

THE AUTOCAR

A Journal published in the interests of the mechanically propelled road carriage
EDITED BY H. WALTER STANER.

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THE AUTOCAR.

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COLONIAL AND FOREIGN EDITION.

IN ADDITION TO THE USUAL EDITION OF "THE AUTOCAR," A SPECIAL THIN EDITION IS PUBLISHED EACH WEEK FOR CIRCULATION ABROAD. THE ENGLISH AND FOREIGN RATES WILL BE FOUND ON THE LAST PAGE. ORDERS WITH REMITTANCE SHOULD BE ADDRESSED "THE AUTOCAR," COVENTRY.

The Autocar can be obtained abroad from the following
AUSTRALIA: Phillips, Ormonde, and Co., 533, Collins Street, Melbourne.
FRANCE: Nice, Levant, and Chevalier, 50, Quai St. Jean Baptiste.
UNITED STATES: The International News Agency, New York.

Notes.

An Example of Commonsense.

If all persons entrusted with the administration of the law were endowed with a modicum of the commonsense which characterises the decisions of Sheriff Lee at Forfar, automobilists would have nothing of which to complain. Several cases recently came before Sheriff Lee's court in which auto-carists were charged with exceeding the legal limit, and the principle upon which they were dealt with

was a liberal interpretation of the spirit of the Act, and not a slavish compliance with the letter which killeth. In one of the most recent cases the auto-car driver admitted travelling at a speed of sixteen miles an hour, but there was no evidence of anyone having been annoyed or alarmed. Sheriff Lee, remarking upon the fact that there had been a plea of guilty, said he was not bound to impose a penalty. He must repeat what he had said on a former occasion, that this was an Act that must be administered with commonsense. The progress of science had considerably altered the methods of modern life, and there was no doubt that motor cars were now a very common means of locomotion. These machines were advertised in all cases as going at a greater speed than twelve miles an hour, and if this Act was intended to be strictly and literally enforced, it would be an offence to so advertise the machine for sale. In the present case, while there had been a contravention, it was not necessarily a contravention that the police were bound to take notice of. It must be presumed that if the legal speed was exceeded, and if any accident occurred, or if drivers of motor cars caused annoyance to anyone, the party was prepared to take the consequences. On the other hand, if the twelve miles limit was exceeded in a place where the rapid pace could do no harm to anyone, and if the driver was a sensible and careful person, willing to stop or slow down when called upon, His Lordship was prepared to give a reasonable interpretation of the Act. No fine was therefore inflicted.

The Reliability Trials.

The judges' awards for the trials are not likely to be published till the middle of next week at the earliest. A list of the full marks earned has been sent to each competitor, and as there are of necessity in a competition of this kind certain protests to be investigated, some days must necessarily elapse before the judges have sifted every claim, more particularly as many of them are of a complicated nature, and come under the headings of horse-power and weight, Rule 47, see *The Autocar* last week, page 333, or the hill earnings, which also necessitate somewhat laborious investigations, in which weights, speed, consumption, price, and other factors have to be checked and rechecked. Numerous other points have been raised which require either confirmation or amendment, and which will also claim the judges' attention, among the questions raised being inaccessibility of gear, as on the marks alone for condition of cars at the end of trial it would appear that while certain cars have had marks deducted because the change speed gears have been considered to show undue signs of wear after the heavy week's work, others have had their

gearing dismissed as inaccessible, and no marks have been deducted for condition, as the gear could not be examined, but none have been lost on account of inaccessibility. The point is one that certainly requires explanation. A gear may be difficult to get at, but there is no such thing as an inaccessible gear so long as sufficient time is devoted to opening it up; but to go by the condition marks it would mean that the next best thing to a gear which comes through judicial examination with flying colours is one which is, so to speak, judge-proof. This brings us back to our suggestion made some time since, that in future trials it would be an excellent idea to give marks for accessibility. We are inclined to think that the results would be of a very practical nature, and easier understood by many prospective buyers than the marks awarded under Rule 47.

An Interesting Document.

During the week a most remarkable prospectus has been issued. We refer to the prospectus of the Alpha Motor Car and Cycle Works (1902), Ltd. This is seemingly a company for which great claims are made so far as alleged success in bicycle manufacture is concerned. Without going into this at the moment, we may point out that *The Times* found it necessary to institute legal proceedings to prove that the paper was in no way connected with the bicycles turned out by one of the companies with which the Alpha Motor Co. has been amalgamated. Upon the figures given in the prospectus, it would appear that the concern is to have a capital of £50,000, and that for the A.B. Cycle Co. portion of it the vendors ask nearly £17,000 in cash and shares, though, apparently, it only had a capital of about £350 in 1899, and we are quite at a loss to see how the value of the concern can have increased to such an extraordinary extent. When we turn to the motor side of the undertaking, we are even more astonished, as it would appear that the Alpha Co., which is being voluntarily wound up by reason of its liabilities preventing its continuing trading, is priced at £2,500 in cash and £5,734 in shares. This is on the assumption that the Alpha Co. published in the London *Gazette* of last week is the same Alpha Co. as the one amalgamated with the A.B. Cycle Co. under the title of Alpha Motor Car and Cycle Works (1902), Ltd. Even if it is not, the position is not vastly altered, though we note that, while the £70 motor car does not appear to have been withdrawn from the products of the company, we are now told that motors will be sold from £75 to £500 each. At the present time, we have not seen a motor car turned out by the company or its predecessors, but we scarcely imagine that automobilists will have invested in a concern of which they can know little or nothing. Readers of *The Autocar* are not likely to become shareholders, as we have made it abundantly plain many times that any firm which quotes ridiculously low prices for its cars is doing one of two things—it is either selling its vehicles at a loss, or it is turning out carriages which are not so good as they are claimed to be; in other words, are worth no more than the price asked. It is possible, however, investors will be found outside the realms of automobilism, as there are vast numbers of people who are ready to believe that the prices

charged for anything, whether it be a motor car or a battleship, which they do not understand, are ridiculously high, and that a fortune is to be made in selling these articles at half the price or a quarter the price usually demanded. It is a peculiar frame of mind, but undoubtedly it has profited promoters of companies many times in the past.

Brakes.

When we reported the results of the brake trials in our issue of September 6th we pointed out that the figures were disappointing, and to some extent misleading so far as showing the power of the brakes used on the various cars, as so many of the machines which performed badly on the brake test are known to have powerful brakes, but the trials showed most emphatically the necessity for giving proper attention to the adjustment of brakes. As an instance of this we have only to mention that in the case of two sister machines one obtained full marks and the other lost fifty on account of the back wheel brake being inefficient, and this occurred in almost every case where two vehicles of the same power, weight, and make were tried, and demonstrated very plainly indeed the necessity for giving attention to the condition of the brake, as in most cases the loss of marks was due to oil having run on to the back brake, so that it did not bite, or from lack of adjustment. That is to say, the lever had to be pushed right forward before the brake was fully on, and this could all have been put right by adjusting the tension rod. To a large extent the same remarks apply to the pedal brakes. Some people have affected to regard the brake trials as unnecessary and misleading; but in many respects they are among the most commendable features of the trials, as there is no doubt that each brake should be capable of holding a car on any hill backwards or forwards. Of course, in these trials the staying power of the brakes was not shown, as they were not on long enough to become over-heated; but if each brake is thoroughly efficient it is not likely, except on a very few exceptionally long hills, if used alternately, that either will become so hot as to lose efficiency, especially as in most of the larger cars water-cooling for the pedal brake is provided. It is a great pity that all the brakes were not adjusted to their best; as not only would it have shown the stopping power possessed by some of the cars which did badly, but it would also in more than one case have resulted in the position of cars being reversed on the total marks earned, as certain cars have lost position through the inattention of those in charge of them before taking them out to the brake trial. As the brakes wear, the tension rods must be shortened, and this is a point which all users should remember, though we are perfectly willing to admit that, all other things being equal, the brake which requires least attention in the way of adjustment is the best, not only because it saves trouble, but mainly on account of the fact that the careless user is less likely to get into difficulties through neglect of attention to his brakes. Every brake should be powerful enough to hold a car when it is oiled, unless it is placed in such a position and so protected that it is absolutely impossible for oil to get to it.

