

The Auto., November 19, 1914.

# The **AUTO**

-MOTOR JOURNAL

“‘THE TIMES’ of Automobilmism.”—*Press opinion.*

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THE MOTOR AND THE WAR.—A Belgian motor mitrailleuse, near Dixmude in Belgium, which has done considerable service for the Allies.

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**The AUTO** (YELLOW COVER).  
MOTOR JOURNAL

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Small corrections can be accepted up to 6 p.m. on Tuesday.

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**Passing Events**

**The Motor Vehicle in War.**

Since war broke out we have alluded on more than one occasion to the important part the automobile is playing in the military operations. Every week that passes, however, brings to light further evidence of the indispensability and widespread use of motor vehicles in the titanic struggle. This time it comes from an American authority, who estimates in a paper just read on the subject in New York at a meeting of the Motor Truck Club of America, that there are now no less than 250,000 motor vehicles of all kinds in service with the armies of the seven belligerent countries. Of this number the author puts the figure for motor wagons in

use for the transport of food, ammunition, and other supplies at fully 100,000.

In view of the fact that the wastage is very heavy, not only is every available factory in Europe working at high pressure in turning out new machines, but the different countries have found it necessary to place orders for military motor wagons in the United States. Thus, the Russian Government which, at the outbreak of hostilities, was not so well equipped as some of the other nations, has not only purchased large numbers in this country, but is stated to have divided an order for three hundred wagons between three American concerns, while the French military authorities are credited with having placed contracts with five factories in the same country for no less than 1,740 machines to be delivered by the end of the present year.

Unfortunately, rumours are current that some of the vehicles that are being sent across the Atlantic in fulfilment of these "rush" orders are of doubtful quality, and not likely to give very satisfactory service under the arduous conditions which they will be called upon to fulfil. In this connection the suggestion has been made that expert examiners should be appointed forthwith in order to ensure that the vehicles delivered are rigidly to specification. Even if there be no foundation for the reports, there is, unfortunately, always a certain section of the community ready to take all undue pecuniary advantage out of national emergencies, and, therefore, every step should be taken to reduce to a minimum the possibility of any failing of the Allies' transport at some critical moment.

**Armoured Cars and Motor Machine Guns.**

The success which has attended the use of armoured cars by our Naval Division in clearing out stray bands of the enemy from villages and woods is likely to result in a marked extension of the employment of such machines in the near future. Thus, we learn it is proposed to equip the London Mounted Brigade, which consists entirely of London men, and which is now under orders for service across the Channel, with half a dozen armoured cars. The first public appeal of Sir Charles Johnson, the new Lord Mayor, is one that he has just made to the leading City Guilds and citizens of London for funds to enable the six machines to be purchased. Sir Charles remarks that "the Brigadier-General commanding tells me that where a single car would be of enormous value, two cars working together in support of each other would be worth a squadron. There is no difficulty as to petrol. Each car costs about £1,800. To buy the whole six, about £10,000 would be required." Doubtless by the time these lines are in print the well known munificence of the City magnates will have seen to it that the Lord Mayor's appeal has met with the desired result.

The latest departure in the use of motor vehicles for aggressive purposes is seen in the Army Order which has been issued during the week announcing that a motor machine-gun battery is about to be added to each division

of the Expeditionary Force. The *personnel* for these batteries is to be found in volunteers from units of the new armies, and by special enlistment for the motor machine-gun service, the men being appointed to the corps of the Royal Horse and Royal Field Artillery. Although it is possible that the Germans had a greater number of motor vehicles at their disposal in the earlier stages of the war, the combined efforts of Great Britain, France and Russia have probably by this time given the Allies the ascendancy in this respect, the effect of which should shortly become manifest.

**More Motor Ambulances Wanted.**

Passing from motor vehicles designed for offensive and defensive purposes at the front, it is pleasing to turn to a consideration of the sympathetic and enthusiastic response that has been made from all parts of the country—nay, of the Empire—to the application of the various bodies for the loan of motor ambulances and for funds for their purchase and maintenance. We have already pointed out the vital need for these vehicles, and, with the continuance of the gigantic struggle now going on, the necessity for the best possible arrangements for the care and succour of the wounded becomes more and more pronounced. There is no need to dwell upon the ghastly horrors under which modern warfare is waged. The letters now coming to hand from soldiers at the front, censored as they are, all refer to the terrible conditions under which the Allied troops are working in throwing back the enemy. One cannot read these vivid narratives without being stirred by a desire to do something to alleviate the suffering of those who are stricken down while fighting for their country.

Large as is the number of motor ambulances that have been sent across the Channel, there is still need for many more, and in this connection we are asked to draw attention to the appeal which has just been sent out by the British Ambulance Committee on behalf of the French Red Cross Society. According to the communications we have received, France has nearly used up all the cars available for ambulance work, and that the wounded of our Ally's army are suffering terribly owing to the delay in transport from the front to the nearest hospitals. The Committee draw attention to the fact that the front held by the French troops is at least six times as long as that held by the British; that with less population than ourselves, the French have nearly ten times more soldiers in the field, and that, since nearly the whole of the active male population of France is under military orders, there is hardly anyone left to whom the French authorities can appeal for further voluntary assistance now that the supply of French cars is nearly exhausted.

An appeal is therefore being made to motorists in this country for the loan of cars to the French Red Cross Society through the British Committee, for a minimum period of three months. It is explained that the owners can either drive the cars themselves and take their own mechanic; or they can drive themselves and be supplied

with a mechanic; or, again, if either of these conditions are not possible, owners can send their cars along. A central *depôt* in London is being arranged by the Committee, where all cars offered will be inspected. When approved, they will be converted to ambulances and forwarded in groups of six either to the central *depôt* of the French Red Cross Society in Paris, or to some other selected part of France. Each unit will be under the control of one officer, so that it will be possible for half a dozen friends to begin work together if they wish.

It is estimated that a minimum expenditure of £50 upon each car supplied will be necessary to convert it into an ambulance and complete its outfit, and that the cost of maintenance will be about £10 per week. It is stated that more than five full units, or a total of thirty cars, have already been promised, the immediate great need being for donations towards the first sum of £50,000 required to enable the Committee to carry out the work they have, under Royal auspices, undertaken. It may here be mentioned that offers, both of cars and funds should be sent to Mr. B. Peyman, the Hon. Secretary of the British Ambulance Committee, Queen Anne's Mansions, Westminster. It cannot be doubted but that there will be a prompt response to the appeal, so that many of the much-needed units will soon be on their way to France, doing valuable work in saving the lives of the valiant soldiers whose services are so greatly needed at the present moment.

**The Effect of the War on the Motor Industry.**

It is of course now a platitude to remark that the motor trade of this country—so far, at least, as the private and pleasure car branch of the industry is concerned—has been considerably affected by the war. There are no means of ascertaining the full extent in the reduction of business that has taken place, but some idea regarding it can be gathered from a careful examination of the Government figures relating to the imports and exports of motor cars and their allied productions.

Taking first the exports of British automobiles, even up to the time of the outbreak of the war, the current year had not proved so active as 1913, the shipments of complete cars, chassis, parts and tyres during the first seven months of the year having fallen off to the extent of £125,138, the respective totals for 1914 and 1913 being £2,364,692 and £2,489,830. To what extent the war has, however, further seriously affected the motor trade may be gauged from the fact that the returns for August last revealed a shrinkage of £98,369, those for September of £79,214, and those for the past month of £129,685, the aggregate exports for the ten months ending with October being only £3,179,920, as contrasted with £3,612,326 in the similar period of last year. There is a difference between these two totals of £432,406, but, as already explained, £125,138 of this arose before the war. A little calculation will therefore show that in three months alone the European war has

resulted in a loss of trade to the British motor industry of no less than £307,268, a loss which extends to all branches of the trade.

Turning to the importation of foreign motor productions into this country, it was, of course, apparent that, with an entire cessation of imports from Germany, Austria and Belgium, and almost completely so from France, the figures would show a very heavy decline, and this has proved to be the case. As a matter of fact, the war will prove—at least temporarily—a very serious matter for those engaged in the motor industry in the last two named countries, particularly to France, which has hitherto been mainly dependent, as regards the motor industry, on its huge foreign trade.

Notwithstanding the steady development of the motor industry at home, the returns relative to the imports of foreign motor cars into the United Kingdom continued right up to the declaration of war, to shew a marked upward tendency, the imports during the seven months ending with July last having amounted to no less than £5,240,819, as against £4,507,203 in the similar period of 1913, there being thus a gain of nearly three-quarters of a million sterling—£733,616, to give the exact figures. With such rapidity did the war affect the trade, that in the month of August alone there was a drop in the imports of no less than £506,173, this being followed by a further loss in September of £425,814, and again in October with one of £250,589. Thus, in the three months that have elapsed since the war commenced, the

decline in the imports has amounted to no less than £1,182,576. This huge decline has so altered the position of the import trade that instead of the advance recorded at the end of July, it now shows a shrinkage of £448,960 when compared with the first ten months of last year.

