as "S. T. C." describes. The body was, I think, of torpedo type, and both the front seats were adjustable, not only fore and aft, but also to any desired height, and could be canted to any angle. The seats, as "S. C. T." suggests, were an entirely separate unit from the remainder of the body. I have, unfortunately, forgotten the name of the builders of this body, but I believe they were a Southport firm.

The other exhibit, although not connected with "S.T.C.'s" letter, is worthy of mention. I refer to the Hewitt piston valve engine, which was mounted in the same chassis. I was particularly struck with this interesting departure from the conventional, as it is one of which I feel sure we shall hear a great deal more in the near future, and I think Messrs. Crowdy, Ltd., who have selected this engine for their new car, have been wise in securing an innovation which promises to have a great bearing on the future design of the petrol engine. I might mention that I am not in any way connected with either of these firms.

E. R. HARPER.

MOTOR REPAIRERS' RESPONSIBILITY.

[15023.]—"Customers' cars are only driven by the company's staff at customers' own risk and responsibility."

The above notice appears in every motor firm's estimates and accounts, and it has often occurred to me whether the position they take up with regard to customers' cars is a legal and justifiable position.

Although a reader of your journal now for many years past, I have never yet seen this question discussed in the correspondence, and it seems to me that this is one which needs correction on the part of motor companies. On what grounds any company or firm can repudiate liability for their workmen's carelessness or want of attention I cannot understand. If I send jewellery to my jeweller to be repaired and put in order, I naturally hold him responsible for this so long as it remains in his possession, and it is quite easy to multiply dozens of cases where, in dealing with a firm, one naturally holds them responsible for one's possessions whilst in their care.

The question of motor car firms has been rather pointedly brought to my notice recently, for I have had an accident to my car, and one of the conditions under which the estimate

was submitted was the heading in this letter. The company in which I was insured objected to accept the estimate under these conditions, and, as I think, very rightly said: "The company should be held responsible for any damage or injury to the car whilst in their possession."

I should like to know the views of some of the legal motorists on this point, for it seems to me an absolutely arbitrary suggestion that, because you place your car in the hands of a motor car company for repair or for work, they decline all responsibility whilst the car is in their possession.

E. E.

TYRE EXPERIENCES.

[15024.]—Having used Palmer Cord tyres for five years, I think my experiences might be of interest to others who wish to use tyres which will give them a maximum of running with a minimum of worry.

I have carefully kept notes of some few of my covers, without selecting special ones. I find that out of Palmer Cord covers, 35in. × 5in., my average mileage has been 7,513, worn out without retreading. Out of one cover, not included in the average, I obtained 15,000 miles! Were it not for one which burst at 4,500, the average would be considerably higher. Out of tyres used new and retreaded once, my average has been 11,313 miles. During those five years I have had only three punctures, all on nearly worn-out tyres, and this though the car has been almost daily on the road, has done between 60,000 and 70,000 miles, and weighs 30 cwts.

I have come across users who say they cannot get any satisfaction out of these tyres; and my own experience was to the same effect, till we commenced keeping up pressure to 90 lbs., and testing and pumping them up with absolute regularity weekly, using, of course, a pump with pressure gauge. In snowy weather this form of cover is particularly convenient, owing to the fact that non-skid chains can be used over their surface without hurt.

I have never come across anyone with a better, or even equally good, record in tyre usage, and have purchased a complete new set for a new car I have acquired, and expect for a year to have scarcely to think about them. I would advise anyone who has had a less satisfactory experience to put on the largest his wheels will take, and to keep them pumped up and examined regularly every week.

I need scarcely say that I have no connection whatever with the Palmer Co. save that of courteous usage.

F. MARSDEN BURNETT, M.D.

THE HANTS COUNTY COUNCIL.

[15025.]—With reference to the most regrettable motor accident to the Hon. Ian A. Gordon, I am instructed to inform you that as long ago as July 29th last there was forwarded to the Hampshire County Council a resolution of the Hampshire Automobile Club on the subject of road signs, in the following words: "That better facilities be arranged for giving notice to motorists of dangerous places." The resolution was accompanied by an offer to consider the advisability of assisting in the cost.

The communication was referred to a committee of the County Council. After waiting four months for some result of their efforts, the club committee, on November 27th, passed the following resolution: "That the club leave the responsibility of erecting warning notices to the proper authorities, and, in view of the attitude of the County Council thereto, abandon the idea of taking any financial part therein until the legal obligations under Section 10 (2) of the Motor Car Act are recognised."

As to the place in question, there can be no doubt whatever but that a warning notice ought to be erected.

CHAS. E. GODWIN, Hon. Sec.

[15026.]—Referring to the serious motor accident which occurred recently near Winchester, of which Mr. Gordon, son of Lord Aberdeen, was the victim, I beg to say that the attention of the Hants County Council was called by one of its members some year or two ago to the serious responsibility which rested on that body owing to its neglect to erect warning posts at dangerous places, and the Council was warned that if a fatal accident occurred the sin of blood-guiltiness would rest on the heads of the members. Nothing, however, was done.

Surely public opinion will now compel the Hants County Council to do its duty. While Hampshire motorists do object to their county being styled a "black county," as it has been designated in your columns, on account of the harsh treatment experienced by motorists at the hands of the police, the truth being that the methods of the Hampshire police are perfectly fair, we Hampshire motorists do feel that such a designation of the county is not an unfair one if it is founded on the absence of a proper number of danger signals. The writer has driven motor cars for ten years.

H. STRATTON BATES, Colonel, J.P., and C.C.

THE AMANS PNEUMO-SUSPENSION.

[15027.]—Your favourable notice of this device in your last issue enhances the interest with which I examined it at Olympia, and I hope that those who have had practical experience of its capabilities in enabling solid tyres to be used on ordinary pleasure motor vehicles will give your readers the benefit of their views.

A really effective device for enabling motorists to dispense with pneumatic tyres and their attendant troubles—the only serious drawback to motoring in these days—should have a great future before it, but it sounds too good to be true. One's mouth waters when one contemplates the possibility of taking the road with no fear of punctures, no cumbersome Stepney or spare wheel, no pump, and the assurance that one's tyres are good for as many thousands of miles as one's present ones are for hundreds.

I, for one, am deferring the purchase of a new car until the merits or demerits of this invention have been practically demonstrated, and probably other motorists are in the same situation.

I told the stall attendant at Olympia that in a case of this sort "feeling is believing," and that if the makers really wanted to push this device they must send their cars round the country so that every motorist could have a chance of comparing its effectiveness over such bits of ridge and furrow as nearly every locality possesses.

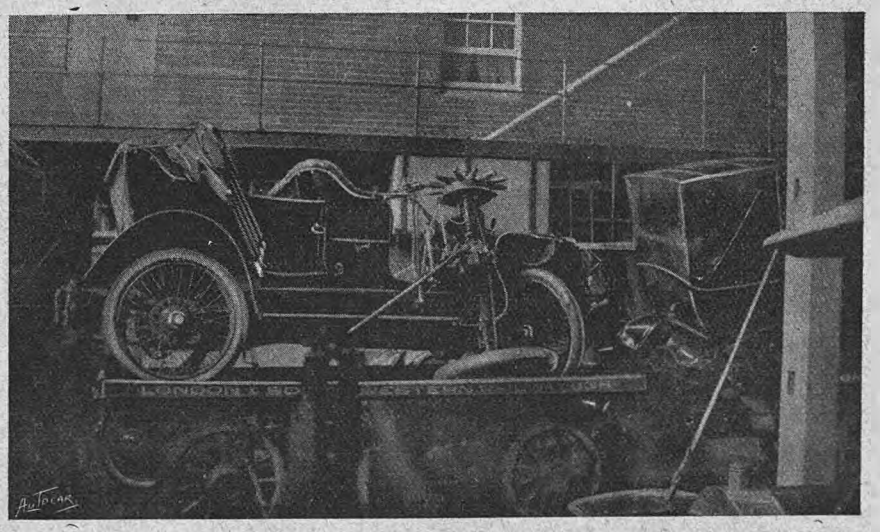
ENGINEER.

CHANGING A WHEEL.

[15028.]—From Mr. Lafone's remarks in his article, "On the Track," in last week's issue of *The Autocar* (page 929), it appears that I have unwittingly done the Rudge-Whitworth Co. an injustice.