LORD KITCHENER IN SUFFOLK.



Photo by Mills and Palmer.

Ipswich.

On the occasion of Lord Kitchener's visit to his native county, Suffolk, when he was presented with the freedom of Ipswich, and received addresses from the inhabitants of Hoxne, Stowmarket, etc., he and his friends were driven about the county in motor cars supplied by Mr. A. F. Garnham, of Ipswich. That in which Lord Kitchener rode was a 12 h.p. Clément with tonneau body driven by Mr. Garnham. The other car was an 8 h.p. Renault driven by Mr. Strutt. A timetable for passing

through the various villages was drawn up beforehand so that the people knew when to expect the famous general, and the times were kept to the minute. On the second day Lord Kitchener was accompanied by Mr. and Mrs. Chevalier, and in the second car were Mr. Herbert St. George Cobbold and Miss Chevalier. Throughout his tour Lord Kitchener was accorded a most hearty welcome, and the various towns and villages were gaily decorated.

The service of cars running between the Marble Arch and Cricklewood is being well patronised. We took a run on one of these the other day, and noticed how intending passengers preferred to let the horse 'bus go and wait for the cars. The one we rode on was most skilfully driven.

* * *

An excellent run of 900 miles was lately made by Mr. A. W. Slade, of Luton, on a Quadrant autocycle. Mr. Slade visited Doncaster, Newcastle, Edinburgh, Glasgow, Carlisle, Lancaster, Lichfield, and Coventry on his staunch little machine, without the slightest mechanical mishap, never even changing his sparking plug throughout his long trip. The machine took him successfully up every hill encountered on the route, not excepting the long climb of Shap Fell. A single puncture alone troubled him all the way.

An incident not without humour and significant of the great improvements which have been made in autocar construction took place one day last week near Coventry. The Duryea Co. received a request from a horse owner in a neighbouring town for the use of a car for an hour for the purpose of breaking in a horse to the motor, and very willingly responded to the invitation. When the car arrived on the scene of operations, however, and was driven past the horse, the animal took not the slightest notice of it. "You are too careful," said the horseman. "never mind me: I'll look after the horse, make more noise, he doesn't notice it"; and he expressed a very real disappointment when the motorist plaintively replied, "I can't: I've made all the noise she's capable of, and she won't make any more." And that horseman rode sadly away in quest of a noisier car.

THE NEW 16 h.p. DE DIETRICH CAR.

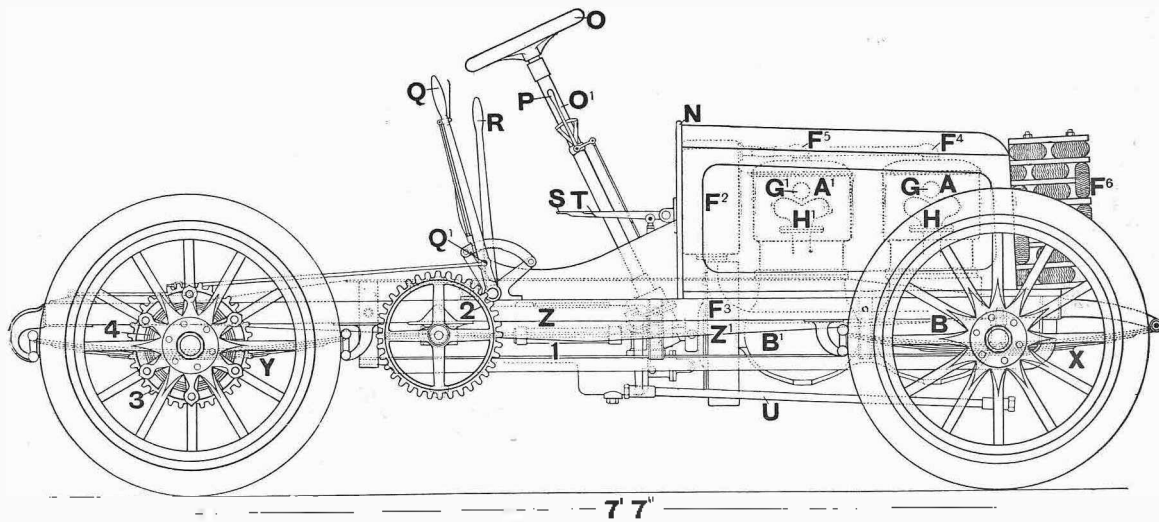


Fig. 1.—Side elevation of the 16 h.p. De Dietrich chassis.

The following reference key refers to figs. 1 and 2, the same parts in both figures being lettered or numbered alike. Separate letters are used for fig. 3.

- A A¹, two pairs of cylinders forming the four-cylinder motor: each pair is cast together, the water jacket being in one with the cylinders
 B B¹, crank chamber to which the cylinders are bolted.
 C, inspection lid on crank chamber. This gives ready access to the interior of the crank chamber for the adjustment of the connecting rods or other purposes.
 D, carburetter and throttle governor. This is only indicated by dotted lines, as it is hidden behind the magneto machine.
 E, magneto ignition machine for producing automatically a low tension spark in the cylinders
 E¹, eccentric on the end of the crankshaft, which through the forked arm E² and the arm E³ actuates the magneto machine
 E², forked arm giving a reciprocating motion to the magneto shield.
 E³, link connecting the arm E² to the magneto.

- F, chain-driven water-circulating pump.
 F¹, chain driving the pump F.
 F², tank containing the cooling water, and in connection with the pump F.
 F³, water inlet pipe to cylinder jackets.
 F⁴, F⁵, water outlet pipes from cylinder jackets
 F⁶, radiators for cooling water after passing through cylinder jackets.
 F⁷, cap by means of which the water tank is filled.
 G G¹, gas inlet pipes to cylinder.
 H H¹, exhaust pipes from cylinders.
 I, ignition cam for the forward cylinder.
 J, sparking plug in connection with I.
 K, valve dogs. By undoing one nut either pair of valves is at once accessible.
 L, tap and cup by means of which paraffin may be injected into the cylinders.
 M, automatic lubricator, driven by a belt from the half-speed shaft.
 M¹, driving belt actuating the lubricator.
 N, dashboard, to the forward side of which the water tank is attached; facing the driver is the lubricator M.