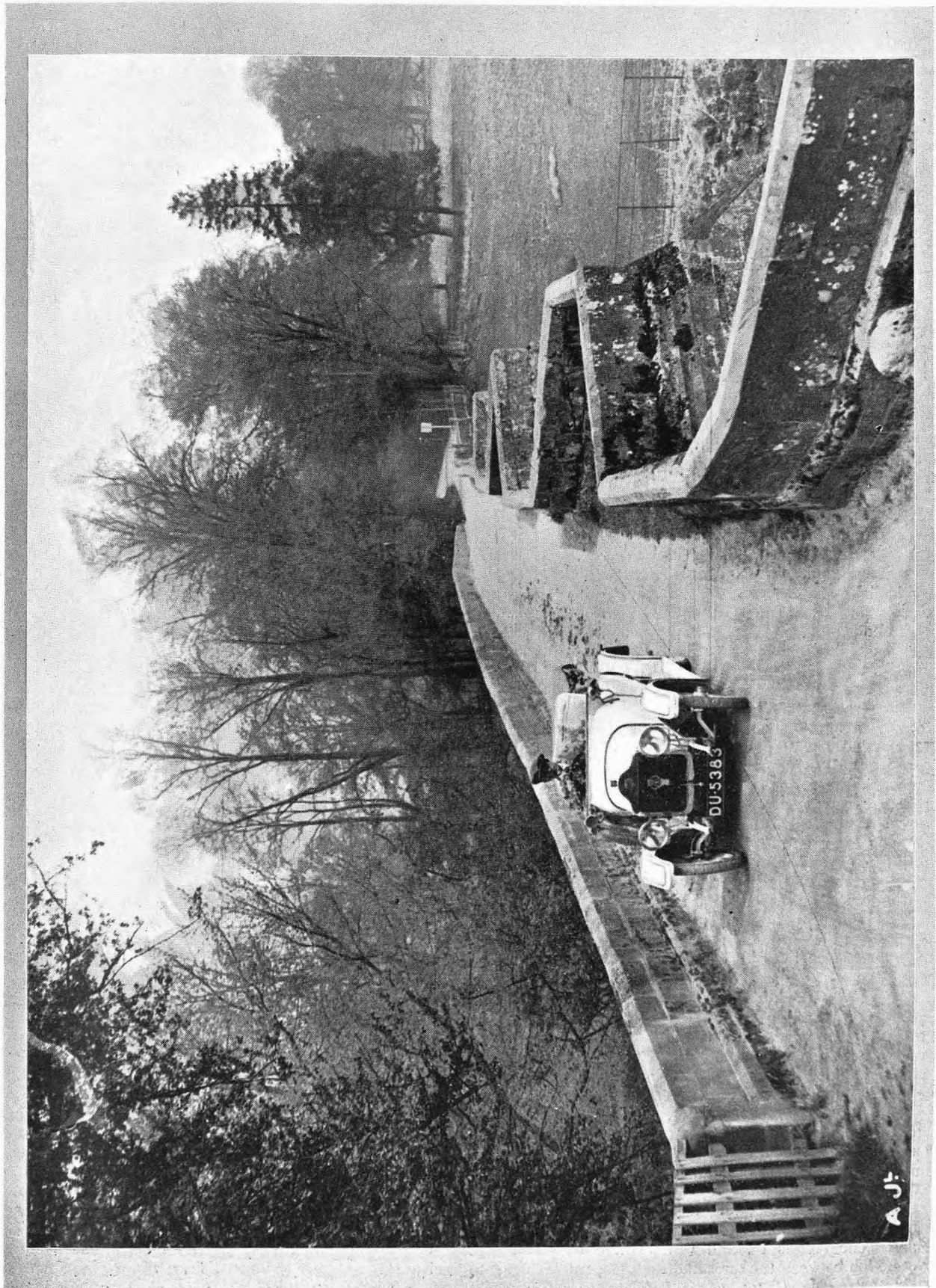
Taking the imports and exports together, we find that the decline in the turnover in the motor trade of this country resulting from the war has already reached the colossal total of £1,489,844, or approximately a million and a half sterling, a figure which is no doubt much below the actual amount having regard to the large proportion of the home production which, being sold to British buyers and users, does not figure at all in the import and export returns. Serious as this huge shrinkage undoubtedly is, especially to those British concerns which have hitherto confined their attention and energies to the sale of Continental cars, to whom the war has caused a crisis that will require all their financial resources to surmount, there is the satisfaction of knowing that the war has strikingly demonstrated the efficiency and necessity of motor transport. We may therefore look, once the great struggle is over, not merely to a revival of and an increased business in pleasure cars, but also to a huge demand for motor vehicles for commercial and industrial purposes that should bring about a period of even greater activity than has ever before been experienced in all departments of the automobile industry.



A motor transport column for the French Army passing through a village on the way to the front.



WITH THE CAMERA AND THE CAR.



Near Stoneleigh Abbey, with a Calcott light car.

## SKIDDING.

### THE CAUSE OF AND HOW TO PREVENT A CAR FROM SKIDDING.

ALTHOUGH skidding is not of such frequent occurrence, and the magnitude of the skid, when it does take place, is not so large as formerly, owing to the vast improvements which have been made in car design and the construction of tyres, and by the use of various devices, it is still often a cause of anxiety to motorists. While the roads are in a greasy condition after a shower of rain, the wise driver goes slowly, and when it is necessary to pull up applies his brakes gently. Even so, the most careful driver will occasionally feel with some trepidation the rear of his car commence to move sideways, and once such a movement has started, he is entirely unable to correct it by any means. It is, therefore, appropriate at this season of the year to consider the causes of, and what steps may be taken to prevent, skidding.

Skidding is due to insufficient adhesion between the tyre and the road; or, in other words, the failure of the tyre to grip the road. This, however, merely indicates the reason, and in no way explains the cause.

Skidding most frequently occurs when the direction of motion of the car is altered, either for the purpose of turning or with the object of avoiding an obstacle in front. Immediately the steering wheels are moved the path of the vehicle is changed, and two actions become at once operative. Firstly, since the mode of motion of any body, unless acted upon by some restraining or applied force, is a straight line, the mass of the vehicle endeavours to continue along its original path, and in so doing there is a partial sliding action between the front wheels and the road. If the turning movement has commenced, the same action tends to take place at the rear wheels also. Now the coefficient of friction or the limit of adhesion is greater when the wheels are rolling along the ground than when sliding, hence if the surface of the tyres in contact with the road were previously loaded well up to the limit of adhesion, they may now be overloaded, and at once the car skids. The skid may partake of the character of purely forward motion if the front wheels are alone affected; but in the case of the rear wheels the rear of the car may slide in either direction, according to the side on which the resistance is the greater, and since the surface of the road is not of uniform greasiness, a to-and-fro movement of the back of the car may be experienced. This latter action is probably the more prevalent because the rear tyres are usually loaded by the tractive effort transmitted from the engine, and tractive effort alone may produce somewhat similar effects; but the front wheels also are subject to a load due to the resistance to traction, and a combination between a waggle and forward motion may and does actually arise when the road resistance varies. This wagging of the rear of the car is sometimes experienced under normal running conditions upon smooth, greasy roads, and is due simply to variations in the tractive effort and in the coefficient of friction at the road.

Secondly, as soon as the car commences to turn, even to the slightest degree, it is acted upon by centrifugal force—the sharper the turn and the quicker the car is moving, the greater is the magnitude of the force. This force acts radially through the centre of gravity of the car from the centre about which the car is turning, *i.e.*, at right angles to the instantaneous motion of the vehicle; and hence tends to, and will if there be insufficient adhesion between the tyres and the road, cause the car to skid outwards. If the adhesion of the front wheels is

the greater, the rear of the car will side-slip, whereas if the reverse is the case, the front of the car will diverge. In modern designs, with the centre of gravity low and the weight of the car well distributed, the tendency to skid under centrifugal force has been considerably minimised, because the rolling tendency of the car and the magnitude of the roll are greatly reduced thereby. These factors are of importance from this aspect of the question, because any lowering of the centre of gravity reduces the lateral displacement of the weight of the car owing to the deflection of the springs. Hence there is less variation in the load upon the tyres, and the incipient cause of one form of skid is partially removed.

The measures which should be taken in order to avoid a skid from either of the causes mentioned in the two preceding paragraphs are, obviously, to allow the car to slow down as much as possible before attempting to turn, and to turn as gradually as possible—whilst, when following another vehicle, always keep a sufficient distance away as will allow of pulling up slowly, having regard to the speed at which the car is moving.

Another form of skid may occur when the adhesion of the wheels on one side is less than that of those on the other, the limit being reached when the coefficient of friction of one of the driving wheels falls so low that under the action of the differential that wheel spins backward. In this event the tractive effort is applied on one side only, the opposite side being retarded, so that the car is turned bodily until the idle driving wheel passes on to a portion of the road surface upon which it can get a grip, by which time, however, the front wheels will probably have come up against the kerb.

Skidding may also take place when the car is proceeding quite normally along the road, and for no apparent reason; inasmuch that the car is not caused by the driver to deviate from a straight path, neither are the brakes applied. This is largely due to the inequalities in the surface; but partly also, in some cases, to the axles not being in alignment, or to the wheel tracks not being parallel, in fact, many a bad skid is either started, or, at any rate, aggravated, by one or other of these factors. On the most perfect road the tyres do not constantly bear with uniform pressure upon the ground, but as the springs are alternately deflected and extended in negotiating the various bumps, the force to which each tyre is subjected varies at certain times, only one wheel may be driving, and the tyres on one side may not be in contact with the ground; under such circumstances a turning moment is applied to the car, which may be of sufficient magnitude to cause it to turn head to tail, or even to make a complete revolution. The driver *may* be able to declutch in time to prevent the movement from developing; in any case it is generally best, when such an incident does occur, to declutch as soon as possible and await events with such composure as one can command. It will be seen that the shorter the wheel-base the greater the facility with which a skid can arise from this cause—firstly, because the masses forming the car are concentrated nearer to the centre of gravity of the vehicle, and secondly, because the up-and-down motion of the car on the springs will be more violent. Improved methods of springing and a better disposition of the weight of the car, whereby the tyres are able to keep a better hold upon the road, have done much to reduce the skidding propensities of modern cars, although a

complete "head-to-tail" movement is not even now entirely unknown.

By far the most prevalent cause of bad skidding is injudicious braking, having regard to the speed of the car. There is, probably, not a single car upon the road upon which it is not possible to lock the rear wheels by the application of the brakes. This, of itself, would be comparatively unimportant if the centre of gravity of the car, with its occupants, were in the same vertical plane as the longitudinal centre line of the wheels, and the sum of the resistances at the wheels on each side were equal, or if the amount of displacement of the centre of gravity corresponded with the displacement of the centre of resistance. Actually they seldom do so, because the number and weight of the passengers carried varies; but if the ideal conditions were satisfied, the braking force would exactly oppose the force due to the kinetic energy of the car which is being absorbed. In practice, because the line of action of the resistance and the path of the centre of gravity are not in the same vertical plane, there is always a turning moment instituted immediately the car is braked. Under ordinary road conditions this moment may be insufficient to cause a skid, owing to the friction between the tyre and the road, which tends to resist any movement; but on a greasy road, unless the speed is low and the brakes are applied gradually, a skid is practically inevitable. The skid under these circumstances always takes place through the lateral movement of the rear of the car, because the rear wheels have a lower coefficient of friction than the front, and their resistance to side movement is therefore less. By the adoption of an efficient system of front wheel braking, such as has been fitted for some years to the cars manufactured by Argylls, Ltd., skidding due to this cause may to a large extent, if not entirely, be eliminated, in addition to which, the braking power of the car is appreciably increased.

In the foregoing the question as to the kind of tyres fitted to the car has been entirely neglected; nor have

the many devices which have been invented with the object of eliminating skidding been considered; owing to the inability of the latter to operate quickly enough they are largely ineffective. At the present time there are several makes of tyre that are claimed to prevent any skidding action, and undoubtedly they have done much to render road transit much safer. Some makers rely upon a special formation of the tread to accomplish their purpose, but steel studded tyres can be relied upon under many conditions to stop any tendency to skid on greasy surfaces, although they are more expensive to buy. Much of the effectiveness of any class of tyre in this direction, however, depends upon the kind of road upon which it is used, and no tyre can, nor would it be claimed by the makers, give equally good results irrespective of the condition and the nature of the road surface. Usually, however, sufficient immunity from trouble can be obtained provided that the car is driven in a reasonable manner by the use of two non-skid tyres, which may be either both placed on the rear wheels, or arranged in diagonal fashion, one on one of the front wheels and the other on the rear wheel on the opposite side.