It is possible that in the course of answering many questions put to me when very busy and thinking of other things on the track, I may have stated that six minutes were lost owing to the change of tyre.

I find that this is not correct, but the six minutes were in my head at the time, as the lap in which the tyre was changed took the Thames car very nearly six minutes to complete.



The Hon. Ian A. Gordon's car after the recent accident.

Correspondence.

The actual times, omitting fractions of seconds, are as follows: Prior to the stop, Mr. Smith had been driving at a steady and extraordinarily uniform pace of 1m. 49s. per lap. The lap in which the change of tyre took place was accomplished in 5m. 51s. approximately, and immediately after this lap the Thames car again took up its steady running of about 1m. 49s. for the lap.

The actual loss of time, therefore, which the change of tyre involved was about 4m. 2s. It must not, however, be inferred from this that the whole of this time was occupied in changing the tyre, as it also includes the time taken to pull up, to start, and to get up speed to ninety-one miles per hour again.

As regards the actual time taken to change the tyre, I have no knowledge, as this work was done a long way from the timing box, and all I was aware of was that the car had pulled up for some reason or other.

F. LINDSAY LLOYD, Clerk of the Course.

MOTOR SPIRIT LICENCES—A GRIEVANCE.

[15029.]—I am in entire agreement with "J. H. H." [letter No. 14992], and I think the motor spirit dealers have also just cause of complaint in having to pay for what is known as the Inland Revenue (Spirit) Licence. It is true the fee for this licence only amounts to 5s. per annum; still, when they have already paid their local authority 5s. for a licence to sell motor spirit, it is unjust to compel them to pay another 5s. to the Chancellor of the Exchequer.

We have a number of very small dealers in benzoline, who pay us 5s. for a licence under the Petroleum Acts to sell benzoline for spirit lamps, but now these dealers are called upon by the Excise officers to pay this 5s. extra spirit tax, although the majority of them never sell a drop for motor cars. Rather than pay two licences, many of them have given up the sale. This is a very great hardship, especially as most of these are poor people. It is also a loss to the local authority.

INSPECTOR OF PETROLEUM.

TYRE PROBLEMS.

[15030.]—In support of Dr. Samways's theory, I send you the following:

Imagine an inflated tyre marked as face of a clock, and take sections of tyre at the hours. First—Jack up the wheel, then outward pressure in section at 12 o'clock is balanced by outward pressure at 6 o'clock, outward pressure at 1 o'clock by outward pressure at 7 o'clock, pressure at 11 o'clock by 5 o'clock, and so on all round. Second—Lower the wheel on to the ground, then outward pressure at 12 o'clock is no longer balanced by 6 o'clock, as the ground is pressing up the tyre at 6 o'clock, but 1 o'clock is still balanced by 7 o'clock, 11 o'clock by 5 o'clock, etc. Ergo, the pressure at 12 o'clock is the only unbalanced one, and is consequently supporting the wheel. Now let the wheel and tyre rest on an iron plate, put another iron plate on top of tyre at 12 o'clock, draw these plates together with screw clamps; then the flattened area at 6 o'clock will exceed the flat at 12 o'clock by an area depending on the weight supported by the wheel and the pressure in the tyre (not taking into account the weight of plate at 12 o'clock).

Example.—Weight supported by wheel = 5 cwts. = 560 lbs. Tyre pressure = 80 lbs. ∴ flat at 6 o'clock is 7 square inches greater than flat at 12 o'clock. If tyre pressure = 20 lbs., then flat at 6 o'clock will be 28 square inches greater than flat at 12 o'clock. Knowing the area of flat at 6 o'clock (wheel resting on ground in the ordinary way), and knowing weight supported by wheel, we can find tyre pressure; in fact, knowing any two of these quantities, we can find the third.

RED-ROCK.

[15031.]—I am surprised that Dr. D. W. Samways should have written such an unscientific letter as 14935, published in your issue for November 13th. The experiment, which he has taken so much pains to make and to describe, does not conclusively prove his case at all. The force which separated the two halves of his motor wheel was the expansion of the air pumped into the inner tube. This air pressure acts equally in all directions, and pushes the lower half of the wheel downwards as much as it pushes the upper half upwards. If he arranges his divided wheel so that the division is vertical instead of horizontal, he will find that one half of the wheel is pushed forward and the other backward with an equal force. Let me suggest an experiment which will clearly demonstrate whence the wheel derives its support. Imagine a motor wheel with the outer cover firmly attached to the rim, but with the inner tube divided into two equal parts by a rigid partition on each side, but with an opening in each partition which can be closed at will, from outside, in an airtight manner. Let the wheel be placed with that diameter horizontal which passes through the two partitions. Then the openings being patent, let the inner tube be pumped up to any convenient degree. It is obvious that the pressure on the upper half of the wheel, Dr. Samways's so-called lifting force, is unaffected by the patent partitions. Next let the openings be closed, the pressure in each half of the tube will be the same as before. Then let him slash the lower halt of the inner tube, and see how far the unaltered pressure in the upper half will keep the rim off the ground. But if the upper half be emptied of air the wheel will be supported by the lower half tube as well as ever. In truth, Dr. Samways's idea of the lower half of the outer cover being pulled up by the pressure on the upper half, is akin to the problem of how a man can lift himself off the ground by pulling on the seat of his own breeches.

R. D. MOTHERSOLE.

GIVING WARNING OF POLICE TRAPS.

[15032.]—I see that "Smith" [letter No. 15008] suggests laying a trail of confetti as a sign of a police trap. I may say that I have seen confetti for this purpose advertised by a well-known firm for some time, and have always wondered why the idea has not been taken up.

R. G. BURDER.

BARGAIN TYRES.

[15033.]—I read your article on "Bargain Tyres" in last week's issue, and think you do the honest dealer a serious injustice. There are, I know, a certain number of people in the trade who will sell anything in the shape of a tyre, and will retread covers that are not fit, and have frequently been rejected by other firms, but there are also dealers who will only supply that which they think is likely to turn out satisfactory and save the buyer money.

I frequently take in exchange new tyres of various makes, and am thereby enabled to offer them at low prices, which are bargains in the true sense of the word. Many people are open to buy good second-hand or retreaded covers for spares, etc.; they do not expect the same length of life as out of a brand new cover.

Although I sell without responsibility, I am always prepared to deal fairly with any customer who has made a purchase from me that has not turned out as it might have done.

I have recently taken up the sole agency for the British Isles for a certain tyre that is known well and used extensively on the Continent, particularly on taxicabs, this being its chief recommendation, and I am making special offers of trial covers to customers, preferring this form of advertisement to any track records, etc. I mention this because it is possible that many motorists after reading your article and then hearing of my offer will think I am trying to dispose of a quantity of "last year's" old stock that I have bought up cheaply.

I write this not solely in my own interests, but in the interests of many honest upright traders who are likely to have their business affected by your article.

I may mention that I make a particular rule of offering to send any tyre I have for sale on approval, enabling the buyer to examine or take expert advice upon same.

JAMES FOX.

[It was the unscrupulous tyre dealer and not the honest one that we criticised.—ED.]

DECLUTCHING *V.* AIR BRAKE.

[15034.]—I have noticed "M.I.Mech.E.'s" [14982] queries in your issue of November 27th, regarding the efficacy of engine compression as a brake.

That there is a certain amount of braking effect is undoubted; but at ordinary low speeds this is not much more than the retarding force one feels when "cranking" a car. But if the engine be rotated at very high speed (such as occurs when, say, the low gear is in and the clutch let in when the car is travelling) then the braking effect is enormous; but not because of the compression of the engine (whose effect is less as the speed increases), but because, first of all, of the vacuum in the induction pipe (throttle being closed); secondly, the back pressure in the muffler; and thirdly, the inertia of the reciprocating parts of the engine.

That the compression alone is not of much count can be established by observing a large horizontal gas engine after it is shut off, and seeing for what a long time it goes on and on compressing and expanding its charges.

The engine of a car becomes a much stronger brake if the compression taps be open—a fact that can be conclusively proved by anyone.

A. A.

SHORT MEASURE PETROL.

[15035.]—We have read with much interest the letter from the Anglo-American Oil Co., Ltd., which appeared in your issue of November 27th, under the heading of "Leaky Petrol Cans and Consequent Short Measure."