- O, steering wheel which controls the front road wheels through an irreversible worm gear.
 O¹, steering column.
 P, sparking advance lever.
 Q, brake lever
 Q¹ Q², brake connections.
 R, change speed lever.
 S, clutch pedal.
 T, brake pedal.
 U U¹, steering arms.
 U², distance rod.
 V V, swivel steering axles.
 W, front axle.
 X X, front springs.
 Y, back axle springs.
 Z, main frame.
 Z¹, fliitch plate.

- 1, gear box containing change speed gear.
 2, sprockets on countershaft.
 3, sprockets on back wheel
 4, band brake on back wheel.

As the new De Dietrich cars, built under Turcat-Méry patents, have commenced to arrive in this country, much interest is now being taken in their design, and we take an early opportunity of describing the Turcat-Méry system. These fine vehicles are the output of the great firm of De Dietrich and Company, of Lunéville, a firm of rolling stock and locomotive builders whose name is a household word in engineering circles on the Continent. As now turned out, the De Dietrich carriage made its first bow to the public in the recent Paris-Vienna race, when three 16 h.p. cars faced the starter, and all performed in a manner so creditable as to astonish automobilists in general and the older constructors of automobiles in particular. It is seldom, if ever, that racing automobiles have done so well on first appearance. Although combining many of the best points of the latest Panhard and Mercedes construction, the new car nevertheless exhibits much originality in detail. Broadly, this car is of classical type, vertical engine forward of the dashboard, change speed gearing of spur wheels sliding laterally into gear with each other. The economy of the vehicle may be divided under three

heads. Forward, beneath a smart and workmanlike-looking motor bonnet we have the engine with its ignition gear, carburetter, and water tank with all necessary accessories. In the centre of the frame we find the gear box enclosing the change speed gear, the differential gear, and the steering gear. In the rearward space is ample accommodation for the passenger portion of the body, room being there afforded for four passengers, while in rear of the gear case and beneath the frame, where the space is quite clear, it is possible to install a box or chest of large dimensions. The above refers to the car as a whole. With regard to the details the motor is a four-cylindered petrol engine of particularly simple construction and remarkably accessible in all parts. The gearing throughout runs in oil-tight, dustproof gear cases. The interior of the crank chamber is accessible by means of two large lateral inspection doors therein, through which the connecting rod ends and crankshaft bearings can be examined with ease. The governor runs in a separate oil bath case, which has in its turn a special inspection cover. Magneto ignition, which, of course, renders unnecessary the carriage and attachment of

accumulators, coils, and lengths of insulated wires, is fitted. The pump for ensuring a rapid circulation of water around the cylinder water jackets is of large dimensions, and is chain driven off the end of the forward engineshaft, as shown in fig. 2. The cooling system, however, is so arranged that should the pump from any cause fail to circulate the water, natural circulation by convection proceeds in a manner sufficient to allow the motor still to be driven.

The carburetter is fitted with a regulator or throttle, by the action of which the engine can be controlled within the smallest limits. A small foot-pedal, similar to that fitted for acceleration, can be depressed when required, and the drive of the engine instantly augmented to any desired degree. With this throttle and the firing control the motor is claimed to be as handable as a steam engine. By closing the throttle altogether the engine can be used as a most efficient pneumatic brake by running against the compression. On long hills this saves the hand-brakes and prevents them over-heating.

The drive is conveyed from the engineshaft by the usual form of friction cone clutch, which is protected from oil by special guards. The position of the clutch spring in the De Dietrich car is, however, at once novel and admirable. Its design and arrangement can be easily comprehended by a

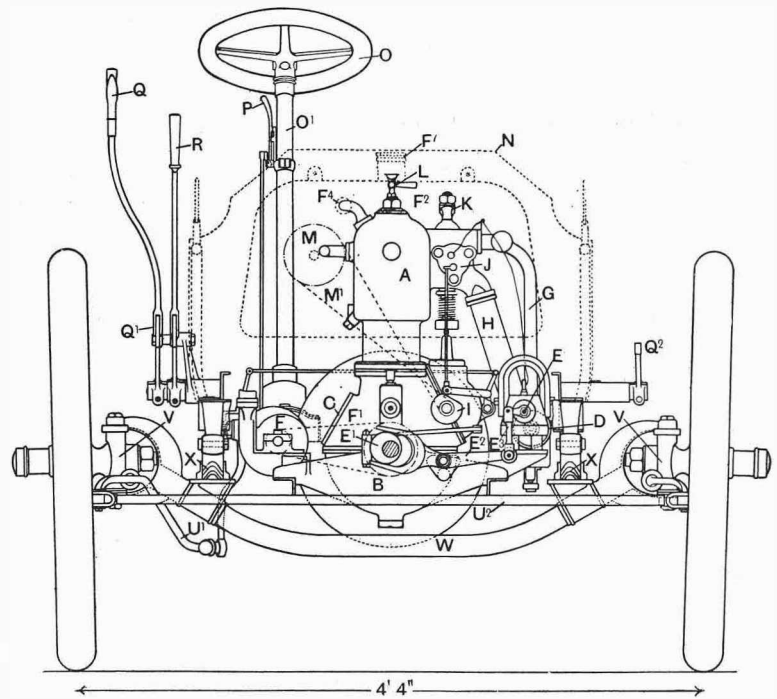


Fig. 2.—Front elevation of the 16 h.p. De Dietrich chassis.

glance at fig. 3. The cone spring G is set, as to its lower end, in a formed bracket, and bears as to its upper extremity against the specially-formed turret nut on the screwed portion of the rod. By increasing or reducing the compression of the spring G, by altering the position of the nut G¹ on the pedal rod J, it will be seen that the grip of the male cone surface with the female can be varied at will, and this most easily and cleanly from above the foot-board. On examination of fig. 3 it will be noticed that the distance the engine flywheel and the gear box has been reduced as much as possible with a view to avoid all twisting of the clutchshaft.

The gear box itself is made with but one horizontal joint throughout, and it is only necessary to take off this cover to be able to lift clutch, gear, and differential shafts out of their bearing blocks. All the gear wheels are practically gear rings bolted to collars, and can all be separately replaced. A powerful double block brake applied by a foot pedal is fitted on the differential shaft. Powerful hand brakes, applied by side lever, are fitted to the chain sprockets on the road driving wheels. The dominating ideas of the designers and constructors of these vehicles have been so to turn out the same that mishaps or breakages should be rendered almost impossible, but that should anything happen, failure can be easily and cheaply made good.

Notwithstanding the lightness of these cars (those engaged in the Paris-Vienna race weighed but 16 cwts. 3 qrs. 16 lbs., with water, petrol, and oil tanks full ready to take the road), the makers claim that no necessary strength has been sacrificed in any part, and that the chief reduction in weight has been obtained by special attention to the simplification of all parts. It may be remarked that the cars stand rather high off the ground, but this has been rendered obligatory by the placing of the gearshafts in the horizontal plane, and not one below the

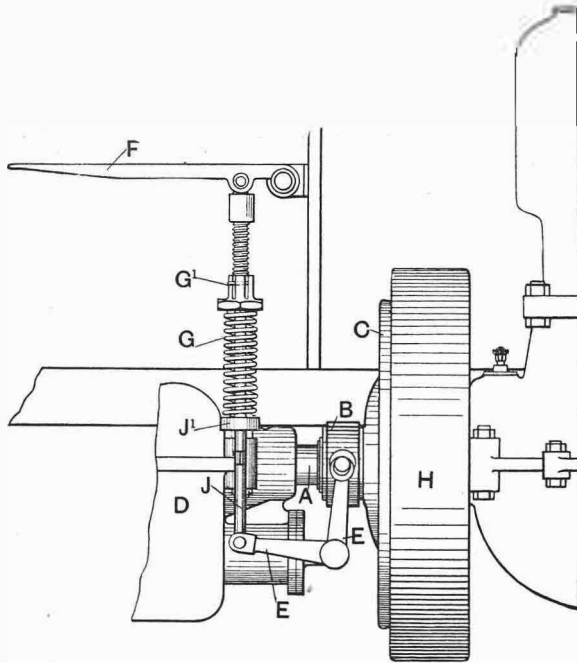


Fig. 3.—Details of the De Dietrich clutch.