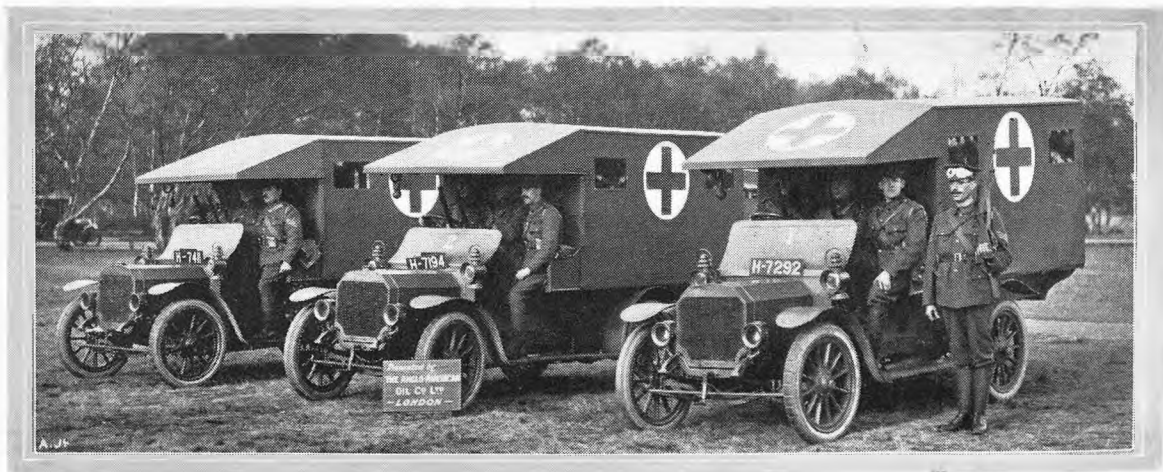
Which arrangement is the more satisfactory is not by any means agreed upon, this divergence of opinion being probably due to the difference in the manner in which a skid may originate, and because the arrangement that will prevent skidding in one way may directly incite to skidding in another.

The measures which may be taken to minimise the effects of a skid are not easy to outline, but it is safe to say that under any circumstances the clutch should be withdrawn immediately and the brakes, if they have been applied, should be released. Occasionally it is possible to correct the skid by turning the front wheels towards the side, to which the rear of the car is moving, but *immediately* the car resumes a straight course, the wheels should be again directed ahead, as otherwise a second skid, worse than the first, may result.



ACCORDING to an Army Order issued at the end of last week, a motor machine-gun battery will be added to each division of the Expeditionary Force. *Personnel* for these batteries will be found from volunteers from units of the

new armies, or by special enlistments for the motor machine-gun service. Non-commissioned officers and men accepted for service will be transferred to the corps of the Royal Horse and Royal Field Artillery.



A trio of Panhard Red Cross cars presented to the Red Cross Society by the Anglo-American Oil Co., Ltd., a splendid gift which has been greatly appreciated by the Society.



## TESTS ON BRAKE LININGS.

An extensive series of tests has recently been carried out in the engineering department of the National Physical Laboratory for one of the makers of brake linings, and the results obtained are detailed in the report of the executive committee. Tests were made on some thirty different substances to determine their coefficient of friction under varying conditions of load, speed and temperature. The materials comprised nearly all the cotton fibre and woven asbestos linings in use, as well as several experimental materials and also wood, leather and vulcanised fibre.

"The tests showed very great differences in the behaviour of the different substances. In some cases the pressure caused the material to break away at the edges, and in others the temperature caused the destruction of the material, but in no case did there seem to be any limit to the speed at which the materials could be used. The rate of wear, as would be expected, depended on the speed. The limiting values of pressure and temperature in many cases depended upon the integrating substance used in manufacture. In some cases pressure alone was sufficient to force this impregnating fluid out, and in others the fluid was driven out at quite low pressures as the temperature increased. The best cotton and asbestos linings were not influenced by a temperature as high as 230° C., and would work without undue wear with a pressure of 80 lbs per square inch.

"The especial object of the tests was to examine the variation of the coefficient of friction under the different conditions, and the following results were generally found:—

Material.	Variation with Increase of Speed.	Variation with Increase of Pressure.	Variation with Increase of Temperature.
Cotton fibre ...	Nil	Increases	Increases
Woven asbestos	Nil	Nil	Increases
Wood (teak) ...	Nil	Nil	Nil
Leather ...	Nil	Decreases	Decreases greatly
Vulcanised fibre	Nil	—	Increases (but soon burns)

"The values of the coefficients of friction may be taken as:—

Cotton fibre ...	...	...	...	0.55 to 0.65
Asbestos ...	...	...	...	0.30 to 0.35
Wood ...	...	...	...	0.25
Leather ...	...	...	...	0.2 to 0.8
Vulcanised fibre	...	...	...	0.5

"The most marked result of the tests was the uniformity of the values of the coefficient of friction for

the first two materials, and the others cannot be compared with them in suitability for brake linings. Wood very rapidly chars with a great increase in the coefficient of friction until the charred surface breaks away, when the coefficient falls until a fresh charred surface is formed. The leather blocks would give almost any value for the coefficient between the limits stated, and were very rapidly destroyed at a temperature a little above 100° C. The vulcanised fibre gave a high value for the coefficient of friction, but is useless except for very well cooled brakes, quite a moderate temperature being sufficient to destroy it.

"The low coefficient of friction of the asbestos, when compared with the cotton fibre, was thought to be due to the brass wire with which the former is woven. A special block, however, with asbestos fibre woven with wire, without impregnation with any fluid, gave a value of the coefficient well over 0.5, and it would therefore appear that the lower value is due to the impregnation and not to the brass wire. It might be suggested that in the cotton fibre the impregnation is forced into the fibres, whereas in the asbestos blocks the impregnation is between the fibres and does not penetrate them, thus being in a position to lubricate the rubbing surfaces.

"A very noticeable fact was that the new surfaces of both the cotton fibre and woven asbestos blocks gave lower values of the coefficient of friction than the worn surface. The best results were obtained as soon as the surfaces were worn to a highly-polished glazed appearance.

"The effect of lubricating the surfaces of the cotton fibre and asbestos was, of course, to reduce the coefficient of friction, and the friction was no less at high temperatures than low. The pressure could, however, be increased to such an amount that the same amount of energy was absorbed per unit of area, and this could be done without any increase in the rate of wear.

"A few tests were made on the friction of starting from rest, and the coefficient of friction so observed was found to be from 60 to 120 per cent. of the coefficient of friction when running. In no case was a large increase in the friction observed such as is found in the case of metal surfaces in contact.

"The general result of all the tests was to show that the growing use of cotton fibre and woven asbestos brake blocks was in every way justified by the observations made."

## EFFICIENCY TESTS ON GEAR-BOXES.

THE data at the disposal of the automobile engineer relating to the efficiency of the transmission of motor vehicles is, at the present time, exceedingly scanty. Tests of an elaborate character have been made in Germany by Dr. Reidler and others, and in America a number of experiments have, from time to time, been conducted; but in practically all cases, the investigations have either not been made on modern gears, or have been made by more or less interested parties—a notable exception to this being the series of experiments which were carried out at the National Physical Laboratory on Daimler-Lanchester worm gears.

Considerable interest will, therefore, be manifested in the results of the tests which have now been commenced by Dr. Stanton of the Engineering Department of the Laboratory, at the request of the Mechanical Transport

Committee of the War Office, with a view to determining the efficiency of the transmission of power through gear-boxes.

The first investigation will ascertain the effect of varying the viscosity and quantity of oil in the gear-box. For this purpose the box is electrically heated to known temperatures and efficiency tests made when it is full, half full, and one quarter full of oil. On the completion of these tests a number of different types of gear-box will be tested. The experiments will be carried out at speeds ranging from 37 to 1,000 revolutions per minute of the transmission shaft. This wide range of speeds has necessitated the adoption of special means for measuring the power transmitted at low speeds of revolution, and instead of measuring the torque on the brake, the torque on the gear-box itself is determined.



## HUMBER LIGHT DELIVERY VANS.

ONE of the first firms to realise the huge field opened out by the necessities of war in the way of motor vehicles for tradesmen was the Humber Co., and the Humber commercial vehicles are all of a type likely to be much in demand for such purposes; that is to say, each model is particularly suited for the quick delivery of light loads with the utmost regard for economy.

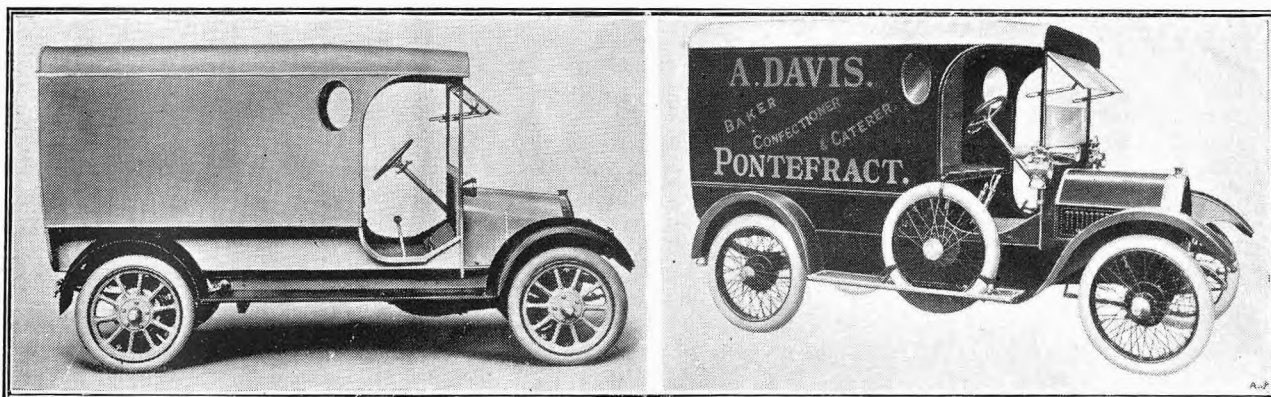
Three models are made, the first and smallest being the familiar water-cooled Humberette chassis, fitted with a light body of ash framing, canvas covered. For maximum loads of round about 3 cwt. there is possibly no more economical vehicle to be had, selling as it does at £135, completely equipped for the road, and with a fuel consumption of approximately 50 miles to the gallon. The cost of tyres, too, is proportionately light; replacing a set of four covers need not exceed a cost of £8, while the mileage for a set at this price should not be less than five thousand miles.

In the four-cylinder 10 h.p. model, the next in point of power and capacity, the aim has been to produce a

portion of the connecting-rod scoop a quantity of oil from the troughs and scatter it in all directions, so that the interior of the cylinders and base chamber, as well as the distribution gear, is always copiously supplied.

Circulation of the cooling water is by natural means, as also is the supply of petrol, the tank being situated on the dashboard well above the level of the carburettor. It will be gathered therefore that all mechanical complications are avoided as far as possible from the design, a fact which tends toward accessibility and also toward economy when the bill at the end of the periodical overhaul is presented.

The method of transmitting the power from the engine shaft to the road wheels is first of all through an enclosed leather faced cone clutch running in oil, to a four forward speed and one reverse speed gear-box, in which the top gear is a direct drive from the crankshaft to the small bevel on the tail shaft that gears with the crown bevel wheel of the back axle. As the latter has five times the number of teeth possessed by the former, the



The 10 h.p. Humber light delivery van (on left), suitable for loads up to half a ton, and selling at £255 as shown; and on the right the 11 h.p. Humber delivery van for loads of 12 cwt.

more ambitious type of vehicle capable of dealing with loads up to 10 cwt. This has an engine of 65 by 120 mm. bore and stroke, is fitted with detachable steel artillery wheels and 760 by 90 mm. Dunlop tyres, and sells at £245 with extra wheel and tyre and complete equipment. The interior dimensions of the body are 5 ft. long, 4 ft. 6 ins. wide and 4 ft. 4 ins. deep, while the wheelbase and track are 8 ft. 9½ ins. and 4 ft. 7 ins. respectively. Except for these particulars the specification of this and the largest model, rated at 11 h.p., are identical, and are as follows.