We notice, amongst other things, they state that "it is of no infrequent occurrence for cans to be received back with the bottom seams twisted out of shape and rent open, this being the result of the practice of opening the faucet of one can with the bottom edge of another."

We agree that the faucet (or stopper as we prefer to call it) is the chief cause of leaky cans and consequent short measure, which naturally gives great dissatisfaction, and we have overcome this difficulty by fitting a patent stopper which can be taken off instantly and easily with the fingers without the use of any levers or spanners, or the bottom edge of another can, and we can consequently "assure full measure." [This faucet is described and illustrated on page 981 of this issue.—ED.]

There are very few motorists who have not at some time or other found it difficult, if not impossible, to unscrew the ordinary stopper, even with levers or spanners, without assistance, and we feel sure the unquestionable advantages of our stopper will be greatly appreciated after once it has been tried. Only recently we received a letter from one of the best known motorists in England, who, after ordering some Mason spirit, adds, "By the way, I should like to purchase the can you left here, to use as my spare petrol can on my car. It is so greatly preferable to the ordinary can for handling by one's self by the roadside."

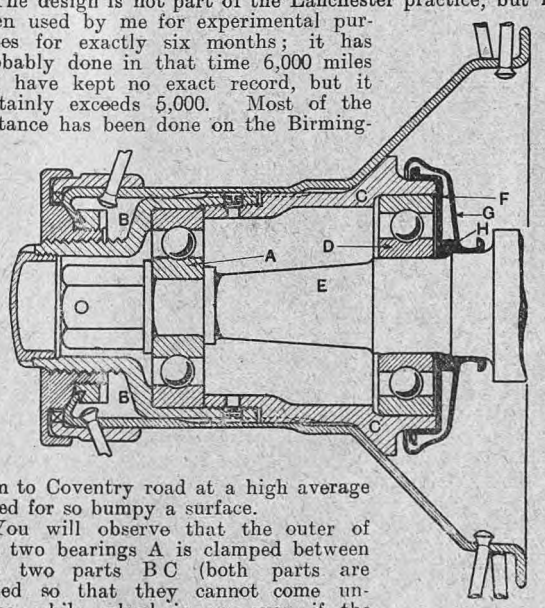
If any of your London and suburban readers would like to test our spirit and stopper we should be pleased to deliver direct to their address one or more cases (each case containing four two-gallon cans), provided they send us the name and address of the local agent from whom they usually obtain their supplies. The spirit will be charged at the ordinary rate, but we will make no charge for delivery, and will collect the empties also free of charge.

THE MASON MOTOR SPIRIT CO., LTD.

FRONT AXLE BEARINGS

[15036.]—I enclose a print of an arrangement of bearings that I have been trying on my Lanchester car, 28 h.p., six-cylinder. The weight of the front axle is 18 cwt. 2 qrs. 7 lbs., and the weight of the back axle is 17 cwt. 2 qrs. 21 lbs.; this is without driver, passengers, or luggage.

The design is not part of the Lanchester practice, but has been used by me for experimental purposes for exactly six months; it has probably done in that time 6,000 miles—I have kept no exact record, but it certainly exceeds 5,000. Most of the distance has been done on the Birmingham to Coventry road at a high average speed for so bumpy a surface.



You will observe that the outer of the two bearings A is clamped between the two parts B C (both parts are fluted so that they cannot come undone while wheel is on, even if the fitter leaves out the locking screws) of the inner hub, so that it is held rigidly against the possibility of its turning round. This bearing takes the end thrust in both directions, the other bearing D, the inner one, fitting tight into the inner hub, but floating on the non-rotating stub end E. On the hub end is forced a sort of cup F, which, of course, revolves with the hub, and on the axle is forced a somewhat similar cup G, which does not revolve, and between these two is a felt washer H, thus, even when the car is being washed, it is exceedingly difficult for any water to get into the bearings. In addition to this the bearings and the inner hub to start with were filled with Mobilubricant (Vacuum Oil Co.), and about 3 oz. was added by means of the Rudge-Whitworth grease pump each month, so that in addition to water being kept out grease has been kept in.

I examined the bearings very thoroughly one day last week, and was pleased to find that these precautions, which ensure the bearings running under better conditions than is usual, had had the desired effect. There was no perceptible shake in the bearings to begin with, and there is no perceptible shake in them now; this goes in confirmation of the belief that I have entertained for some time that the exclusion of water from bearings is far more important than anything else in connection with bearings, even than their size or the shape of the races. I have seen bearings with enormous races give trouble comparatively early because water has been allowed to get in, and have seen bearings of almost absurdly small proportions stand up simply because water has been kept out. There are two ways of keeping water out, one by preventing it coming in by more or less mechanical obstructions, the other by keeping the bearings full of grease. We have adopted in this experiment both precautions.

JOHN V. PUGH.

THE PNEUMATIC TYRE CELEBRATION.

[15037.]—I, like many others, received a circular from the Michelin Tyre Co., Ltd., stating why M. Michelin refused to attend the "Majority" celebration.

The Michelin Co. say there are four facts to be noted:

1. Who invented the pneumatic tyre? I am sure we all respect the memory of Thomson, but the meeting was not intended to celebrate an event that occurred sixty-four years ago, and it is generally admitted that Thomson's invention had no influence whatever on the founding of the tyre industry, although it would appear that numbers of experts and engineers remembered the invention.

2. I pass over this fact.

3. Who invented the detachable tyre? It is claimed that Edouard Michelin invented a detachable tyre in 1891. If I mistake not, this tyre was a combination of a beaded edge and wired-on cover.

On November 29th, 1890, Thomas Wilson Robertson patented a detachable tyre, and this tyre was made and fitted to a bicycle and ridden in February, 1891. This tyre was made and controlled by the Dunlop Co., and was the first detachable pneumatic tyre ever used on the road. A detachable tyre was patented on November 28th, 1890, but this tyre, I believe, was never made.

The Dunlop detachable tyre (otherwise called Welch) was used in competition in a road race from Dublin to Limerick on August 27th, 1892, and it was ridden by H. V. Binns. This was the first genuine satisfactory detachable pneumatic tyre. All the others, so far as I know, had some grave defect. The above race was won on a Seddon detachable tyre by B. Turner, but the Seddon tyre was not held on by endless wires. Mr. T. W. Murphy, of the *Irish Cyclist*, competed in the race, finishing third.

4. Who first applied pneumatic tyres to motors? The Dunlop Co. were the first to apply pneumatic tyres to heavy vehicles, but these tyres were hand made—held together with solution—and I am sure would not have stood on motor cars.

I am of opinion that France is justly entitled to the honour of having been the first to use pneumatic tyres on motors in a practical manner.

The Michelin Co. quote correctly from my letter, and in the communication referred to I quoted from the original prospectus issued by the Pneumatic Tyre and Booth's Cycle Agency—a document I took no part in drafting.

J. B. DUNLOP.

HOTEL AND OTHER GARAGES.

[15038.]—I was interested to read the letter [No. 14978] in *The Autocar* of the 27th ult. signed C. A. Brantsen. The hotel garage is not the only subject which requires attention at the hands of the motor organisations. Although my petrol tank would not hold so much I was recently refused a less quantity of petrol than two gallons when on tour with a tricar which had been garaged all night at the premises of the petrol dealer, who was also an officially appointed repairer to the M.U. The garage fee (about 1s.), was, of course, paid.

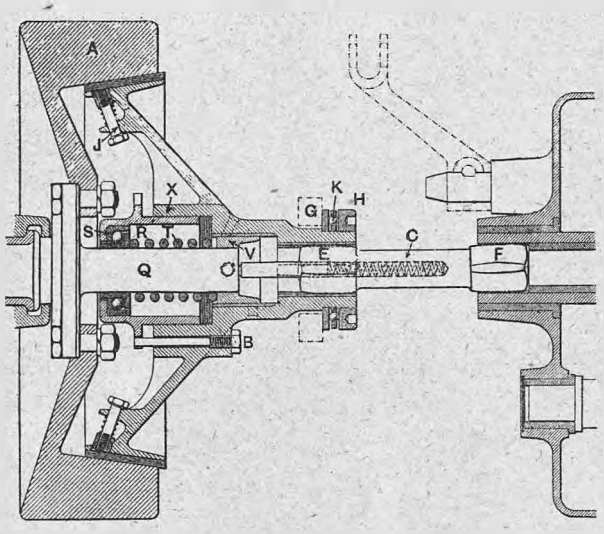
I wrote to the M.U. on the subject, and although my letters were courteously acknowledged, as far as I know the matter was allowed to drop, as I never received any definite explanation of the reason why I should have to cart about a cumbersome petrol tin on a small tricar, pay for the tin, and have the trouble of getting rid of it afterwards. Comparisons may be odious, but this objection to supply petrol in less quantities than two gallons is one that an organisation like the T.C.F. would not countenance for a single moment.