- | | |
|--------------------------|----------------------------------------------------------|
| A, clutchshaft. | G ¹ , cone spring adjusting nut. |
| B, ball thrust bearing. | G, clutch spring. |
| C, friction cone clutch. | H, engine fly-wheel. |
| D, gear box. | J, clutch rod. |
| E, clutch lever crank. | J', bracket forming thrust abutment for clutch spring G. |
| F, clutch pedal. | |

other, for the ease of extraction from the gear case as above referred to. Also to give good clearance below the car, and so to avoid striking the unequal surface of bad roads. A car on exactly similar lines is built with a two-cylinder engine. With four passengers up the car will run on the level at a speed

of forty-five miles per hour, but by throttling down speed can be reduced to six miles per hour all on third speed. We have no doubt that the De Dietrich cars will grow rapidly in favour with automobilists on both sides of the Channel, and that they will shortly be seen in some English events.

TESTING A STEAM LORRY.



This illustration is made from a photograph taken by Mr. W. G. Garnett on the occasion of one of the steam lorries of the Road Carrying Co. of Liverpool being put through its trial on delivery from the makers before the company accepted it. At the time the photograph was taken, the car was pulling its load of four tons and hauling a trailer loaded with two, an admittedly good test load for the gradients. Residents in the district will recognise the point at which the stop for the photograph was made as Cemetery Brow, entering Preston from Blackburn. This hill has a grade of 1 in 13 for several hundred yards, though one of the test hills in the thirty miles course over which the Road Carrying Co. make their

trial trips has a gradient of 1 in 9. On the seat of the lorry to the left of the funnel will be seen Mr. E. A. Rosenheim, so well known in connection with the club trials, and now engineer to the Carrying Co. On the right is Mr. Bennett, the traffic manager of the company. In the 10 h.p. Georges Richard in front, Mr. Shrapnell-Smith will be noticed, while between the car and the lorry is Mr. R. O. Burland, J.P., an active director of the company. The big Daimler on the left will be recognised as Mr. Leonard Williamson's "Sappho," driven by Mr. Williamson, while by his side is Mr. Randle Kay, of Lytham, who, by the way, has just become possessed of a fine 12 h.p. Daimler.

The Portsmouth Town Council has ordered a motor steam fire-engine capable of developing a speed of twenty-five miles an hour.

* * *

Hollow rollers for bearings are the latest practice in the United States. These rollers are made by the Hyatt Roller Bearing Co., of Harrison, N.J. They take the form of a closely wound helical spring of square section steel. The bearing is said to work most successfully for heavy loads at slow speed and for lighter loads at high speeds.

* * * *

The Sirdar Rubber Co., in addition to supplying and fitting their own patent Buffer solid tyres, have started a large repairing department at their place at Shirland Mews, Paddington, where all kinds of motor wheel repairs are carried out by their skilled staff. Messrs. Panhard and Levassor and the Motor Power Co. entrust their wheels to them for repair, so this is enough to show that they thoroughly understand their work.

Messrs. W. A. Mathew and Co. have opened at No. 103, High Street, Beckenham, a garage and showrooms, in addition to their works at 59a, High Street. These works are the best equipped in the district with modern plant, tools, etc. The firm employ a competent staff of English and French mechanics.

* * *

A special gear lubricant, known under the registered name of "Olol," is being sold by the Long Acre Motor Car Co., the London agents for the Wolseley cars. They claim it to have just sufficient consistency to cling to the gears, and to make a skin of grease between the engaging surfaces, though at the same time it is of such consistency as not to leak out of the case, and, moreover, not so thick as to be flung to the side of the box or cut into furrows by the gears, as is so often the case, when they may be running dry while the owner imagines they are being well lubricated.

USEFUL HINTS AND TIPS.

Always carry a full kit of tools and spare parts. It is always the thing left behind that one most wants.

x x x x

The water-circulating system may be cleared of impurities after running with dirty water by filling up the tank with a strong solution of soda. Run the engine for a few minutes, and draw off the soda water; then wash out with clean water.

x x x x

Driving belts, when dirty, should be washed with warm water in which some common washing soda has been dissolved. Use a hard bristle brush and scrub well. When clean dry off as much moisture as possible and hang up the belt with weight at its lower end. When dry give a good dressing with castor oil.

x x x x

Extra attention to side driving chains is well repaid in their running. They should be frequently removed and well washed in paraffin, dried off, and immersed in a bath of melted tallow for about one hour. Keep the tallow just melted, no more. After about an hour remove the chains and allow the superfluous tallow to run off.

x x x x

Tighten up nuts carefully in order to avoid overstraining the thread. If small nuts are tightened up with a big spanner the screw is frequently sheared clean off. A 5in. spanner is quite large enough to tighten up a ½in. bolt or nut. For larger nuts add 1in. of leverage to every ⅛in. increase in the diameter of the bolt or nut.

x x x x

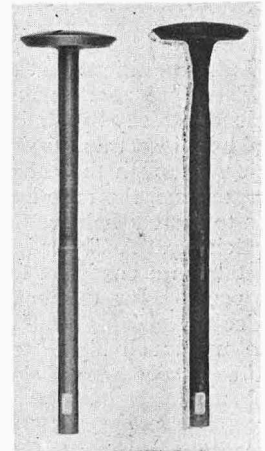
Clutches do not always receive the attention they deserve. They are allowed to become oily, so that they slip unduly, or the spring holding the clutch to its work is left unadjusted so long that a lot of power is wasted and speed lost. Whenever the engine seems to be going at a good speed and the car going slowly for the gear in operation, it may be assumed that loss is taking place, and that the clutch wants attention. It will generally be found that the clutch is quite hot—perhaps unbearably hot—to the touch.

When starting up steam generators always be careful to have the vaporiser well heated. Slow fires and dirty burners are the result of insufficient heating.

x x x x

A very special providence assuredly watches over motor novices, for we have at various times come across some truly astonishing results attained by them. The very latest is the case of a man who after owning and running an Ariel quadricycle with a 2¾ h.p. motor, water-cooled head, for close upon twelve months, was quite unaware of the existence of the exhaust valve. The

illustrations side by side of the valve taken out of the engine and the new one about to be put in graphically show what words fail to describe. The owner complained that, although the engine ran well, he could get no power except by advancing the spark and opening the throttle full. We immediately suggested bad compression, and asked as to the condition of the exhaust valve. It was then we discovered that its location was unknown to the owner. We had the valve taken out, the simplicity of its removal somewhat astonishing the owner, who admitted that he would have taken the head off to get at it. A new valve was found in the tool-box, and before it was ground in we had the photograph taken, in order to reproduce it as a curiosity in the way of exhaust valves. The fact of the valve having stood the wear it has done and being burnt away to such an extent without parting speaks well for the metal of which it is made. The water-cooled head alone is responsible for its not being burnt away more than it is, for it is perfectly certain that it could not have lasted under such trying conditions in an air-cooled motor.