The engine of the 11 h.p. model has a bore of 69 mm. and a stroke of 130 mm., bringing the car within the three-guinea annual tax. Ignition is by high tension magneto, and a Smith's four-jet carburettor, automatically regulating the proportion of air to petrol, provides the combustible charge to the cylinders. All engine bearings are automatically lubricated on what is known as the forced feed system, in which a positively driven pump drives the oil from a reservoir through the hollow crankshaft to its various points of application, whence it returns by gravity to the reservoir for further use. In the 10 h.p. model a somewhat different arrangement is employed, the pump delivering oil to troughs lying in the path of the big-end bearings of the connecting-rods during the revolutions of the crank-shaft. Dippers on the lowermost

top gear ratio is 5 to 1; the three indirect forward gears being approximately 7 to 1, 11 to 1 and 18 to 1.

The front axle is an H section steel girder, and carries the stub axles on which the front wheels revolve on roller bearings.

Two sets of brakes are fitted, one operated by pedal and the other by a hand lever. The former acts on the main shaft of the gear-box, and the other in shells on the road wheels, the two separate brakes in the latter system being "compensated," *i.e.*, the power applied at the lever is distributed equally between the two. Suspension is by four half-elliptic springs, and the wheels are of the wire detachable variety fitted with Dunlop tyres of 810 by 90 mm.

The body is constructed of an ash frame covered with canvas, and with a solid top. A tail-board and sliding curtains close the rear. The interior dimensions of the body are the same as in the case of the 10 h.p. model, but the carrying capacity is 12 cwt. Including a spare wheel and tyre and full equipment, the price is £280. For a further £10 a fully-panelled body can be supplied with either chassis.

As with all Humber coachwork, the finish and general appearance of the bodies are of a high standard of excellence, a remark that is equally true of the little Humberette as of its bigger brethren.



## Notes from New York

AN attack by some of President Wilson's opponents as to the "extravagance" of the present resident of the White House has brought out some interesting sidelights as to the reported annual "purchase" of four new motor cars for the use of President Wilson in Washington. It is announced that these cars are "not actually purchased by the Government, but are supplied by the manufacturers each spring for the nominal sum of \$500, in pursuance of an arrangement made first with the Taft administration, and regularly approved by Congress ever since, by an annual appropriation of \$500."

Although up to date about 12,000 patents have been issued in the States for spring wheels in one form or another, there seems to be no end to the designs which are evolved by the spring wheel inventor. It is stated that in the month of September 39 patents on this subject were issued by the U.S. Patent Office.

Under the name of the International Tri-ricksha Company a firm is being organized in New York City with the object of manufacturing 3-wheel taxicabs and delivery vehicles.

The motor parade on the 28th ult. in connection with the New York City Commercial Tercentenary celebration was a wonderful affair, no less than 2,017 decorated motor vehicles of all sorts and sizes, in addition to 980 motor cycles, taking part. The seven-mile route was crowded, and it was estimated that over 200,000 people watched the procession.

The design of the \$20 note of the new federal reserve which is being printed by the U.S. Treasury includes a motor car, an aeroplane, a liner, and a railway train.

It is announced from San Francisco that the Panama-Pacific Exposition Committee which is in charge of the Grand Prize Race has brought the date forward, so that it will now be run on February 27th, five days after the Vanderbilt Cup Race, instead of on March 7th as originally arranged.

One of the most interesting features of the fourth American Roads Congress held in Atlanta from the 9th to the 14th inst., was a set of models illustrating the construction and maintenance of standard types of roads. This exhibit was contributed by the Office of Public Roads of the U.S. Department of Agriculture, and the models showed the evolution of stone road building over a period of 2,000 years, and showed the most approved methods of road construction and maintenance in Europe and America. Among the exhibits were models of the Appian Way, Napoleonic roads, and the early English macadam roads. The best practice of road relocation in this country was represented in a "before" model, with steep grades, bad alignment, inadequate drainage, unsafe wooden bridges, &c., and an "after" model, with high location, easy grades, macadam surface, eliminated grade crossings, and other features that are the motorist's delight.

That it is not only the motorist who profits by good roads is shown by Bulletin No. 136, which was issued by the U.S. Department of Agriculture recently. In this bulletin specific examples are given of the increase in land values which has followed upon the improvement of the adjacent roads. In Franklin County, N.Y., where 124 miles of road were built, eight pieces of land selected at random increased 27.8 per cent. in value after the improved roads were constructed. In Lee County, Va., which built 84 miles of road, land similarly advanced 25 per cent. in value. Spotsylvania County, in the same State, improved 41 miles of road, and land sold for \$44.74, where previous to the improvement it had brought just \$20 less an acre. Land on improved roads in the neighbourhood of Petersburg, Va., advanced in about 30 instances from \$15 to \$30 an acre. After Manatee County, Fla., had constructed 64 miles of macadam and shell road, land along the road went up \$20 an acre in the course of two years, and land a mile away from the road showed an increase of \$10 an acre.

After investigating the Detroit system of safety zones, Cleveland's director of public safety has established street lines to expedite traffic in one of the most congested parts of the city and to protect the public that goes on foot. The lines mark out a definite place where the pedestrian will be safe. To insure his safety the pedestrian must stand inside the line at car stops and must cross the street only where the lines mark crosswalks. It is the motorist's duty to drive around the lines when a car stops and over crosswalks at a slow rate.

Through its police department the City of New York is now gathering reliable evidence as to the responsibilities of pedestrians and motorists for the city's automobile accidents in order to provide authentic data on which to base future legislation.

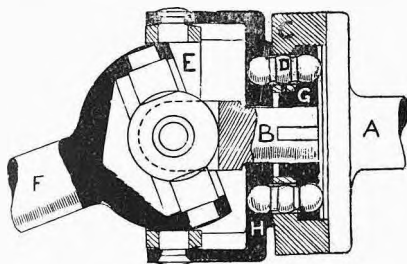
Replying to a letter on the subject, the Mayor of New York said:—

"It is all very well to talk about so many people being run over by the automobiles, but must we not also consider that many of the people who have been injured by automobiles were guilty of such contributory negligence as would remove any cause or blame from the driver of the machine? As I have said, quoting from the police commissioner, there are no records to show by whose fault these previous accidents occurred: but this will all be changed in the future."

At a recently held special meeting of the Massachusetts Automobile Operators' Association, the proposed uniform motor law now being considered by the commissioners on uniform laws at Washington was discussed. It was pointed out that according to dispatches it was intended to put in a clause requiring drivers to wear badges, and another that convictions should be written on licences. One speaker reminded the meeting that there was a badge clause in the Bay State motor law, but because of persecution by police of drivers the legislature took it out. Also that attempts to put in a conviction licence clause have been rejected by the legislature several times. Eventually it was decided to frame a protest to send to the commission.

## A NEW UNIVERSAL JOINT.

ONE of the modern developments in automobile design has been towards the elimination of the rear universal joint in the propeller shaft, as the result of enclosing the latter in a torque tube, and rendering the use of special torque and radius rods unnecessary. This system of construction is advantageous to the owner as well as to the manufacturer, for it affords greater rigidity, conduces to cleanliness, reliability and durability, and, probably, reduces the cost of production slightly; but it has the demerit that the angular velocity transmitted to the rear axle shaft is not uniform. This factor is, perhaps, of comparatively little importance in view of the variation in the speed of the clutch shaft owing to irregular engine torque, while the elasticity of the shafting between the



The Walker universal joint.

road wheels and the first universal joint is capable of absorbing such fluctuations in the transmitted velocity as ordinarily occur in practice. But any device is of value that tends to eliminate changes in angular speed, since the variations due to uneven torque and to the obliquity of the propeller shaft (which two universals are able to correct) do not synchronise with one another, and must both induce stresses in the transmission.

Such being the case, a form of universal joint that has been invented by Mr. Leslie Walker to reduce these variations in angular speed when transmitting power through oblique shafts may prove of interest. In effect, the invention consists in the substitution of two universal joints for the single universal, with additional mechanism which allows the device to act. B and F form the ordinary universal joint, but the outside of F is supported in a circular frame, E, which with H constitutes the second universal joint. On the end of B is keyed a plate, G, which is driven through a number of spherical headed pins, D, by the ring, C, attached to the gear box shaft, A. The drive is not, however, direct, since the spherical headed pins, D, engage with the outer member H, of the second universal joint so that the pins, D, drive H and G together, and it is the mutual adjustment of these two parts that causes a reduction in the variation in the angular speeds of A and F. At the instant when the propeller shaft F tends to slow down owing to its obliquity, H receives a retarding movement of sufficient magnitude to give G an acceleration that practically maintains the speed of F, and *vice versa*. The exact manner in which this is effected is too elaborate to set out here, and it is not claimed by Mr. Walker that the variation in angular speed is absolutely corrected; but that over 98 per cent. of the original error in velocity is removed.

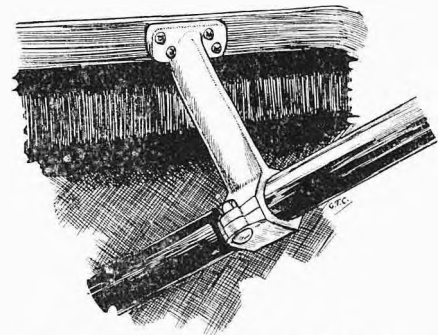
The design of the joint shown in our illustration is that which it is proposed to use in another class of engineering work, and consequently would require some slight modification in details in order to render it applicable to motor cars. But the principle will remain unaltered, and if it will do that which its inventor claims for it, it should be well worthy of the attention of motor car manufacturers.

## A STEERING-COLUMN STAY FOR FORD CARS.

THERE are few things more annoying to a driver of a car when traversing rough roads than the "dither" set up in a steering column that is not rigidly supported. It magnifies the vibration, tires the arms, conduces to bad temper and altogether minimises the pleasure that should rightfully be expected from the act of driving. It is always worth while, therefore, to have the defect remedied where it exists, and it can usually be done by staying the column by means of a bracket attached to the dash, a little job that almost any garage would undertake to do at a moderate cost, if appearance were of no importance. To make a good-looking and well-finished job, however, would be comparatively expensive in an individual case, because a single casting is almost out of the question, and the only alternatives would therefore be to use sheet metal or else to machine a bracket from the solid.

Owing to the number of cars of Ford manufacture now running on our roads, it has been found practicable, however, to cast in quantities to suit this particular make a bracket of handsome appearance, and to sell it at a reasonable figure. This detail, which is illustrated in the sketch, is

manufactured by Cayenne Motors, Ltd., of St. Leonards-on-Sea, and is of burnished aluminium. The cost is 14s.



A steering-column stay for Ford cars.

which sum should represent the total outlay, for the fitting can be undertaken by anyone, and is the work of a few minutes, a fact that is made clear from the sketch.

### Reduced Lighting and Accidents.

IN reply to a question in the House of Commons on Monday, Mr. McKenna, the Home Secretary, stated that he was informed by the Metropolitan Commissioner of Police that the police returns showed no increase in the number of traffic accidents occurring by night. The

regulations regarding lighting were made on the advice of the Admiralty, who were responsible for the defence of London against aerial attack. They had already been relaxed so as to allow shops to remain brightly lighted till 6 p.m., and he would be glad to relax them further as soon as the Admiralty advised him that this could safely be done.