TRICARIST.

The 14-16 h.p. Darracq.

Some Details of the Clutch and Lubrication.

IN our issue of 30th October last we gave a summarised description of the above car, but, owing to lack of information at the moment, we failed to treat the clutch and the lubrication systems as fully as they deserved. Indeed, this was not possible without something in the shape of diagrammatic illustration, and this was not available at the moment. Now by fig. 1 we are able to give our readers a clear



Vertical section of 14-16 h.p. Darracq clutch.

A, flywheel
B, bolt securing clutch X to cup-shaped sleeve R
C, cardan flexible connection
E, front squared head of cardan piece
F, rear chamfered head of cardan piece
G, clutch striking fork
H, clutch striking ring
J, first intention studs
K, clutch striking ball thrust
Q, spigot end of crankshaft
R, cup-shaped sleeve containing clutch spring
S, clutch spring ball thrust
T, clutch spring
V, dished collar fast on Q forming clutch slide
X, clutch body

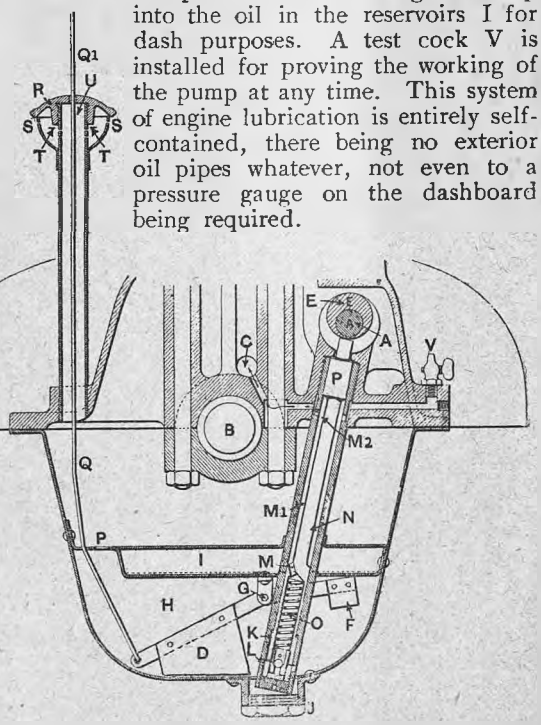
idea of the well-considered clutch design, with its simple and admirable clutch and gear connection. It will be seen that the flywheel is of good dimensions, with plenty of weight in the rim, and is, moreover, very strongly bolted to a stepped flange of large diameter formed on the projecting end of the crankshaft. The clutch is of the leather faced cone variety—a form which, in addition to being universally understood, gives general satisfaction. The leather has first intention nodules formed upon its outer surface by the spring operated studs J, which afford sweet and easy initial clutching. The cone boss is screwed upon and bolted to a cup-shaped sleeve carrying a ball thrust bearing as an abuttal for the clutch spring. The boss is bushed to rotate on the end of the crankshaft spigot, the clutch spring bearing for compression against the dished collar V fast on the end of the spigot piece. The rear end of the clutch boss is castellated to take the chamfered head E of the cardan member C; the other end of the latter, F, connects with the castellated end of the intermediate gear sleeve. The cardan piece C is kept in position by a spring backed distance rod impinging on the end of the spigot. The clutch is withdrawn by the clutch fork G bearing against the ball thrust bearing K.

The dismounting of the clutch is quite a simple matter, and the whole can be removed and refitted without disturbing any other main part of the car.

Engine Lubrication.

A glance at the accompanying section will form our excuse for presenting what is a simple, positive, and most convenient form of engine lubrication. It will be seen that oil is introduced to the crank chamber by removing the cup T T and pouring the oil down the vacuum tube. The oil so introduced finds its way into the lower reservoir H formed in the base of the crank chamber, where is placed a tell-tale balanced wood float D, which is connected to the rod Q. The upper end of this rod Q is marked in such wise as to show the amount of oil in the reservoir H at any time. Within the crank chamber is placed a simple form of positive force pump P operated by the eccentric E on the camshaft A. This plunger, which fits the pump barrel at both ends, is given a reciprocating motion by the eccentric A, and is kept in continuous contact with it by the spring O. At the bottom of the plunger below the spring is a non-return ball valve fixed to the bottom of the pump barrel. The plunger is shown at the top of its stroke, and oil has been drawn from H into the chamber at the bottom of the pump barrel through the orifice L.

On the next upward stroke of the plunger the oil above the ball valve is raised and forced through the lead M and through the orifice M_1 to the duct C, whence it travels to the engine bearings and sprays upon the big ends. The surplus oil falls into the reservoir I, where its level is kept constant by the orifice P. The scoops on the connecting rods dip into the oil in the reservoirs I for dash purposes. A test cock V is installed for proving the working of the pump at any time. This system of engine lubrication is entirely self-contained, there being no exterior oil pipes whatever, not even to a pressure gauge on the dashboard being required.

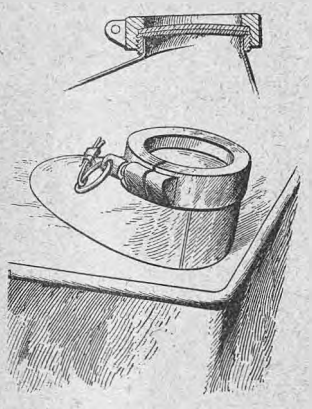


Vertical section of crank case showing lubricating pump.

A, camshaft
B, crankshaft
C, oil delivery duct under pressure
D, wood float
E, pump actuating eccentric
F, balance weight
G, rocking pivot
H, lower oil reservoir
I, upper oil reservoir to serve dash lubrication
J, drainage stud
K, pump plunger
L, oil suction orifice
M, M1, M2, oil leads carrying oil to duct C
N, pump plunger rod
O, spring keeping upper end of plunger rod in contact with eccentric E
P, plunger
Q, oil level indicating rod
Q1, sealed end of rod
R, cap to filler tube
S S, vacuum holes
T T, oil filling cup
V, pump testing cock

The Mason Petrol Can Faucet.

Many complaints have emanated of late from the petrol companies respecting the rough usage to which their cans are subjected by agents and automobilists in the process of opening. We do not know that we feel unduly sympathetic in this matter, for, so far as damage to the cans is concerned, the blood of the petrol companies is on their own heads. For years past they have persisted in fitting their cans with a cap, which always required great force and implements to unscrew. Nothing short of a tyre lever has been sufficient, and such tools generally residing at the bottom of the toolbag or space, the bottom rim of another petrol can has frequently been made to do duty for a lever, to the detriment of the operating vessel. In order to do away with these objections, and to make the path of the motorist easier before him, the Mason Motor Spirit Co., Ltd., of Newlyn House, 4 and 5, Aldgate, E.C., are fitting their cans with the neat, simple, and strong stopper illustrated herewith. The opening in the top of the can, in lieu of taking the form of a constricted neck, is shaped as shown, while the cap is made with a floating leather-backed washer to screw down petrol tight with the fingers. The ring portion is split and joined with two lugs as shown. Drawing these lugs together is a right and left-handed screwed stud, securing and locking the cap on the neck of the can. In the head of the stud is a hole, through which and a loop on the can the usual sealing wire passes. The ring on the head of the stud affords sufficient leverage to screw up the cap tight on the neck, and to unscrew it when desired. The leather-faced floating washer cannot become detached from the ring cap—a considerable boon not evident with many other cans. We must say in conclusion that this can pours most satisfactorily from full without any wasteful splashing or "blobbing."



English Politics and the French Motor Car Industry.