THE AUTOMOBILE VOLUNTEERS.

Among the latest recruits to this force, now in course of formation by Mr. Mark Mayhew, of the Imperial Yeomanry, are Sir J. H. A. Macdonald, P.C., K.C.B., and Mr. Rudyard Kipling, who will shortly tell us "How the Automobile got its Bonnet." Enrolment is still going on rapidly, and now amounts to an efficient 130. These members date chiefly from the South of England, and particularly London and suburbs, which account for forty members. Ireland at present has sent in but one name, Scotland five, and the northern counties of England none at all. The arrangement of districts and their organisation will shortly be undertaken, and district officers appointed. Militia and volun-

teer officers are coming forward in quite a praiseworthy manner. Mr. Mayhew will suggest to the War Office that every member be asked to qualify in signalling with flag and lamp, and is of opinion that there would be no difficulty in fixing the necessary shutter to acetylene lamps. Mr. Mayhew will also suggest that members shall go through the usual volunteer course of musketry, and it would be valuable to have as many expert revolver shots in the corps as possible. Civilian automobilists who desire to assist this movement by their adhesion should send in their names to Mr. Mark Mayhew, "Scio," Putney Heath, S.W., with as little delay as possible.

CYLINDER LUBRICATION IN PETROL MOTORS.

BY CAPT. C. C. LONGRIDGE, M. INST. MECH. E.*

The maximum working temperature of the cylinder walls and the maximum stability of the oil under heat are the two points here discussed. It is difficult to obtain data on the working temperature of the inner walls in petrol motors. Owing, however, to the thinness of the metal, it is probable that no great difference exists between the temperature of its inner and outer skin, and that the mean temperature of the whole, consequently, is not greatly in excess of that of the jacket water. Although this temperature ought to be easily determined, there does not appear to be any reliable data even on this point. Certain considerations would, however, seem to fix it at or around 200° F.—possibly rather over. Under conditions that are not here discussed, a considerably higher temperature would promote efficiency, chiefly by diminishing the principal source of heat loss, transmission through the cylinder walls. For, although the exhaust loss would rise at the same time, the ratio between the two results is such as to leave a balance of gain, representing increased efficiency. A higher initial temperature also would establish a condition favourable to fuel combustion, especially for the heavier hydrocarbons and for alcohol. Under the Otto cycle, it is not practicable to use much higher temperatures in petrol motors. The reasons are sufficiently obvious. Assuming the charge to attain, before compression, approximately the temperature of the cylinder wall, it will be readily seen how serious becomes the decrease of charge weight by increase of temperature. That, however, is not the only objection. Any material increase of cylinder temperature, without a corresponding reduction in compression, would introduce liability to automatic ignition. Under condition of immunity from this risk, about five atmospheres is stated to be the maximum compression to which a gas-detonating petrol mixture can be subjected. The corresponding temperature is 374° F. (not absolute). Adding 200° F., assumed increase of charge temperature before compression, the total 574° F. stands as the critical point of automatic ignition.** Increase of cylinder temperature, therefore, would require decrease of compression, and *vice versa*.

Taking, therefore, 200° F. as the average maximum working temperature for which surface lubrication has to be provided, and 574° F. as about the maximum temperature of the charge, before ignition, it remains to be seen how the lubricants now on the market meet the requirement. On this point, several firms have courteously supplied information to the writer. Messrs. Stern Bros., London, state: "We should say our '800' cylinder oil could safely be used for temperatures of 800° to 1,000° F., so long as no air is admitted to the chamber." Messrs. Snowdon, Sons, Ltd., Mill wall, report their oils are in use with superheated steam at and rather over 650° F., whilst their "Sinol," a graphitic preparation, has proved exceed-

ingly satisfactory at high temperatures. Messrs. Bluman and Stern, Ltd., Deptford, communicate: "The temperature at which decomposition begins is scientifically found between the flashing and burning points, but in reality at the burning point; hence it follows that high flash cylinder oils are commonly preferable for air-cooled motors, inasmuch as they also possess a better viscosity than low flash oils. When water jackets are used, we usually recommend a light or medium-bodied cylinder oil (burning point 500° to 700° F.) as the working temperature, in this instance, is much lower than with air-cooled motors." The Vacuum Oil Co., Ltd., London, wrote: "We are not able to give you immediately any exact figures as to the maximum temperature in a cylinder at which lubricating oils are reliable and effective. Our 'Hecla' cylinder oil is regularly working, with satisfactory results, in superheated steam at temperatures between 550° and 600° F. Our 'Extra Hecla' cylinder oil is regularly working, in Germany, at higher temperatures." The firm subsequently enclosed a report*** from Col. Crompton, R.E., and added: "This quite confirms the experience of our own laboratory, to the effect that for temperatures from 650° to 850° our 'Extra Hecla' is entirely suitable. The fact that our 'Hecla' comes so near doing the work satisfactorily at 800° F. makes it reasonable to believe that the 'Extra Hecla' will work satisfactorily up to at least 900° F."

The above figures would appear to demonstrate that lubricants are far ahead of present requirements in petrol motors. But on closer consideration the fact is not quite so evident. In the first place, it must be remembered that, though the cylinder walls to be lubricated may be only 200° F., a portion of the surface is at every explosion exposed to exceedingly hot combustion gases, the result being that an oil of sufficient stability for lubricating at 200° F. might undergo decomposition from flame contact during the explosion stroke. This might occasion a deposit of carbon, increasing wall and valve fric-

*** This report, embodying the most recent and reliable experiments and of special interest to steam car users, is as follows: "We have two cars both using superheated steam. The one is an altered Locomobile with the superheating coil inserted between the regulating throttle and the valve chest. It is lubricated with an ordinary displacement lubricator, and in it we have tried your 'Hecla' and 'Extra Hecla.' I cannot give you the exact temperature of the steam in this case, as it varies from no superheat up to at least 700 degrees. The valves and pistons of this engine have remained in perfect order when using 'Hecla' only. When using 'Extra Hecla' the quantity has been a little reduced. There is considerable difficulty in making arrangements to fill the lubricator with 'Extra Hecla' the liquid being so viscous that it is necessary to warm it to get it in. In the case of the second car, which is White's Patent, having a semi-flash boiler, which is really a boiler and superheater in one, this is fitted with a thermostat temperature regulator inserted in the steam just as it leaves the boiler. The fire is turned off and on so as to keep the temperature of this steam as closely as possible to 800 degrees Fahr. It probably never exceeds 850 degrees and rarely falls below 750 degrees during the time the car is at work. The oil is fed by a small pump hand-worked from the driver's seat. From four to six drops are forced into the steam pipe on its way to the valve chest at first starting up; again, ten minutes after starting; and after that at intervals, gradually increasing in length so that when on long runs it is fed about every half-hour. In this case we found the difference between 'Hecla' and 'Extra Hecla' was very marked. The 'Hecla' was too thin, and seemed to offer no resistance to the pump when all was fully heated up, and due to this cause we had one case of cutting our slide faces. We therefore took on the 'Extra Hecla,' and from that time we have had no trouble. The temperature is so high the 'Extra Hecla' runs like water. I should say it is the best oil we have yet tried. We cannot say that we have any certain experience of temperature in excess of 800 degrees for any length of time."