## QUESTIONS AND ANSWERS.

THIS section of the AUTO. is devoted to the consideration of mechanical and technical problems connected with the motor car; and we invite owner-drivers, students, and others to submit questions to us for investigation and solution, should they be unable to answer them with any degree of satisfaction.

A selected number of questions from those received will appear each week, with replies thereto, and our readers, for the benefit of their fellow motorists, are invited to offer their opinions on the questions submitted, or to criticise the answers given. These communications will be heartily welcomed, and such as are suitable for publication will be inserted. When referring to previous questions or answers, reference should always be made by the number of the question.

Questions arriving at this Office on Monday morning will, where possible, be replied to in our issue published on the following Thursday.

Correspondents are requested to write distinctly, on one side of the paper only, and should forward their names and addresses, which will not be published except by request.

97. *Question.*—**Slackness in Steering Gear.** Can you tell me why it is that after you reach a certain speed on the road—say about 25 to 30 miles per hour—it is extremely difficult to steer a straight course, for the steering wheel, that requires very little movement at ordinary speeds, has to be turned alternately to the right or to the left almost continually? Some method should be devised to overcome this, as the most careful drivers try to do from 25 to 30 miles per hour, and one-half of the pleasure is gone when the steering takes up so much attention. I may add that this trouble seems to be much more prominent in some cars than on others.—C. C. M.

*Answer.*—As you observe, the difficulty of steering a straight course is much more pronounced in some cars than on others, and is due to the amount of play in the steering gear; but on no car should there be any special difficulty until well above the speeds you mention are attained. This effect of wear is generally due to the clearance between the teeth and worm, or the screw and nut at the foot of the steering column, but wear in any part of the gear will naturally permit the free partial movement of the wheels without moving the steering-wheel. See what amount of "play" there is in the steering-gear by keeping the road wheels fixed and rotating the steering wheel in both directions. The amount of movement on the rim of the steering wheel should not exceed 2 ins. in any case.

The real cause of the trouble is that when the wheels strike a bump in the road, they are set over to the opposite side and the car moves along the new path. The driver immediately tries to correct this movement, but before he can do so completely, the wheels receive a blow which turns them to the opposite side, and so the see-saw motion goes on. If the road were sufficiently wide, the average course traversed without moving the steering wheel would be practically a straight line. This action goes on at all speeds, but at high speeds the effects are more marked because the driver has not the same time in which to correct the movement.

98. *Question.*—**Carbon Deposits.** I have just made a startling discovery in connection with my car—namely, that it will run with the ignition switched off. The manner in which it was discovered is interesting. I learnt to drive by the somewhat expensive road of experience, but my son, with my advice, took lessons from a local garage, and was told that you should stop the engine by switching off the ignition and not by closing the throttle. Judge of my astonishment, after I had permitted him to give me a trip in *my* car, to find that, although the engine was switched off, on reaching home, in accordance with the precepts he had received, the engine continued to run—jerkily, I admit, but it ran, nevertheless! An examination of the electrical connections shows that they are in order, and it has, therefore, somewhat mystified us.—H. R.

*Answer.*—There is every probability that your engine continued running after switching off, due to carbon deposit in the cylinders—some loose portions becoming detached from the walls or head and remaining

sufficiently incandescent to fire the incoming gas on compression—really, preignition.

You may judge to what extent this theory may be accepted if you examine the interiors of the cylinders of your engine, or if you can remember when they were last cleaned out. The irregular running would be accounted for by the fact that the gas in one, two or more cylinders was fired by the incandescent material. If the engine is fitted with controlled ignition, you could readily ascertain whether it is due to defective wiring, without running over the leads, by noting the effect of advancing and retarding the spark when the ignition is switched "off."

Have you noticed any special hammering or knock in the engine when climbing hills?

99. *Question.*—**Carburettor Flooding.** I have lately noticed a marked increase in my fuel consumption, as instead of getting from 18 to 20 miles to the gallon, I can only do about 16—not more. At one time I put it down to the heavy roads, but on comparing notes with a few local friends, find that they have not noticed any difference with their cars. I may add that there is a little dribble of petrol from the carburettor after the car has been standing for some time, but it is not sufficient to make the difference mentioned. How can you account for this?—L. M. J.

*Answer.*—The fact that you have petrol dripping at all from your carburettor indicates that the level in the jet and float chamber is too high. This may be due ordinarily to a leaky needle valve or a punctured float, so that you should examine these parts, as if either or both are defective, it is quite possible that your increased consumption is due solely to this. Grind the needle valve in, and make sure that it is seating properly and that there is no shoulder upon the valve, a frequent cause of leakage. At the same time see whether the float is leaking. This you may do by shaking it close up to your ear, when you may hear a noise if any petrol has entered, but be careful to distinguish between the metallic sound arising from shaking little bits of solder which may have been dropped inside during manufacture or subsequently, and the sound due to the splashing of petrol.

On the whole, the best test is, place the float in a basin of water—the temperature of the water being such that you can just bear your hand in it. If the float is punctured, little bubbles of gas will appear at the soldered joints—the point or points at which they appear should be marked with an indelible pencil. After all the petrol has been driven out by the heat from the water, the part should be soldered up—the minimum of solder being used, and the maximum of care being exercised in applying it, otherwise you will "run" the remainder of the joint. Seccotine or mendine will make a good temporary repair that will last for some weeks if necessary, but the price of a new float is not high, and often is the cheapest way in the end.



## CORRESPONDENCE.

### London's Darkened Streets.

SIR,—Is it not about time that some steps were taken to curtail the extent to which street and shop lighting is diminished in and about London? Too much, in my opinion, has been made of the effect upon trade, and of the increased risk of street accidents, and not enough of the effect upon a driver's nervous system. I am not referring here to any supposed effect the darkened streets may have upon the individual, but to the nervous strain upon the driver.

As an example—I have driven my car home at night from the City for several years past, but hardened though I am to driving through traffic, the journey home is now simply nerve-wracking. This effect is not experienced in the crowded and congested thoroughfares, but when you get into the inner ring of suburbs, and it seems to me much could be done to relieve the strain of night driving without any detriment if the districts within this ring were permitted better lighting facilities. Certainly, a band of light would not render the location of an objective more easy.

Furthermore, on some occasions recently the reduced lighting has been nothing more than ridiculous. During the last two weeks we have had some extremely windy weather, accompanied sometimes by rain. The wind was, as a rule, from the north-west, and was such as to make the North Sea crossing absolutely impossible for Zeppelins; and when the wind was more favourable the moon was so bright as to cause any object in the air to be visible at any height for miles away. Yet we still continued the farce of reduced lighting and maintained our searchlights!

Would it not be feasible for the police to acquaint the local lighting authorities in each district on such occasions when better street illumination is possible! The present arrangements so far as shops are concerned would, of course, stand.

Ealing, W.

PETER GREAVES.

### Inconsiderate Driving of Motor Vehicles.

SIR,—When are the authorities going to learn that street accidents are not caused by excessive speeds over measured distances? A driver never attempts to drive his car at high speed in London unless the road is clear or the traffic in front of him is moving at a fast rate. Accidents are generally the result of a driver endeavouring to pass another vehicle, beyond which he has not a clear view, or in cutting off corners, and for these cases timing controls are perfectly useless.

But any excuse is good enough, if the desire for the resumption of timing operations is there. Why does the Commissioner of Police indulge in clap-trap about the importance of reduced speed after dark when he knows full well that "the statistics" recording in each case the time of the accident disprove this contention "that the diminution of the street lighting has been the cause of increased fatalities"?

November 11th.

H. R. BURRELL.

SIR,—The mere fact that the increase in the number of street accidents which have occurred during the past two months has been due to accidents which have happened during the day, by no means justifies the assumption of the Commissioner of the Police that they have been due to inconsiderate driving, with which assumption you are disposed to agree, and that "a section of motor drivers should have seized the occasion of a national emergency to endanger the public and embarrass the authorities." If such accidents had occurred under normal conditions one might reasonably arrive at such a conclusion with some possibility of accuracy; but we are not under normal conditions. This is plainly evident to the most casual observer, for two reasons—(1) that there are now a large number of lady-drivers of motor vehicles in London, and (2) that there has been a big influx of foreign visitors, a large proportion of whom are women and children.

The question as to whether a lady can drive as well as a man has been often discussed, and, much as I should like to compliment the the opposite sex upon their abilities in this direction, I know that personally I would much prefer to sit beside or behind a male driver of average skill than be driven by a lady. It is not a question of the inability of ladies to acquire the necessary skill, but that the opportunities afforded them to do so are not so extensive, or are not so often taken advantage of; and they have taken up driving more frequently of late because of the absence of parents, brothers, or chauffeurs on active service. Consequently the possibilities of accidents occurring have been rather increased than diminished, despite the reduction in the amount of traffic.

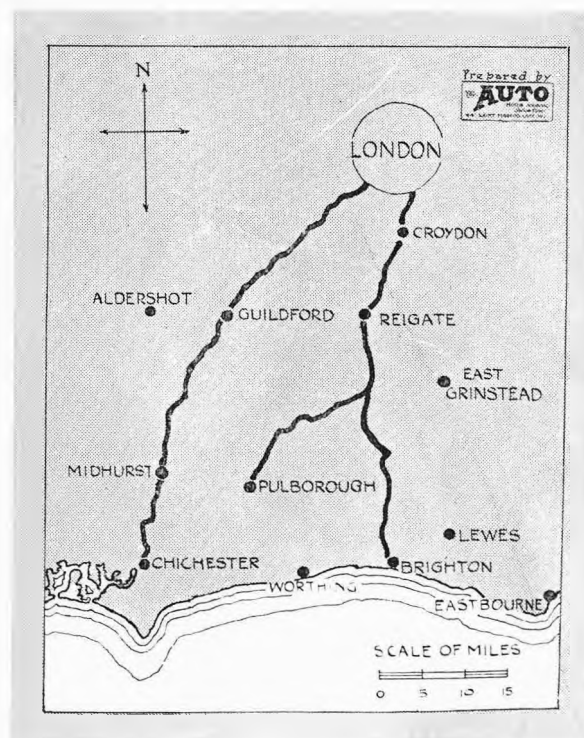
The presence of visitors in London from the districts affected by the war, many of whom have come from places where motor traffic is the exception rather than the rule, must also conduce to a similar result. This fact is admitted by the Commissioner in his letter, as he states that "the number of strangers and foreigners unused to

## PLACES OF INTEREST.

Those willing to assist in maintaining the reputation of their favourite districts for beauty and interest are requested to send photographs for publication in these columns.



PULBOROUGH.



Pulborough and Amberley in Sussex are favourite spots for anglers and artists, the villages and surrounding country being very much the same as they were a century ago. The above photograph is a charming camera study taken with a No. 1 folding pocket Kodak in this district.

the dense traffic of a busy town is unusually great; and numbers of children are being released earlier from schools. These children will, no doubt, play in the streets, and are greatly exposed to the risk of accident, more particularly when—between dusk and dark—the lighting is uncertain." I should not be much surprised to find it in the bulk of those accidents which have occurred either lady-drivers or visitors to London were involved in some way. I should not be satisfied by any analysis that consisted only in specifying the actual drivers of the cars to which the accident was immediately due, and the persons who have been injured, and did not consider all the circumstances. The most skilful driver may become involved in an accident through the bad driving or carelessness of others; and further, the injured person is not necessarily the immediate cause of an accident, but may become involved through a driver endeavouring to avoid some other person.