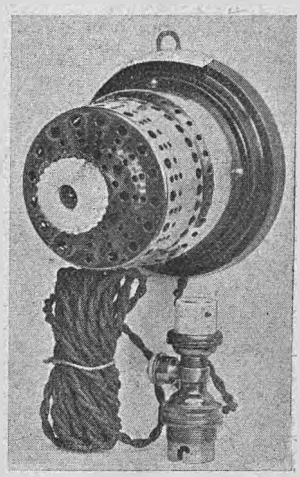
There are signs that the French automobile industry is showing nervousness with regard to the forthcoming General Election in this country. One writer in the French press last week pointed out that England during the first ten months of 1909 imported 53,000,000 francs worth of motor cars out of 120,000,000 francs worth which represents the total French automobile exports. As our French contemporary points out, this is very much like having the majority of one's eggs in one basket, and if as a result of the next General Election in England a duty be imposed on motor cars—an item which our French friends think is most unlikely to be overlooked—it will very seriously affect the motor trade in France, which is not by any means in a flourishing condition.

The figures recently published regarding the total number of vehicles registered in Great Britain is another item which is being most seriously contemplated by French motor car manufacturers. England is without doubt the greatest market in the world for the purchase of motor cars and motor cycles, consequently foreign countries, particularly France, are anxiously awaiting the advent of 1910, to see whether their products are to be exported to England duty free or not.

The total number of motor vehicles in France is said to be 44,769. In Great Britain there are 108,773, London alone having registered 33,000 odd cars and 10,000 odd motor cycles, as compared with the 44,769 motor vehicles which represents the total for France.

An Electric Light Regulator.

In the past the value of electricity as a lighting medium has been largely discounted by the fact that the light had to be either all "on" or all "off," no intermediate stages of subdued light being possible without cumbrous resistance coils, devices impracticable except in workshops and other spacious places. Recently, however, a clever device has been marketed, by means of which the current to the lamps may be regulated to a nicety, the light varying from a faint glow to full brilliance, according to the position of the regulating knob, which is as easily operated as the ordinary gas tap. Besides affording a means of regulating the intensity of the light, the apparatus effects a considerable saving of current as well as of lamps, the life of the lamp being prolonged by the dampening effect of the regulator when the lamp is turned on. Its advantage for autocar use is obvious, as by its aid the complete electric light equipment of a car, and especially a large limousine, may be regulated to a nicety. It should prove especially useful for the control of powerful electric headlights. The Electrical Regulators and Economisers, Ltd., 51, North John Street, Liverpool, is the firm who are interested in this inexpensive device.



The Economiser ready to connect up to an ordinary electric bulb. The adapter on the right is fixed into the lamp holder, the lamp bulb being then fixed into the adapter. After switching on, the intensity of the light may be varied by the knob on the regulator.

A Fine Drive on a 12 h.p. Motobloc.

In *L'Auto* of Thursday last appears some particulars of a fine drive performed on a 12 h.p. four-cylinder Motobloc touring car delivered to M. Testa, of Nice, at the Motobloc La Bastide Factory, and driven thence to Nice in the brief time of twenty hours. The car was fitted with Hutchinson tyres, and the run was so successful that it has practically no history. M. Testa, in telling the little story, says that his engine ran without stopping for the above period; the only halts made by the car were for the purposes of replenishing the petrol tank and for opening the level crossings, many of which were closed. The run works out at an average speed of a shade over 27 m.p.h. Coming on the top of the wonderful performance made by the 12 h.p. Motobloc in the last Gaillon Hill-climb this performance would suggest that the well-tried Motobloc cars are able to hold their own both in competitions and hard service. M. Testa had taken delivery of the car for a client.

Some Recent Patents. By Eric W. Walford, F.C.I.P.A.

THE tyre illustrated in the first figure is formed with a lip or flange on one side. This flange projects down close to the ground and prevents mud splashes flying out laterally from the wheel, as illustrated. It is the invention of Mr. F. F. Mott.

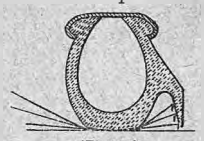


Fig. 1.

The second invention is that of Mr. P. A. Poppe, and relates to carburetters of the White and Poppe type. This invention is of considerable interest, as showing what important results can be obtained by a very small modification of an existing construction. In White and Poppe carburetters a sleeve A is rotated by means of a control lever, this sleeve having two holes, one of which is shown at B and the other at B_2. One hole controls the amount of air entering the carburetter, and the other hole the amount of carburetted gas issuing. The jet C is provided with a small eccentric hole D, and over this is arranged a cap E with a corresponding eccentric hole. These eccentric holes are brought into or out of register so as to enlarge or decrease the jet outlet. In White and Poppe carburetters all three orifices are opened up or closed simultaneously by means of a single control lever F. To obtain quick acceleration a comparatively rich mixture is required, and if the carburetter be set to give this mixture maximum economy is not obtained. Both these results are obtained by the present invention, by which the control lever F is attached to the spindle G, which forms part of the jet cap. The jet cap is connected to the rotary sleeve A controlling the air ports by means of a peg H working in a short slot L. Thus when the lever is first moved to open up the carburetter, the jet orifice is first enlarged before the peg H reaches the end of the slot and opens up the throttle and air ports. Thus as the throttle is opened a rich mixture is given. Having reached the desired speed, the lever F is turned back slightly, moving the peg H to the other end of the slot L. This reduces the size of the jet outlet, so that economical working is obtained.

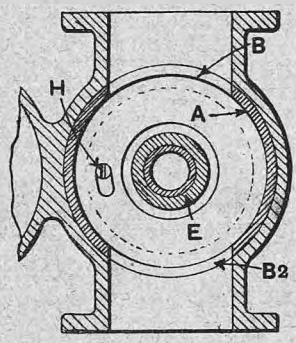


Fig. 2.

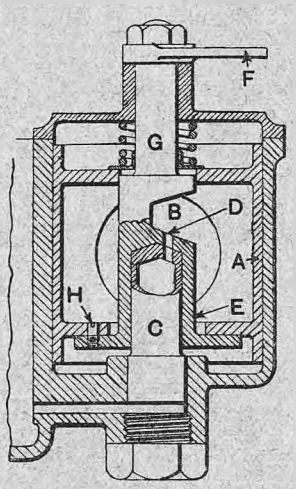


Fig. 3.

The clutch invention shown in fig. 4 is intended to remove the considerable pressure on the foot when the clutch is fully disengaged. Usually the clutch cone A is drawn back by means of the pedal B acting on a clutch collar C. As the pedal is depressed the clutch spring D is compressed, and the whole weight of the spring has to be carried on the foot when the clutch is disengaged. In the present case, by simple link connections the abutment E of the spring is also movable by means of the clutch pedal. Thus when the pedal is depressed first of all the clutch collar C is moved back slightly, and then the whole spring bodily moves backwards. The result is that the spring is not compressed at all when the clutch is "out." This is an invention of L. Bollée.

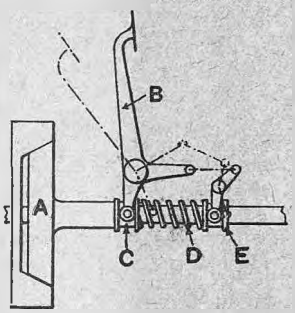


Fig. 4.

The lubrication system is the invention of Mr. F. H. Royce, the well-known designer of the Rolls-Royce cars. According to this invention the engine is supplied in the usual way with a constant quantity of oil sufficient to lubricate when the engine is working under light or moderate loads. The fitting shown in the drawing is to operate when heavy loads are applied. For this purpose a quantity of oil is contained in the chamber A, being admitted by the pipe B. It passes out by the pipe C to the various bearings, but the outlet is controlled by a valve D connected by links E to a throttle valve. Thus unless the throttle valve is fairly widely opened the valve D remains on its seat and the mechanism illustrated does not operate, but when the throttle is opened fully the oil supply is temporarily increased.

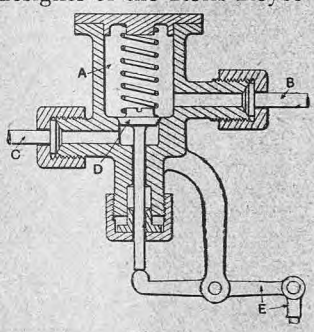


Fig. 5.

Motor Cars and Tyres in Fiction.