* The writer would be grateful for any reliable information on this subject. Address care of the Editor.

** Perhaps this might be more correctly termed "Premature irregular ignition."

tion, and, possibly, by incandescence, leading to premature ignition. Accurate information as to the behaviour of oils under such conditions is wanting, and in its absence it would at first sight seem safer to employ only oils of the highest flash point. But with such oils there is another difficulty—of a mechanical nature. This is clearly put by the Vacuum Oil Co., Ltd.: "An oil fed into steam is blown, by the velocity of the steam, into minute particles, which are carried through all the steam and deposited on all surfaces with which the steam comes in contact.† In a petrol engine, a drop of oil entering the cylinder remains almost intact, and oils of as high flash point and viscosity as 'Hecla' and 'Extra Hecla' will not spread over the surfaces." Messrs. Bluman and Stern, Ltd., however, are of opinion that, by the combustion in the cylinder, the lubricating oil is spread in a somewhat similar manner to the process going on in a steam cylinder. With oils of too heavy a body, it would, of course, be less easily spread. It is not clear to what degree the burning point and viscosity of an oil may be lowered without impairing its suitability for the purpose. On this point, the Vacuum Oil Co., Ltd., wrote: "We have not to hand information which enables us to give the reasons at all accurately, but it is a fact that in all the present well-known petrol engines our oils of 415° to 485° flash point work perfectly, without disintegration, in explosion cylinders, in which the temperature is periodically higher than any temperatures reached with superheated steam." These reasons might well form the subject of further enquiry, by which the lower and upper limits of flash and viscosity would be more definitely determined. Messrs. Stern Bros. state: "We have found that our ordinary Sternal automotor oil (which has a flash point of 475° and fire test of 525°) and our Sternal valve oil (flash point 560°, fire test 620°) will answer all requirements in connection with petrol motors"; and a testimonial from Mr. F. C. J. Bird, F.C.S., appears to confirm this. It should not be forgotten, as Mr. Bird points out, that high viscosity distinctly assists compression—a feature of vital importance.

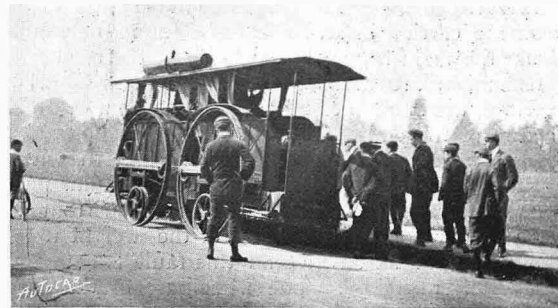
Regarding the quantity of oil to be used, the Vacuum Oil Co. gave as their opinion: "In any lubrication, the quantity of oil fed must greatly exceed the quantity required for efficient lubrication, if uniform distribution were possible. In steam cars one drop per minute is more than enough. In a petrol engine such as you describe,* a feed of three to five drops per minute at starting, and afterwards a feed of two drops per minute, is ample. A large number of cars that have come to our notice have been regularly working with an average feed of two drops per minute." Drivers, therefore, who are in the habit of using a great deal more are either employing unsuitable oil, or wasting lubricant, or running motors in which defective piston fit, faulty cylinder design, involving unequal expansion, or other structural defects, are making heavy and undue calls for cylinder oil.

† In Patent No. 20,449, 1896, D. Smith. The inventor proposes to effect the same result by introducing the oil with the air charge. In No. 5,147, 1897, S. Rolfe. Water is injected after explosion, during the working stroke, and with it lubricant is introduced.

* Cylinder 5in. dia., stroke 6in., revs. 800 to 900 per min.

THE RING RAIL TRACTOR AGAIN.

Beneath is a reproduction of a photograph kindly taken by Mr. F. Strickland, of Teddington, at our instigation, on a main route out of London. It



was in the charge of three Germans, two of whom spoke nothing but their mother tongue, while the third, who had some English, resented the mildest efforts to probe the secrets of his strange-looking car. Such particulars as we were able to extract from our unwilling informant were to the effect that the vehicle was propelled by two 15 h.p. motors, one using heavy oil and the other benzoline. Both engines were vertical, the one in the forward half of the car working downwards and the other upwards, the two engineshafts being connected by a broad belt running over pulleys. In some way—how we could not discern, all the driving gear being enclosed—the axles of the small grooved iron wheels running on the 6ft. 6in. webbed spokeless rims were each driven by gearing, the car being apparently steered by the variation of the angle of the forward to the rear half of the body. We have since learned that the ring rail tractor is being tested by the Committee of Mechanical Transport appointed by the War Office, and that the vehicle has been imported from Germany by Mr. Crowden for the official trials, which will last some six days. The preliminary trials were, we understand, quite successful. Of course the idea of the ring rail is that the machine shall practically lay its own road, as it is claimed that it can be used over rough ground and under conditions which it would be absolutely impossible to drive a machine the driving wheels of which bore directly upon the surface of the ground. In any case, as was demonstrated by the War Office trials of heavy vehicles last winter, the authorities regard the ability to drive across country as most necessary from a military point of view, and there is no doubt that the qualifications of the ring rail tractor in this respect will be put to a severe test, the result of which will be watched with great interest.

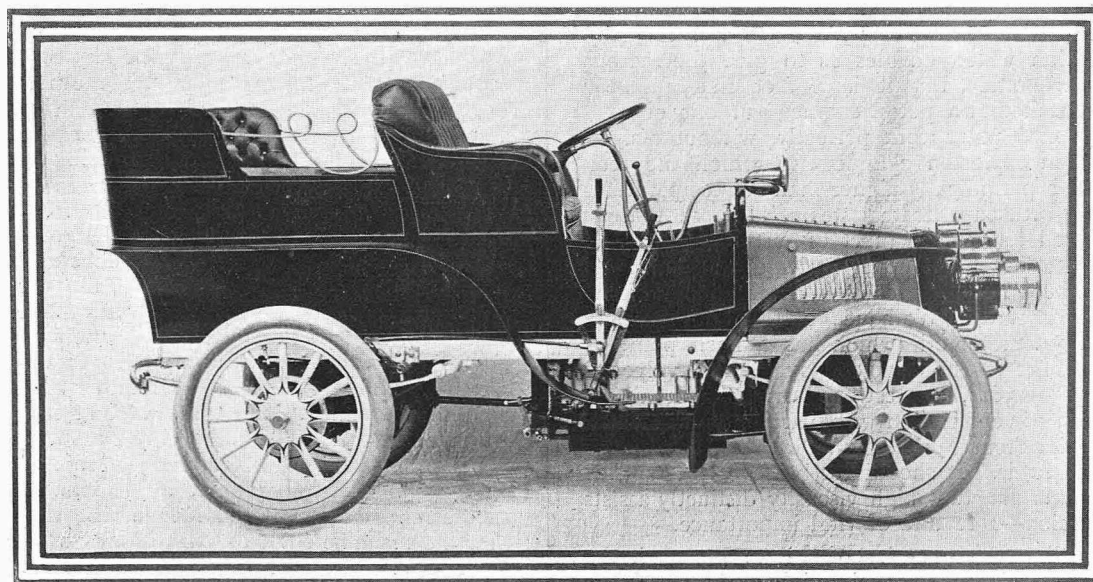
A new repair depot and garage have been opened at 46, Station Road, Anerley, London, S.E., under the name of the Motor Car Supply Co., by Messrs. Bell, Slatter, and Penneman, late of the Motor Car Co., Ltd. The garage is of a somewhat extensive nature, there being ample room to store at least twenty cars, and the repair workshop is fitted with the latest improvements, and has every accommodation for undertaking repairs of all kinds.