November 16th. DOUGLAS MACNEILL.



### The I.A.E. and Supply of Steel Parts.

SINCE the reading of Mr. Pomeroy's paper on "Automobile Engineering and the War" the institution has been endeavouring to arrange a conference between automobile engineers and steel makers of this country, but no success has attended these efforts up to the present owing to the enormous volume of work the steel makers already have in hand. The Council have now arranged to hold a meeting in the Midlands at which Mr. Pomeroy will read another paper dealing in somewhat greater detail with the needs of automobile engineers in the direction of stampings, forgings and castings. The desire is to get together those who can supply such parts or might be prepared to undertake the supply of such parts, and to talk the whole question over with automobile manufacturers who are at present in difficulties. It is hoped that this paper will be read publicly in December, and that a large muster of those interested will be present.

### "O.H.M.S."

SIR,—Your comments in "Passing Events" last week re the flagrant abuse of the letters "O.H.M.S." and "R.N." were not strong enough; for, so far as I can see, those few owners or drivers who have taken advantage of their assumed immunity from the law have done so with the express object of avoiding identification and to enable them to drive regardless of other road users. It is no uncommon sight to observe a car bearing these letters only threading its way in and out of traffic, darting here and there, at a speed that would never be indulged in did the driver anticipate attention from the police.

Nobody would attempt to depreciate the service which those owners who have placed their cars with drivers at the disposal of the Government are rendering to the nation; but such action on their part makes their misbehaviour all the more deplorable.

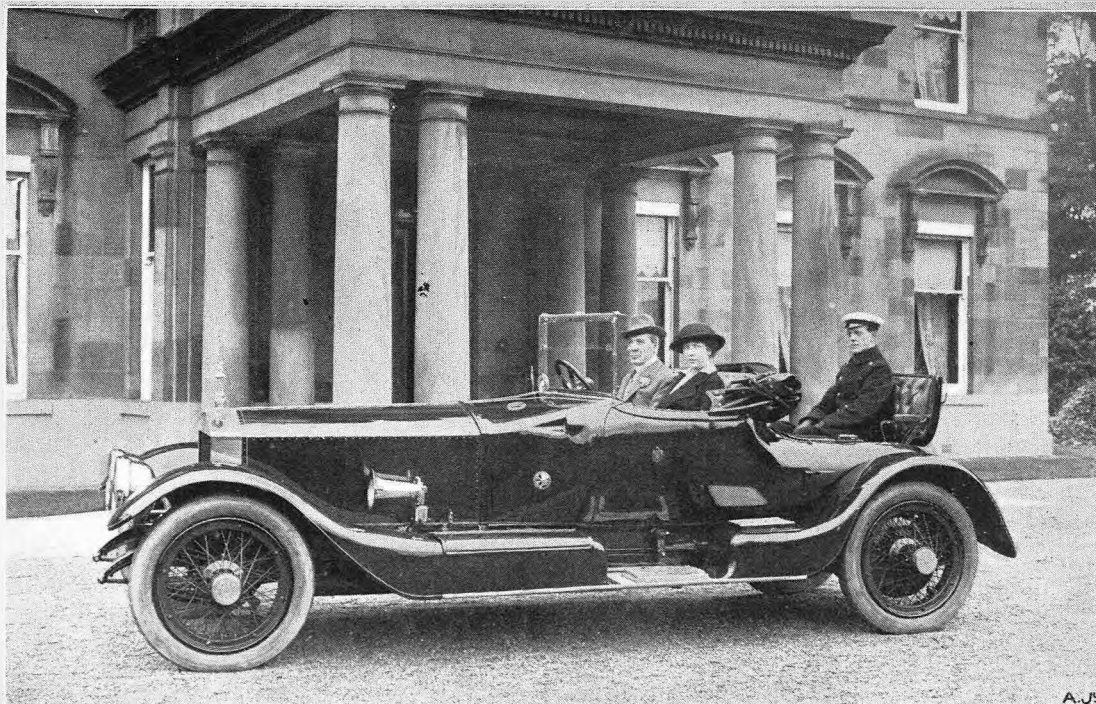
Plymouth, November 15th.

C. R. CRASKE.

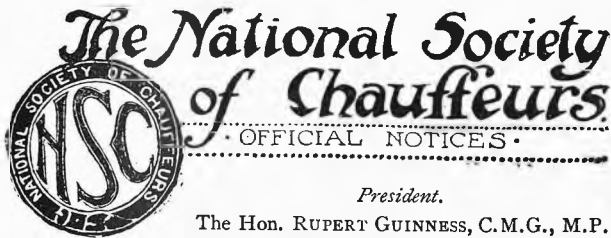


### "Woman and Her Car."

UNDER this title the *Gentlewoman* has published a little book which should prove very useful to those of the fair sex who contemplate taking up motor car driving. It does not pretend to be a text book on the mechanics of a motor car, but it has been written by Mr. Leonard Henslowe with the idea of serving as an introduction, as it were, to the subject. It contains a good deal of shrewd advice on such points as Choosing the Car, Equipment, Garaging, Engaging a Chauffeur, Learning to Drive, Lubrication, Locating Faults, Hills, Touring, &c., all of which give the reader who is practically a novice a very good idea of what is involved in the ownership and management of a modern car, and should enable her to steer clear of serious trouble. The little book is well printed and bound, and has several clear illustrations to explain details where necessary and to enable the various parts of a car's anatomy to be identified. The price is 1s. net.



Mr. Rowland Hodge, of Newcastle-on-Tyne, at the wheel of his new two-seater Rolls-Royce, a very fine specimen of metal beating work. There are several neat points of design in detail in the bodywork, which is by Sir William Angus Sanderson and Co., Ltd. Note the mudguards into which the tool boxes are cleverly worked. The disappearing back seat accommodates two when opened out, and the side lamps let into the scuttle are remarkably effective when in use. This is Mr. Rowland Hodge's fourth Rolls-Royce.



*President.*

The Hon. RUPERT GUINNESS, C.M.G., M.P.

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*Deputy.*—Mr. A. HOLMES.

*General Secretary.*

ARTHUR SEXTON, Halkin Street, S.W. Kensington 4220.

**AFFILIATED SOCIETIES.**

The Nottingham and Notts Chauffeurs' Association,  
Headquarters: 177, Wollaton Street.

Sheffield Chauffeurs' Society, Headquarters: Milk Street.

Birmingham and District Chauffeurs' Association,  
Headquarters: 99, John Bright Street.

Federation Mutuelle et Professionnelle des Conducteurs d'Automobiles  
de Belgique, 23, Rue de l'Industrie, 23, Bruxelles.

The Motor Drivers' Approved Society for the purposes of the  
National Health Act.

**Objects.**

To endeavour by all constitutional methods to procure the  
following amendments to the Motor Car Act:—

1. That driving licences shall only be endorsed on conviction of an offence involving actual and wilful damage or injury to the public.
2. That endorsements shall lapse after a reasonable period.
3. That the owner of a car shall be held responsible for all excesses of speed committed by his servant unless (a) the driver is the sole occupant of the car, in which case the owner shall cease to be responsible, and (b) when the car is lent or hired, in which case the person under whose directions the chauffeur is driving shall be held responsible.
4. That fines shall be imposed in accordance with the earnings of the defendant, and not those of his employer.
5. That licences to drive motor vehicles shall only be granted to applicants who have satisfied the authorities of their competence to drive to the safety of the public.
6. To protect the interests of chauffeurs generally.
7. To promote amicable relations between employers and employees.
8. To provide legal assistance for members.
9. To assist members to find employment.
10. Benevolent fund, relief by loans, gifts, pensions for widows and orphans or other dependent relatives, convalescent homes, &c.
11. Clubhouse for members: Billiards, Dining Rooms, Bedrooms, &c. Country members note: "A Home from Home."

**Official Notes.**

The usual weekly meeting of the committee was held on Monday last, when there were present: Mr. C. W. Nairne, presiding; Mr. A. Holmes, Deputy-Chairman; Mr. J. H. Curson, Trustee; Committee: Messrs. Wallis, Graham, Wilson, Kidd, Brand, Robinson, Bean, Warren, Holmes, Rawson and James.

The minutes of the previous meeting were read and confirmed.

**Legal Department.**

A letter was read from the solicitor with regard to the recent decision at the Tower Bridge Police Court. After discussion the secretary was instructed to call upon Mr. Appleton.

**Relief Fund.**

A letter was read from the brother of member No. 1,457, J. Crank, notifying the secretary of the death of his brother, who had been invalided home from the front while serving in the Motor Transport Section of the A.S.C. The member was unmarried, but leaves a widowed mother. The secretary was instructed to make enquiries as to the need for help from the Relief Fund.

The committee expressed their sympathy with the bereaved relatives.

**Correspondence.**

Letters were read from members H. Worby and J. James on active service. Both are well and happy. Letters were also read from Mr. Lee, of the Sheffield Chauffeurs' Society, Mr. J. Cates, and member J. Coates, who thanks the society for help received from the employment bureau.

The Chairmen asked the Committee to consider the advisability of inviting all Belgian chauffeurs who were by force of circumstances in England to the use of the club premises. He had come across one Belgian transport driver who was without friends in this country, and he thought perhaps the Committee would like to hold out the hand of friendship to him and others placed in a similar position.

The Committee unanimously agreed to welcome any chauffeur serving in the Army to the comforts of the clubhouse, and especially those of foreign nationality, not alien enemies.

**Review of Events.**

It is to be hoped that members carefully read the letter to be found on the page devoted to correspondence in last week's issue, and will endeavour to carry out the advice given by the writer, the Hon. Arthur Stanley, Chairman of the R.A.C. and Vice-President of the N.S.C. It is to be regretted that the police should think it necessary to re-establish police traps. The darkness in our streets should have been a sufficient reason for owners to help the authorities by giving their chauffeurs sufficient time to drive slowly. It would be interesting to know how these accidents have occurred; also, if the police have warned any driver who appeared to be driving at a speed dangerous to the public. My reason for thinking the report would be of interest is that I have noticed the speed of omnibuses running down Grosvenor Place to Victoria. The road has been under repair, and a constable stationed at Hobart Place to regulate the traffic. At this point the 'buses have been driven both day and night at a speed which made it dangerous for pedestrians crossing the road, and I wondered why the police did not warn the drivers of the danger incurred through the absence of sufficient road lighting. From enquiries made, the same time is allowed for 'buses to do the journey, therefore the fault cannot be placed with the drivers, but upon the police authorities, whose duty it should be to make the time taken on journeys, and allowing for stoppages, a means for the safety of the public.

Another point arises in having no figures as to street accidents while the lighting orders have been in force, viz., is the statement by the Commissioner correct in the face of published comments in the daily press, to the effect that there has been a decrease in the number of accidents?