Is Max Pemberton the only modern novelist who is sound on motor subjects when he weaves them into any of his fascinating stories? If he is, then "Rita" assuredly is not. Motorists reading the story entitled "Poor Mary Ann" in the December number of *Nash's Magazine* will certainly write down Harry O'Brien and his friend Arthur Chickering as two particular kind of idiots. Driving in Ireland, they sustain a burst tyre five miles from their destination, and this is what we read of the incident: "Harry O'Brien set to work with the energy of desperation. In a short space of time he had the tyre off (off, mark you!) and the inner tube exposed. Then he muttered an exclamation of wrath. It's no good patching; it must be done at a garage—vulcanised. Well, we've got the Stepney!!! (The notes of exclamation are ours.) We must chance it." It does not appear to have occurred to this desperately energetic person what he carried the Stepney for, and why, if he used it as it was intended to be used, there should be any chance about it. Later, a two-seated car driven by a girl turns up, but can only take on one of these resourceless people because she has only one seat. Again, it never occurred to the desperately energetic one who was left that he could have sat on the footboard, as many a better man has done before him.

Plain Bearings v. Ball Bearings.

Some Comparative Tests.

AS the result of an argument on the subject of comparative merits and efficiency of plain bearings and ball bearings as applied to the road wheels of motor vehicles, the writer undertook to make some tests in an attempt to arrive at some conclusion on the matter.

The writer holds no brief for either system, and in giving the results of the experiment as carried out by him makes no claim on behalf of one or the other. Merely the bare facts are given, but it is open to others with theories on the subject to explain that which was to the writer the surprisingly small advantage of the ball bearings as shown by the tests.

Perhaps the methods of conducting the tests may be criticised, and it may also be said that the data obtained are insufficient to allow of a fair comparison.

At the same time, it will doubtless be admitted that a discussion on the subject would be interesting and, maybe, instructive, so that if this account bring to light the experiences and conclusions derived from other tests having a similar object, it will not have been without service.

The Methods Employed.

In the first place, some difficulty was met with in obtaining a vehicle with which the experiment could be made, and it was eventually decided to use a motor lorry which was available. This was a petrol-driven car with side chains of a type suitable for loads up to 3 tons. The wheels were fitted with ball bearings of the standard type of a well-known firm of ball bearing manufacturers. On the inner side of the hub was a large journal bearing, in the centre a double thrust bearing, and on the outer side another journal of somewhat smaller size than the first-mentioned. The plain bearings used in the test, which were specially made for the purpose, were of that type in which a loose floating bronze cage is interposed between the hub and the axle. In this case, however, the axle being designed for ball bearings and tapering towards the outer end, it was necessary to make two special sleeves, one fitting tightly inside the hub shell and the other on the axle, in order to form a parallel bearing—this by way of explanation of the method employed to convert the same set of wheels from one type of bearing to the other.

As a venue for the tests a spot was selected on a quiet road where a slight "dip" occurs, with a down grade of approximately 1 in 20 to begin with, this leading to a piece of level ground, and thence to a rising gradient. Fig. 1 gives an idea of the contour of the road.

Contour of the road on which the tests were carried out.

A predetermined spot (shown A) was marked as a starting point. At B a line was drawn across the road, and this point was 20ft. from A. From A to D was carefully measured, and from C to D a number of small stakes were driven into the side of the road with a spacing of 3ft. between them, and each one was marked its distance in feet from the starting point A.

The lorry, loaded with 2½ tons of pig-iron, was made to "toe the line" at A, and held at that spot by the foot brake until, with the gear lever in the "neutral" position, the word to "go" was given. By gravity alone the vehicle immediately ran forward, and was allowed to "coast" as far as it would do so towards point D, the time occupied in travelling the first 20ft. (as far as point B) being taken by means of a stop-watch.

The records obtained were: (1) Time in seconds running first 20ft., and (2) total length of run in feet.

Twelve runs were first made with ball bearings fitted; the wheels were then removed and plain bearings substituted. Then twelve more runs were made with the latter type.

The road was in good condition and dry, and there was practically an entire absence of wind. Both series of tests being made on the same day and immediately succeeding one another, the prevailing conditions were identical. Castor oil was used as a lubricant for the plain bearings, this having been found previously to be more suitable and to give better results than either ordinary lubricating oil, grease, or a mixture of both.

Results of the Tests.

The tabulated results under these conditions were as below:

	Ball Bearings.		Plain Bearings.	
Run No.	Time Occupied First 20ft.	Total Length of Run.	Time Occupied First 20ft.	Total Length of Run.
1	10⅘ secs	575ft.	11 secs.	558ft.
2	10⅕ ,,	578ft.	10 ,,	561ft.
3	9⅘ ,,	575ft.	10⅕ ,,	556ft.
4	10 ,,	570ft.	10 ,,	555ft.
5	10⅘ ,,	578ft.	10⅗ ,,	565ft.
6	9⅘ ,,	579ft.	10⅕ ,,	561ft.
7	9⅕ ,,	577ft.	10 ,,	562ft.
8	10 ,,	578ft.	10⅗ ,,	558ft.
9	10 ,,	577ft.	10 ,,	557ft.
10	10⅕ ,,	577ft.	10 ,,	555ft.
11	9⅕ ,,	580ft.	10⅗ ,,	556ft.
12	10 ,,	578ft.	10 ,,	564ft

Average time first 20ft.—
Ball bearings, 9.9s.
Plain bearings, 10.25s.

Average length of run—
Ball bearings, 576ft. 10in.
Plain bearings, 559ft.

The advantage shown by the above is, as might be expected, with the ball bearings, but the writer was very surprised to find that the percentage in their favour but 3.5% in the time for first 20ft. and only 3.1% in the length of run. It should be mentioned, however, that in the back wheels only were the plain bearings fitted, the ball bearings being in position in the front wheels during both series. But even if the percentages are doubled for this reason they still show but a small advantage in favour of the ball bearings compared with what one would expect.

It will be noticed that the greatest advantage is in, what may be termed, the "acceleration" test, viz., time covering first twenty yards. The writer would have imagined that the reverse would have been the case, that the ball bearings would have scored, to a greater extent on the total distance, in covering which the speed for a period was comparatively high, say fifteen or sixteen miles per hour. B.

The Use of Motor Vehicles in War.*

By Captain Cecil Battine.

NO one will deny the importance of the change in the daily life of every class in the community which the introduction of motor vehicles has brought about. It touches every individual, for the application of motor machinery to public conveyances, such as omnibuses, and to commercial vans, has placed the innovation at the service of the whole population. So little does the public mind focus on military questions that perhaps it is not astonishing that this improvement in transportation has excited but little attention as an instrument of war, in spite of the increased attention which preparation for war has received in recent years.

Wars are likely to become less frequent in the twentieth century, but are likely to be waged on a more colossal scale than ever before. I believe, then, that you will readily admit how great an interest we all have in seeing that the instruments for waging war in our possession are reliable and up-to-date, and I also believe I can show you that the particular instrument which we are discussing to-night may play an important part. I will not be technical, and, in fact, the matter is essentially one of commonsense within the reach of all.

The device which most naturally suggests itself in the war use of motor cars is the rapid transporting of troops to a threatened point. For that purpose the numerous private cars and the motor 'buses of London would enable the commander of an army defending England against invasion to despatch considerable forces by road, in case railways were not available, or to supplement the railways. Cars and 'buses could be collected at stations near the threatened point and used to move detachments of infantry of from 500 to 1,000 men very rapidly, to guard a bridge, railway station, or landing place, until the main body of our troops could arrive. Armies will always move slowly, the main force takes a long while to convert itself from a long column of wayfarers on the road into a line of battle ready for action. That process is known as deployment, *i.e.*, unfolding. Much might be done while it is in progress, and the rapid movement of cavalry (and nowadays detachments mounted on cycles or motors) will certainly offer great opportunities. Simple as this method of using motors seems, yet it requires forethought and calculation to make it effective, for wild confusion can easily ensue in a great column of these vehicles unless the column is properly controlled, and more formidable still will be the difficulty of collecting at the right time and place in the first instance to meet a sudden attack, unless the whole concentration is carefully worked out beforehand.