THE VELOX CAR.

A new car has just been produced by the Velox Motor Co., of Parkside, Coventry. The vehicle has a main frame of ash with sitch plates, and to this the carriage body is fixed, while the engine and gear box are carried in an angle steel frame depending from the main frame. The whole of the frame and mechanism are mounted upon long semi-elliptical springs, the back ones being 3ft. 6in. from centre to centre of the ends. These are mounted upon solid forged axles, which carry artillery pattern wheels 32in. in diameter, and are shod with $3\frac{1}{2}$ in. pneumatic tyres. In the car we examined the front axle was, in our opinion, too light for the weight it had to carry, but we understand this fault is being immediately remedied. The wheelbase of the car is 7ft., and the track 4ft. 3in. The car is propelled by a 10 h.p. Abeille two-cylinder engine. It has a bore of $4\frac{1}{8}$ in. and 5in. stroke, and develops its power at 800 revolutions per minute. The cylinders are water-cooled, the circulation being maintained by a

rotary pump, which is fixed to the crank chamber and gear driven from the inside. The water tank is placed in front of the dashboard, and the radiator stack is placed in front of the bonnet. Electric ignition alone is used, the current being supplied by an accumulator, and intensified by the usual induction coils, the current being distributed to these by a wipe commutator. Fuel is supplied to the motor by a Panhard-Centaur carburetter, in conjunction with which is the throttle valve, worked by a centrifugal governor on the forward end of the crankshaft. Power is transmitted to the change speed gear by a large diameter conical friction clutch, of which the flywheel forms the female portion. The male part slides upon the square end of the clutchshaft, and is kept in contact by a spiral spring, which is so arranged that no end thrust is created excepting during the time the clutch is out of contact. The adjustment of the clutch is easily effected, as the adjusting nut and its lock-nut lie directly beneath the footboard, and are unencumbered by any other parts. The clutch is actuated by the usual pedal.

That all-important part, the speed-changing gear, is a combination of the Panhard and Renault systems -- Panhard so far as the sliding in of the gears is concerned, and Renault as to the direct drive. The gears give four speeds forward and reverse, the teeth being toughened and hardened, and the edges rounded off to assist them in sliding into their corresponding wheels. On the end of the clutchshaft inside the gear box is a spur wheel intermeshing with another of like diameter fixed to a shaft parallel to and above the drivingshaft. This upper shaft carries the four fixed wheels for the speed, while the drivingshaft below carries the changing gears. On the top gear the drive is direct, the upper shaft running idle. On the end of the drivingshaft outside the gear box is an ordinary universal joint, through which the propellershaft drives through a bevel pinion on to a steel bevel wheel on the rear live axle. At the bevel wheel end of the propellershaft is another universal joint which compensates

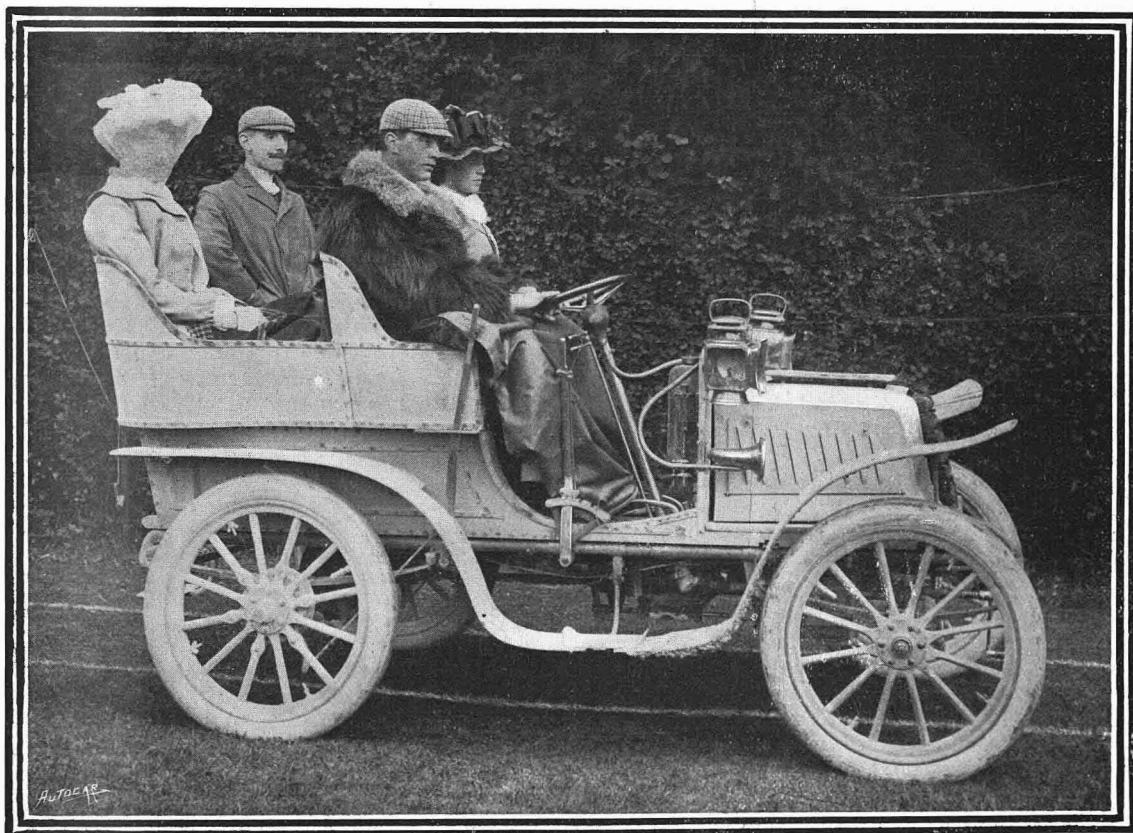


for end play. This is formed by a metal ball having four slots cut across it at equal distances; into two opposite slots the long forked end of the propellershaft engages, while the bevel pinion shaft has a similar fork engaging in the two remaining slots. The bevel wheel on the rear live axle is of steel, and surrounds the differential gear. The axle is very strongly constructed, being of large diameter and well stayed. Lubricant is supplied to all its bearings by the oil splashed up by the bevel wheel being caught and passed along the whole length of the axle, returning to the bevel gear box through the tubular stays from the ends of the axle. Three band brakes are provided, two being on the road driving wheels and one on the bevel pinion shaft. The drums for the road wheel brakes are bolted directly on to the hubs, which are of phosphor bronze. All the brakes are double-acting, those on the road wheels being applied by a side lever and the third by a pedal. The steering is by a wheel, and is irreversible, being a combination of the worm and nut and rack and pinion systems. Upon the