It is a well-known fact that fines inflicted on motorists are a welcome source of income to the authorities, and the loss of this revenue may be the real cause for police controls in the Metropolis, and not dangerous driving. The re-establishment of trapping, however, raises the point as to the policy of chauffeurs and motorists acting as special constables in order to allow the Commissioner sufficient police constables to work the numerous traps in London. Whatever may be the opinion on this point, there can be no disagreement with that part of Mr. Arthur Stanley's letter in which he says every driver must be aware that in co-operating with the authorities in their endeavour to make the roads as safe as possible, he is rendering some service, however indirect, to his country in time of need. Motorists generally are certainly indebted to Mr. Stanley for his letter.

This week we have with regret to report the first member to be a victim to this horrible war. The late J. Crank was a three years' member. Although invalided home, and his death not being by wounds, yet he is to be as much honoured, inasmuch that it was through obeying his country's call that he contracted his illness while on active service in France. I feel sure that every member will join the Committee and officials in their expression of sympathy with the relatives of our late member.

Members are continuing to enlist, armoured cars now being the rage. May good luck attend members on this work. There certainly appear to be all the elements of danger possible in warfare attached to it, but the bull-dog breed will tell, and old England is certainly holding up her name as a nation which will not own defeat. We are keeping this perfect war machine of the mad Emperor at bay, we are winning, and shall achieve a glorious victory for our arms. There seems to be a nut loose in the machine invented by Potsdam's maniac.

Tickets may now be had for the Whist Drive on Thursday, November 26th; 1s. each. To prevent disappointment take tickets early.

**Special Note.**

Every member should continually have in mind that by mentioning the name of the Official Organ (The AUTO.) as his source of information when communicating with advertisers in regard to their goods, he is also helping the N.S.C.

ARTHUR SEXTON, General Secretary.

**Accepted to Membership.**

Reginald H. Watts, London, S.W. Robert C. Brown, London, S.E.  
Charles Blow, Carradale, N.B. Sidney E. Hunt, Bristol



**Application for Membership.**

Thomas O'Neill, Belfast.

Any member wishing to raise an objection to the election of the applicant for membership is requested to communicate with the secretary without delay.

The committee trust that members will do their utmost to assist the Editor by sending to him any item they may consider of interest to motorists and chauffeurs generally.

**Particulars of Membership.**

Applicants must have at least 12 months' experience as paid drivers of motor vehicles, and must be men of undoubted good character.

First month's subscription (including entrance fee), 2s. 6d. Subsequent subscriptions, 2s. per month. Payable in advance on the 1st of each month. Badges, 1s. 1d., post free. Members may pay yearly 21s., or half-yearly 10s. 6d., payable in advance. A copy of the AUTO, is posted weekly to all members whose subscriptions are



IN a supplement to the *London Gazette* issued on Monday the following promotions in the Army Service Corps were noted:—

Temporary Inspectors, Mechanical Transport, 3rd Class, to be temporary Inspectors, Mechanical Transport, 1st Class, with the honorary rank of Captain; October 20th, 1914: J. S. Critchley, T. B. Brown. Temporary Inspectors, Mechanical Transport, 3rd Class, to be temporary Inspectors, Mechanical Transport, 2nd Class, with the honorary rank of Captain; October 20th, 1914: H. Niblett, J. S. Napier, D. S. Kennedy, F. Strickland, E. A. Rose, G. Pollard.

AT the last meeting of the Institution of Automobile Engineers, the Acting President—Mr. J. S. Critchley—announced that there were now 106 members serving His Majesty, this representing over 10 per cent. of the total membership.

PAST and present followers of the Belvoir Hounds have subscribed £1,015 for the purchase of two motor ambulances to convey wounded soldiers from the firing line to the base hospital.

not in arrears, in order that they may be kept well posted in the progress made by the Society.

**APPLICATION FORM.**

TO THE SECRETARY OF THE NATIONAL SOCIETY OF CHAUFFEURS.

Halkin Street,  
Hyde Park Corner, S.W.

Sir,—Please send me a form of application for membership of the above Society. I enclose herewith P.O. 2s. 6d. (entrance fee and one month's subscription), same to be returned to me in the event of my application not being accepted.

Signed  
Address

NOTE.—Only *bona fide* Chauffeurs who have had at least one year's experience as paid drivers, and whose references will stand strict investigation, are eligible for membership.

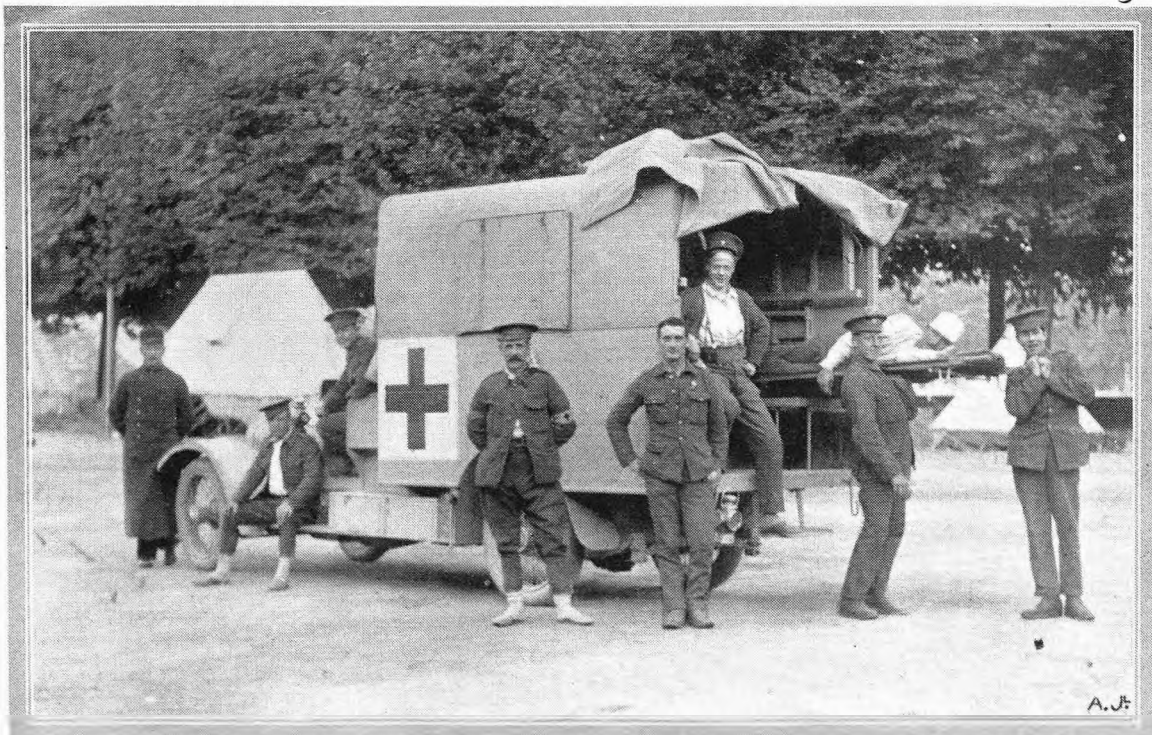


AT the first general meeting of the newly-formed Scottish centre of the Institution of Automobile Engineers, to be held on November 23rd, at the Institution of Engineers and Shipbuilders in Scotland, Elmbank Crescent, Glasgow, at 7.30 p.m., Messrs. A. L. Clayden and H. Burchall will read their paper on "Retail Transport."

A.A. PATROLS, all of whom are qualified to render first aid services, have been able to give assistance in several cases of "minor casualties" to British troops on the roads.

LADY STRATHCONA and her husband (Mr. Howard) have contributed £1,800 to cover the cost of one of the six armoured motor cars for the London Mounted Brigade, for which the Lord Mayor is making an appeal.

BEARING the legend "The London Suffragist," a fully equipped motor ambulance for use at the front has been presented to the War Office by the London Society for Women's Suffrage.



RED CROSS WORK AT THE FRONT.—A 24-30 h.p. Wolseley ambulance in active service at Angers, France, one of a large number which are rendering highly efficient service for Great Britain and the rest of the Allies.



## BY THE WAY.

MR. HUGH KEVILL-DAVIES, who, prior to the war, was associated with the firm of Bentley and Bentley, agents for D.F.P. cars, is a prisoner of war in Germany. He was a reserve officer in the Gordon Highlanders. This news comes through Lieut. C. E. Wallis, whose letter I published last week. Mr. Davies is at The Citadelle, Mainz, and is, I believe, well.

A BROTHER of the Butterworths of Liverpool is also a prisoner of war at the same place as Wallis and Davies.

MR. R. GLASSPOLE, advertising manager to Gamages, has, I understand, joined up with the Queen Victoria Rifles, 9th Batt., London, and is now getting himself fit for foreign service. When I last saw him he seemed "as fit as a fiddle," and is a fair example of the beneficial effects of military training. It did one good, and made one not a little envious, to see his exuberant health. Apparently his only immediate concern is to get to the front. Of such spirit are our Tommies made. It is gratifying to know that at the cessation of hostilities he will resume control of the publicity of Gamages. When he goes all our good wishes will go with him.

SHELL motor spirit cans are able on occasion to afford even better service when empty than full. The case in point is with the sinking of H.M.S. "Hermes," when a number of the unfortunate crew were kept afloat by the aid of Shell cans. But for these the loss of life would have undoubtedly been greater.

MANY owners of cars are doing a lot of quiet and useful work for the benefit of our soldiers at the front. They apparently seek

done in this war that will never have any official record, and one is the devoted and unselfish service of the gentleman with the enclosed Daimler. He said it was no use telegraphing for the things to be sent over. The only thing to do was to come over and fetch them for yourself. Given the time and opportunity, I can imagine no more pleasurable occupation than service of this kind.

THERE are probably few metal castings of any description that cannot be satisfactorily repaired by modern scientific welding processes. In regard to motor car castings it is a matter of common knowledge that almost every conceivable defect can be made good, and the article treated rendered thoroughly serviceable. The enormous economy thus effected will be apparent, and the bugbear of cracked and broken motor car parts has by the introduction of scientific welding methods become a bugbear no longer. A further conception of the practical utility of this modern invention is conveyed by the exacting test to which the Barimar welding process was recently submitted. The article treated had nothing to do with motor cars, but showing, as it does, the variety of service rendered by welding it forms none the less interesting and instructive reading. The incident was related to me in the following terms:—A well-known earl possessed an old church bell that was broken near the dome. The fracture consisted of four small pieces, leaving a hole at the top of the bell. The latter was valued for sentimental reasons, and no figure of pounds, shillings and pence could record its worth. As a broken bell it was simply a useless and damaged relic. It is estimated that the bell was about 300 years old, and it was made of the usual bell metal, and weighed approximately 3 cwt. A few

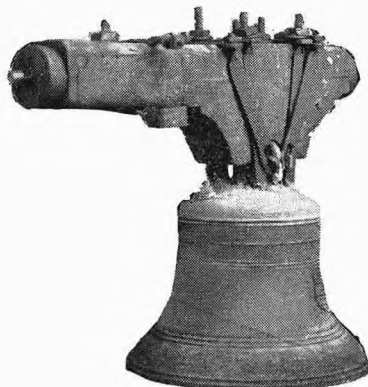
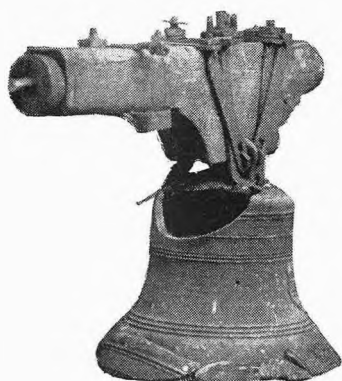
now, therefore, takes a new note (no joke intended) by this strikingly successful test. It is to the credit of this firm that they do not claim to have "cornered" the successful processes of welding, but they have some justification in the assertion that the exceptional care they take in the application of their methods gives to the results of their work all the permanence reasonably possible. However apparently hopeless the repair the Barimar welding process will make good.