A yet more important use for motor vehicles in war lies in the department of supply. Roads, waterways, and railroads connect an army with its home, and along them its reserves of troops to replace losses, its food, ammunition, hospital comforts and forage go to the front, while an equally important stream of wounded, prisoners, and empty vans on their way to be replenished, go in the opposite direction. Like arterial and veinous circulation the two currents must be able to make their way unimpeded or the army suffers, perhaps fatally The object of almost all strategy is not only to defeat the enemy's forces, to weaken them by injuring, dispersing and frightening their *personnel*, but also to drive the hostile forces off their lines of communication. Another scheme sometimes tried is to cut these lines at some distance in rear of the hostile army, so as, at any rate, to cause grave confusion and inconvenience. Any invention, therefore, which materially affects the lines of communication of an army, must be of the greatest military importance. A moment's reflection will show any intelligent person how greatly motor vehicles have changed the work of the line of communication by facilitating it, and how much they have increased the already great difficulty of cutting those lines by their relative speed, handiness, and capacity for concealment. Even along roads within the range of hostile enterprise cars can be run thus under cover of darkness, where formerly such an attempt was hopeless. If the country can be traversed off the roads, as the African veldt in winter, the advantage of the motor vehicle over its enemy is, of course, tenfold greater. In the South African War when a convoy was attacked it generally suffered severe loss, even if it escaped capture; if ox-drawn waggons were attacked by riflemen before the oxen were inspanned it does not take a very vivid imagination to realise how quickly the whole convoy became a total wreck, nor is there any difficulty in seeing how much less vulnerable motor vehicles are on all such occasions.

If war takes place in civilised regions the whole machinery of commerce is, at any rate, locally paralysed, and several hundred thousand men on either side march forth to fight. Forces on this gigantic scale require to be supplied by machinery correspondingly effective. It has been said that war on the modern system and scale could not be waged without railways, and that the failure of Napoleon in his Russian invasion was caused principally from his trying to handle such masses without railways to supply them. If this theory be correct, then it may also be said that the armies of to-day cannot be manœuvred off the railways without resorting to motor vehicles. I need not emphasise how great then would be the advantage of having such transport properly organised and ready for use. Its availability may make the difference between being able to manœuvre and being chained to a zone not exceeding a day's march from a railway station. The Paardeburg campaign again presents itself as an illustration. The Boer army was cut off and captured by Lord Kitchener, because the Boer leader, having had experience of a number of generals, did not believe that the British would venture to leave the railway. Unluckily for him his opponent in this case was Kitchener. The forces on this occasion were small, so that the manœuvre was possible, though hazardous. The attempt of the Confederate army to retreat from Richmond, the retreats from Metz and Sedan in 1870, would all have been feasible operations by the favour of motor vehicles, instead of culminating in disaster. But the most important rôle of the motor car in war remains to be stated. Insomuch as the moral exceeds the material factor in achieving victory, and in proportion as the chief of an army is its soul and its motive power, by so much is the increased power of locomotion conferred by motor cars the most important use to which they can be put.

It has been said that the command of an army by one great chief must be a thing of the past, owing to distances which separate different fractions of the same army in a decisive collision. A motor vastly simplifies the problem. A line of battle extending even 100 miles can be traversed in a few hours by the commanding general if he wishes to show himself to his troops or to see things with his own eyes. Even when the great chief does not exist, and when his place is taken by a carefully trained staff, which was something like the system of the Germans in 1870, yet the motor car will not be less useful in linking up separated divisions of the army, and facilitating concerted action. No man who has not studied war comprehends how difficult concerted action becomes on any battlefield, big or little. Any invention, therefore, which tends to facilitate it is of incalculable importance.

* Extracts from a lecture at the Royal Automobile Club on December 1st, 1909.

Review.

"Motors and Motoring," by Professor Spooner, C.E., M.I.Mech.E., A.M.Inst.C.E., etc., etc. (T. C. and E. C. Jack. 2s. nett.)—In reviewing the first edition of this book, we characterised it as one of the most helpful and useful volumes that could be put into the hands of the young automobile engineer and the keen motorist agog to grasp and understand the inwardness of his car. Now a copy of the fourth edition has fallen into our hands for comment, we feel that there is little to be added to our original remarks, save that all the additional matter has added still further to the high value of the work, and the careful revision of the original pabulum has resulted in bringing the matter right up to date. We are moved, however, to remark again upon the enviable lucidity with which Professor Spooner is gifted when dealing with and describing scientific and mechanical matters. While the past master in the mystery and craft of automobilism may profit by much that is found in this book, the merest tyro in mechanics can follow the explanation and descriptions with the keen delight which comes of easy understanding. It is not too much to say that for the prospective automobilist the careful perusal of this book is a liberal education in the construction, care, and conduct of a car. Substitutes for petrol, such as benzol, alcohol, and enriched alcohol are dealt with in a comprehensible and interesting manner. The work concludes with an appendix of useful tables, and examples of the City Guilds and Polytechnic School of Engineering motor engineering examination papers.

Flashes.

The Dowager Empress of Russia has ordered from the Daimler Co. a 38 h.p. New Daimler landaulet.

* * *

The recent unfortunate accident in which the Hon. A. Gordon was involved near Winchester has again called public attention to the need for the provision of adequate means of giving warning to drivers of motor cars of their approach to cross roads. It frequently happens that drivers on a by-road about to enter or cross a main road are unable to see what traffic is on the main road until they actually enter it, and at the last meeting of the General Committee of the R.A.C. it was suggested that the Associated Clubs should consider the advisability of erecting mirrors at particularly dangerous places. The matter has been referred to the Touring Committee of the R.A.C. for consideration.

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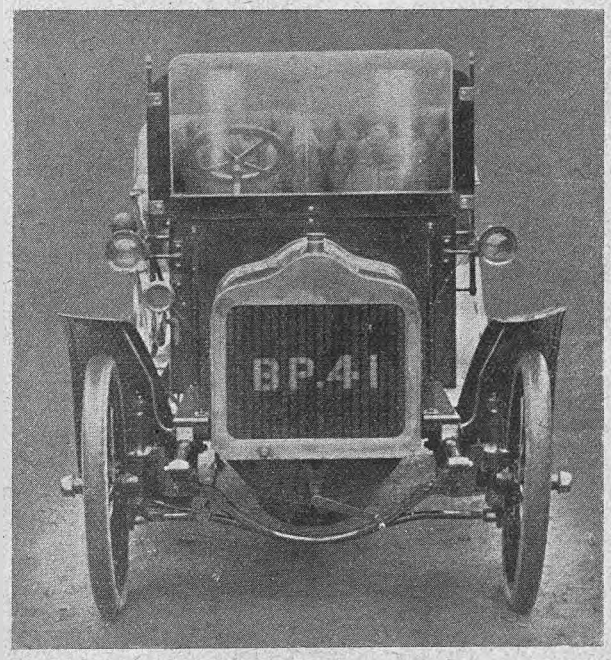
At a meeting of the Committee of Management of the Society of Motor Manufacturers and Traders on December 2nd, various matters arising out of the recent exhibition were considered, including suggestions with regard to an extra charge on special days to avoid overcrowding.



Front view of the modernised car illustrated below.

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From Milan we learn through the *Board of Trade Journal* that the Italian motor car industry is at present experiencing a crisis produced by speculation and over-production.

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The R.A.C. General Committee on Thursday last week passed a resolution congratulating its chairman, H.S.H. Prince Francis of Teck, on the honour of the Grand Cross of the Victorian Order conferred on him by the King on the Queen's birthday.

The second annual dinner of the R.A.C. Associated Clubs is fixed for Thursday, Feb. 3rd, at the Connaught Rooms, Freemasons' Hall, Kingsway, W.C.