MESSRS. AUTO-CARRIERS (1911), LTD., makers of the well-known A.C. Light Car and A.C. Sociable, having made certain changes in their agency system, are open to appoint new agents in certain districts. Traders interested should get into touch with Mr. A. Noble, sales manager, Ferry Works, Thames Ditton, who will be glad to call on them personally. As the Auto-Carrier programme covers every branch of motoring, especially from the economical standpoint, such an agency should be very valuable in these days.

ALTHOUGH owing to the interception of the Society of Motor Manufacturers and Traders the proposed "Motor Salon" at Messrs. Guy Lewin, Ltd., will not be held, I understand that the firm in question are holding an attractive display of cars and accessories at their showrooms in Albany Street, W., on Thursday, November 26th, at 11 a.m., when an auction sale will be held.

THIS month's *Austin Advocate* marks the commencement of the fourth year of publication of this lively and instructive periodical. It has become quite a feature of recent years for large firms catering for an extensive public to issue a journal by means of which they are able to keep in close and familiar touch with their customers, and to whom they are thus able to offer news and instruction relevant to their products at first hand, and without the restraint that might be met with through other channels. They have the advantage of having only one thing to talk about, and with that subject their knowledge and information is of course unrivalled. There is a disadvantage too to this singleness of purpose—the monotony of concentrating on one object. The sources of information are obviously restricted, and no little ingenuity is required to so vary the news that it will come with refreshing interest issue by issue. It will be acknowledged by all who have followed the progress of the *Austin Advocate* each month since its inception that the inherent difficulties indicated have been overcome in a surprising manner, and in fact so much so that even to those whose business it is to produce news for the varied consumption of the public the Austin production always comes as a model of its kind.

"ROUNDABOUT."



The old church bell showing the remarkable repair referred to above.

no glory, but their assiduity is none the less for that. Outside Messrs. Smith and Sons, Great Portland Street, the other day there was a large enclosed Daimler car which the owner had taken backwards and forwards to the front on many a trip filled with all sorts of pressing requirements for war service. The collection that car contained! From the roof to the floor packed as closely as possible were numerous motor accessories, not to speak of shoals of cigarettes with which to help our troops in the trenches to while away the tedium what time the products of the Essen factory did their best to disturb the equanimity of our devoted countrymen. There are a whole lot of things

months ago the earl's agent thought that the bell might be repaired, and accordingly it was sent to Messrs. Barimar, Ltd., 10, Poland Street, W., whose welding experts supervised the work of renovation, with the result that the bell was not only made perfectly sound as far as the actual welding was concerned, but on being tested carefully the striking tone was also found to be in no way affected. Apart from the entirely successful result of the treatment, the most remarkable feature about the job was the cost, which was put at the comparatively negligible figure of £5 10s. The expression "As sound as a bell" familiarly applied to the repairs effected by the Barimar people



**Look at this.**



Apply for full particulars:  
THE BRITISH SCHOOL OF  
MOTORING, Ltd.,  
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Street, Piccadilly Circus, W.

## LEGAL INTELLIGENCE.

**The Continental Tyre and Rubber Co. (Great Britain), Ltd. v. Thomas Tilling, Ltd.**

A QUESTION arising from the existence of war between Great Britain and Germany was argued in the case of the Continental Tyre and Rubber Co. (Great Britain), Ltd. v. Thomas Tilling, Ltd., heard in the King's Bench Division on Monday before Mr. Justice Lush. The following is *The Times* report of the proceedings in Court:—

The plaintiffs' claim was for £5,753 2s. 11d. for the price of goods sold and delivered. The defendants filed an affidavit under Order XIV., in which they denied that they were indebted to the plaintiff company in the sum mentioned, but they admitted that but for the state of war existing since August 4th last between this country and Germany and other facts mentioned in the affidavit, the said sum would be owing, and that they were and always had been willing to pay the sum if it was their legal duty to do so.

The affidavit further recited that the capital of the plaintiff company was £25,000 in shares of £1 each, of which capital £24,998 was held by Germans and a German company in Hanover. The remaining shares were held by one Paul Brodtmann, the managing director, and one Frederick Wolter, the secretary of the plaintiff company, who, at the outbreak of the war, were resident in this country. They further alleged that they would not be justified in paying the said sum while the war continued, and they submitted that the payment of such sum necessarily enured "to or for the benefit of an enemy," according to the Proclamation of September 9th, par. 5 (1).

An affidavit was filed on behalf of the plaintiffs made by Mr. Frederick Wolter, which recited that the plaintiff company was an English company registered at Somerset House under the Companies (Consolidation) Act, 1903, and that he was a British subject, having taken out naturalization papers on January 1st, 1910. It was further stated in the affidavit that since the outbreak of the war the plaintiff company had continued to supply customers in the United Kingdom with such goods as they required, and had been doing a considerable business with the British Government, and that on October 28th last it received from the War Office payment of £923 8s. 9d. for goods supplied. It was also stated that on September 16th the plaintiff company wrote to the Committee on Trade with the Enemy asking various questions which had been raised with regard to that company and similar companies, and on September 21st a reply was received to the effect that there was nothing to prohibit the plaintiff company from receiving payment for goods already sold, and that it might continue to sell goods so long as they were not consigned from a hostile country. It was pointed out that no payment to the plaintiff company since the outbreak of the war had been remitted to the enemy.

Mr. D. M. Hogg appeared for the plaintiffs; and Mr. Leslie Scott, K.C., and Mr. Jowitt for the defendants.

Mr. Leslie Scott, on behalf of the defendants, submitted that they were not liable to pay the amount claimed by virtue of the following broad principles:—(1) It was illegal to give help to the enemy; (2) any act which increased the financial stability of the enemy was help within the meaning of the first principle; (3) it made no difference in law whether the help was direct or indirect, and that principle was recognized by the Proclamations as a trading with the enemy.

Mr. Justice Lush: If you increase the fund, although he cannot touch it, are you benefiting the enemy?

Mr. Leslie Scott replied that a payment to the company could not be made without *ipso facto* increasing the funds of the shareholders. The leading case on the subject was *The Hoop* (1 C. Rob., 196), and the most recent was *The Tommi* (31 *The Times* Law Reports, 15). There might be an offence at common law although not covered by the Proclamations, which were merely guides to the salient points. The only criterion was whether the payment was going to help the enemy (*Esposito v. Bowden* (7 E. and B., 763); *Furtado v. Rogers* (3 Bos. and P., 191).

Mr. Hogg on behalf of the plaintiffs, contended that once it was clear that the company was an English Company any inquiry into its constitution was immaterial (*Salamon v. Salamon* (13 *The Times* Law Reports, 46); ([1897] A.C., 22)).

Mr. Justice Lush at the conclusion of the arguments said that he would reserve his decision and deliver judgment one day next week.

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WHEN is inside not inside? That was the knotty point which was decided in an appeal case in the King's Bench Division on Tuesday. The magistrate had held that the covered-in top deck of a tram was the inside of the car, where extra passengers could be carried on special occasions. He therefore dismissed a summons for overcrowding. The King's Bench Court reversed

this decision, holding that the top deck was the outside of the car, although covered in.

FOLLOWING on the suggestion of Mr. Pomeroy, a Committee of the Institution of Automobile Engineers is now considering how research work in connection with the steel industry can be directed into channels which would be of immediate benefit to the automobile industry.

It has been decided by the Royal Automobile Club that the Dewar Challenge Trophy, offered annually for the most meritorious performance in a certified trial, shall for this year be awarded in respect of a National coke-fired boiler entered by the National Steam Car Company.

HARROW School with Old Harrovians have decided to present a motor ambulance for work at the front. The scheme was started by Mr. Archie C. MacLaren, the well-known cricketer, who hopes to drive the car himself.

DEALING with a number of motor bus drivers who were charged with exceeding the 12-mile limit along the Lea Bridge Road, Leyton, the Chairman of the Stratford Justices said the Bench were of opinion that motor buses should be equipped with speedometers. It was very hard on the drivers to expect them to keep to the 12-mile limit within three or four miles an hour when they could not tell how fast they were travelling.

THE Volunteer Motor Mobilisation Corps has been formed chiefly for the purpose of helping hospital authorities with the transport of wounded soldiers. Lord Westbury, the chairman of the corps, has received a letter from the War Office thanking the corps for their very generous offer of help. It is proposed that members should lend their cars for whatever length of time daily or upon what days in the week they can spare them. Badges will be issued to each member, and each car will display the fac-simile, together with a specially designed invitation calling upon men to enlist. The offices of the corps are at 6, Old Burlington Street, W.

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**PUBLICATION RECEIVED.**

*Punch Almanack*, 1915. London: 10, Bouverie Street, E.C. Price 6d.

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**NEW COMPANIES REGISTERED.**  
**Private Companies.**

**Chester and Man, Ltd.**—Capital £30,000, in £1 shares. Motor car body makers, coach and carriage builders, &c.

**Forth Engine and Motor Works (Newcastle-upon-Tyne), Ltd.**—Capital £4,000, in £1 shares. Acquiring business from J. R. Atkinson, T. G. Atkinson, and W. L. Paynter carried on by them as the Forth Engine Motor Works at Old Infirmary, Newcastle-on-Tyne. Managing director, W. L. Paynter.

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**Patent Specifications Published.**

Abbreviations:—cyl. = cylinder; I.C. = internal-combustion; m = motors.

Applied for in 1913.

Published November 19th, 1914.

- 17,121. W. A. HALL. Conversion of heavy hydrocarbons into lighter hydrocarbons.
- 18,874. O. E. S. HUSS. Frictional driving gear.
- 18,875. O. E. S. HUSS. Wheels.
- 23,629. AUSTIN MOTOR CO. AND H. AUSTIN. Folding seats.
- 24,123. H. JONES. Fastener for hoods.
- 24,165. K. E. L. GUINNESS. Sparking plugs.
- 24,200. VISCOMTE C. ORDENER. Motor-driven fore-carriages.
- 24,535. W. WINGFIELD. Motor vehicles.
- 24,925. VICKERS, LTD., AND J. MCKECHNIE. I.C. engines.
- 25,512. H. G. HEPWORTH. Motor vehicles.
- 27,301. R. E. C. WETHERELL. Friction gearing.
- 27,979. M.-J. GRÉMILLET. Automobiles.
- 29,002. L. SIEGENBERG. Tyre-protectors.

Applied for in 1914

Published November 19th, 1914.

- 8,903. C. H. DE VOLL. Tyres.
- 9,048. F. REYSZ. Valves.
- 10,450. MASCHINENFABRIK SCHWEITER A.-G. Friction driving gear.
- 13,336. W. F. MITCHELL. Controlling steering-wheel.