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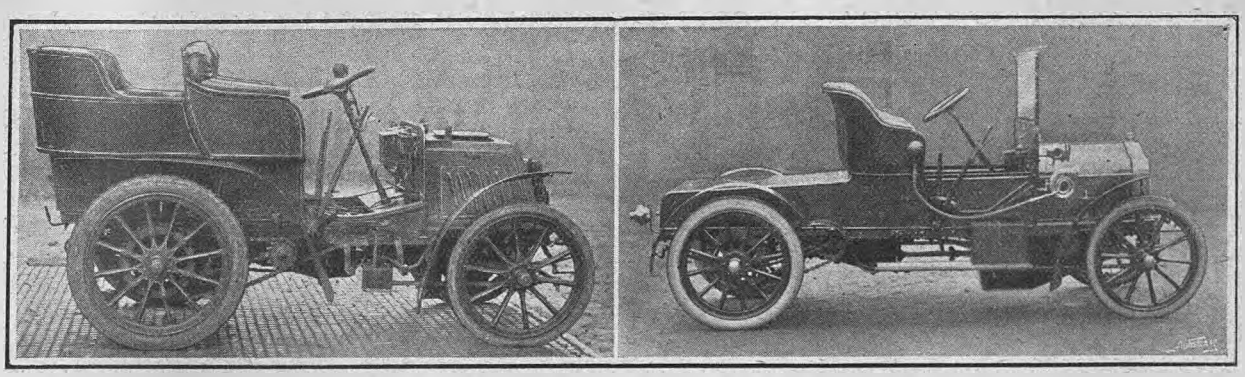
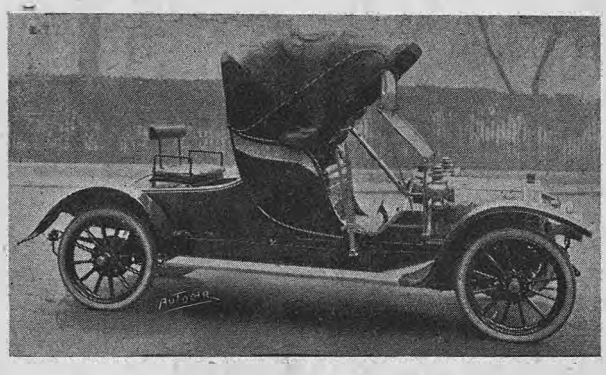
As the season for touring in Italy has now commenced, we would remind our readers that a well-established garage under British control and management, staffed by British workmen, is available in Florence for tourists at 1, Via Pier Capponi. The proprietor of this garage is a member of the Royal Automobile Club, we understand, and is always willing to give any information which may be in his power on all subjects which appertain to touring in Italy.

* * *

A member of the A.A., recently touring in the neighbourhood of Cumberland and Westmoreland, was stopped for exceeding the speed limit, though the police admitted there was no traffic on the road, and no danger to anyone. The motorist was agreeably surprised to receive, instead of a summons, a friendly letter of remonstrance from the Superintendent, in which he said: "As there was no great danger caused by your fast driving, you are not to be summoned for the alleged offence, but I trust, when you next come into this county with a motor car, you will take care to comply with the law which regulates the use of motor cars on the highway, and take this caution in the spirit in which it is given." Surely instances such as these make it not unreasonable to hope that before long the law of speed limit will only be enforced where necessary for the protection of the public, and not for the purpose of swelling local exchequers. The adoption of the Scottish method of transferring fines to a central fund and not to local authorities would remove the temptation for excessive penalties.



A clever conversion made by Messrs. A. Shaw and Son, High Street, Crawley, of an old 7 h.p. Panhard. The wheelbase was lengthened 2ft. 4in. by lengthening the front dumb irons and lengthening the frame, clutchshaft, change-speed rods, etc. The gear box was left at the same distance from the back axle as previously. The back wheels were cut down from 870 mm. diameter to 810 mm., the front ones remaining 750 mm. x 65 mm. The old radiator and bonnet were replaced and the water tank and pump discarded. The fitting of the two-seated body and the discarding of water tanks, etc., reduced the weight from 17½ cwts. to 14 cwts.



A four-cylinder 10 h.p. Delaunay-Belleville car fitted with two-seated body with folding dicky behind. This car is eminently suited for ladies' use, as the steering and pedal levers are designed to require the least possible effort.

Motorists who go motoring at Yuletide and seek a place of hight entertainment for man and car during Christmas time, as many do now, should turn their bonnets Warnewards, Worthing, where at Warne's Hotel Christmas is celebrated quite *comme il faut*. Moreover, at Warne's motors and chauffeurs fare as well as owners, for all are accommodated in the most up-to-date fashion. Moreover, those who prefer sunshine to snow will in all probability find the former at "sunny Worthing" during the holidays. The proprietor of this hotel provides a most select and enjoyable after-dinner entertainment. We are assured that, save in speed limits, no motorist who does not exceed twenty-five miles per hour—a speed with which motorists on frequented roads ought to be satisfied—will strike trouble in Sussex.

* * *

At this time of the year the police are proceeding against motorists for offences in connection with the lighting of cars almost as much as for exceeding the speed limit. The most trumpery charges are made, and in some cases the owner when not present at the time is summoned for aiding and abetting. It therefore behoves motorists to be particularly careful with regard to lamps, and to use those that do not show a tendency to blow out. In one case which has been brought to our notice a driver was summoned and fined because his lamps were blown out by a hurricane which was blowing across a moor, notwithstanding that he re-lit his lamps in the presence of a constable as fast as they were blown out. The man explained to the magistrates that he could not possibly keep his lamps lighted. The police construed his statement into a complaint against his employer that the lamps were unsuitable, and besides summoning the man, who was fined, they proceeded against the employer for aiding and abetting, this latter summons being dismissed on payment of the costs.

The Commissioner of Police, Buenos Ayres, has, we understand, just ordered ten new model 12-14 h.p. F.I.A.T. cars to be used for the purpose of facilitating communication between the outlying districts and headquarters.

* * *

Doctors and others who use their cars entirely or very largely for legitimate professional purposes are legally entitled to deduct a reasonable sum from their income subject to income tax. In any endeavour to obtain justice in this particular motorists will find the Income Tax surveyors very hard nuts to crack, for it is their devoir to obtain as much as they can and allow nothing. Now it is not given to the average man to cope with the wily Income Tax surveyor, though there are ways and means of causing him to drop off before full gorge is realised. Such ways and means, all perfectly legitimate in themselves are best known to the officials of the Income Tax Adjustment Agency, Ltd., of 9, 10, and 11, Poultry, Cheapside, E.C., and it is to this agency we would advise medical men who are really entitled to remission on this score to apply for assistance and advice. The agency has proved very successful in several appeals which have come directly under our notice.

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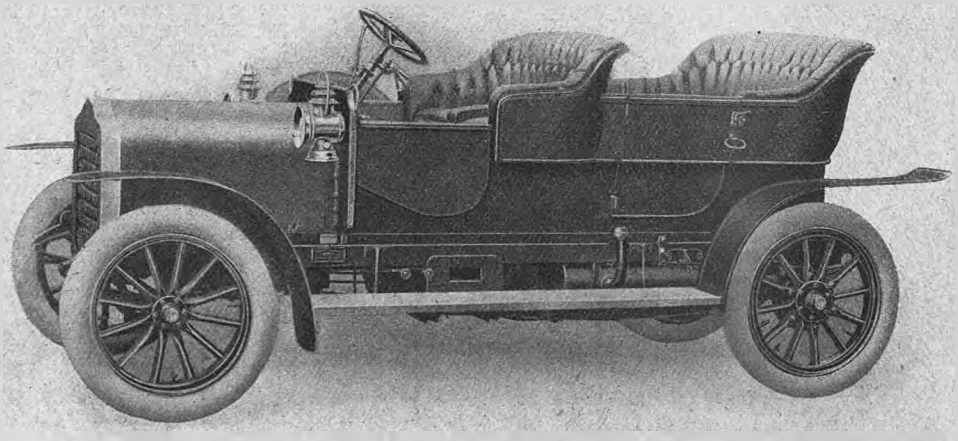
The Abergavenny magistrates last week dealt very severely with two defendants brought before them on charges in connection with motor cars. Edward Nicholls, chauffeur, was charged with driving a motor car without having a licence, and George Reginald Smith, builder, 85, Queen Street, Abertillery, his employer, was charged with fraudulently using an index mark, with failing to comply with Article 4 of the Motor Car Registration and Licensing Order, 1903, by not giving notice of change of ownership of a car, with using a motor car on the highway without its being registered, and employing a person to drive who had not a licence. Defendant's solicitor said he hoped to show that it was through inadvertence and not design that these breaches of the law had been committed. The prosecution urged that failure to give notice of change of ownership was not an act of ignorance or inadvertence, as the defendant had registered one such change. The Bench fined Smith £5 for employing an unlicensed person to drive his motor car; £5 for failing to register the change of ownership; and £10 for fraudulently using a false index. Nicholls was fined £5 for driving a car without having a licence.



The 1910 model of the 12 h.p. Turner steam car, which is fitted with cardan drive and enclosed condenser. It is noticeable that the lines of this car have been considerably improved, the difference between the Turner-Miesse and the average run of petrol cars being barely perceptible.