steering column are mounted the sparking advance and throttle levers, both of which have long handles with ball knobs, which are both easy to find in the dark and comfortable to handle. The body is a very comfortable tonneau, with more than the ordinary space for the rear passengers. The front seat is also wide, and there is plenty of footboard space. The tonneau is fitted with a false bottom, which enables a spare tyre and other parts being stowed comfortably away. The petrol tank forms the back of the front seat. We may add that the Velox Motor Co. is a new concern which has been formed as a subsidiary company to the New Amalgamated Tyre Co., as it has very fine premises

well adapted for the manufacture of cars, and the directors consider that, situated as they are in the centre of the motor industry, they would be wasting their opportunities if they were not to avail themselves to the full of the fine modern factory, and they are now busily engaged installing it with a suitable equipment of machine tools, so that the cars can be standardised and turned out in series. Unlike some new makers, they have wisely abstained from experimenting, and as they have obtained the services of a works manager and designer of ability and experience, there is every reason to expect that the Velox cars will become one of the well-known brands.

A TRIAL TRIP OF 600 MILES.



Mr. A. B. Venables and party on his new 9 h.p. Dennis car. The car was taken from the works in an unfinished state and run on a tour of over 600 miles through the south and south-western counties. The steep Devonshire hills were mounted with ease with the full load up. No adjustments were made on the journey, and the car ran to perfection, its average being over 100 miles a day.

After the water polo international match between England and Wales at Newport last Saturday, Mr. J. I. Neale, the president of the Welsh Amateur Swimming Association, kindly conveyed a number of the officials who had lost the last train back to Cardiff. Although the load was heavy, Mr. Neale's comfortable car covered the twelve miles in excellent time. The result of the journey was a couple more converts to the pastime.

An acrimonious controversy has been aroused by the circumstances of the recent conviction of Mr. C. J. Spencer, manager of the Bradford Tramways, for the furious driving of a motor car. One party in the city council is proposing to make the point in the elections that that body is wasting money unnecessarily on vehicles for officials, and has carried a resolution requiring a return of the outlay upon and the cost of maintenance of all such vehicles.

CONTINENTAL NOTES AND NEWS.

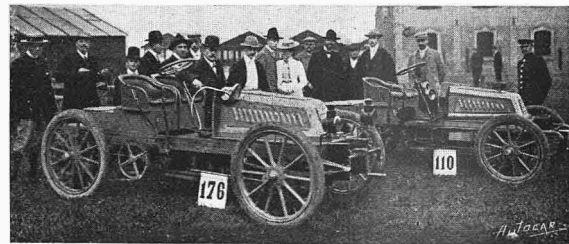


Over the summit at Chateau-Thierry. Tests on the 70 h.p. Panhard

The Chateau-Thierry Hill Climb.

The hill-climbing trials at Chateau-Thierry on Sunday were organised by *L'Auto-Velo* as a set off against the similar event at Gaillon the previous week, and as the desire of the promoters was to eclipse the older meeting, they have every reason to be satisfied, for the new series of trials were in every way an unqualified success. The selection of Chateau-Thierry was a particularly good one from a popular point of view, since the gradient on which the trials were held passes up through the town, beginning at the River Marne, and continuing up the paved street between rows of houses, and then changing to macadam, where it rises with two awkward bends to the top of the plateau, from which a magnificent view is obtained of the Marne Valley. It is therefore easily accessible, and all Chateau-Thierry was naturally present to see the trials, thus forming a huge compact crowd, who were kept back by temporary barriers on each side of the road. From the point of view of the makers the trials also proved attractive as well on account of their novelty as of the particularly trying character of the course, which was supposed to be much harder than Gaillon or the other kilometre gradients on which trials are held. The cars had, in fact, to start on an incline of three to five per cent., and crossed the line at

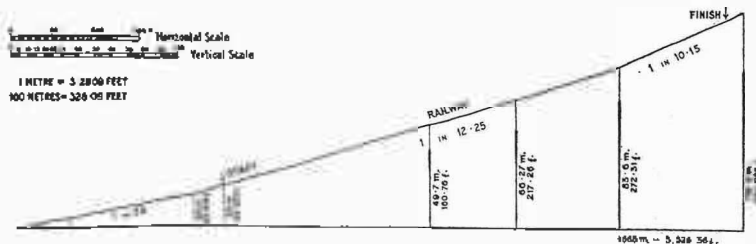
seven per cent., whence the gradient continually increases to eight and a half with a final sharp rise of nine and a half, which required the motors to develop all they were capable of giving during the last fifty yards or so. To make matters worse, the two turnings on the hill proved very



176, the new 24 h.p. Georges Richard car. 110, one of the smaller 15 h.p. cars of the same make.

awkward to negotiate by competitors who had not previously been over the course. If the public and the autocar firms took such a great interest in the trials, their enthusiasm was not more marked than the zeal of the local authorities, who invited the population to accord hospitality to the automobilists, and thus encourage them to make this competition an annual event, and the tradespeople also assisted to make it a success by offering a number of prizes, which is rather different from the usual experience when the promoters are expected to contribute to the local funds for the privilege of being allowed to hold their trials.

Of the hundred and fifty cars and cycles entered for the event



Section of the Chateau-Thierry incline.

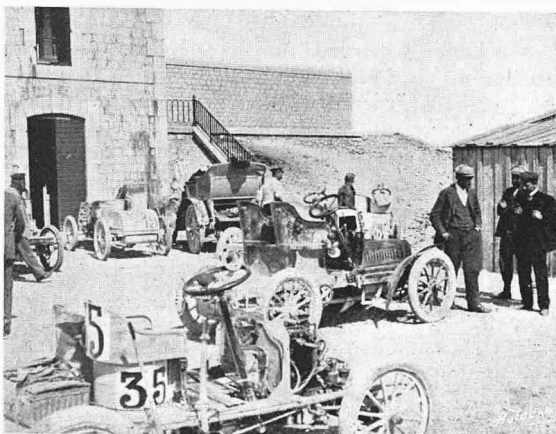
about ninety put in an appearance, and owing to the large number competing, the trials lasted the whole day, the motor cycles and voitures being sent off in the morning and the other vehicles in the afternoon. Barré, on a Bruneau bicycle, opened the proceedings by racing up the hill in 1m. $\frac{1}{5}$ s., but his time was beaten by Lamberjack on a big Griffon bicycle, with Soncin motor, in $55\frac{4}{5}$ s., while the Bruneau was tied by J. Carreau on a bicycle of his own make. With the exception of Demester on a Griffon, and Deryn on a light Clément bicycle, who only took one and three seconds more respectively, none of the other bicycles approached these times. The performance of the little two-cylinder Clément was a particularly good one, Deryn beating the second in this category—also a Clément, by more than 3rs. Among the tricycles Rigal was expected to do something sensational on his 20 h.p. Buchet, but, unfortunately, a slight accident to the machine prevented him from reaching the top, and another Buchet, ridden by Loste, did the best time in $49\frac{1}{5}$ s., followed by Holley and Osmont on De Dion tricycles. That the gradient is much harder than the one at Gaillon is proved not only by the slower times, but also by the number of motor bicycles which failed to climb the hill, some of them coming to a standstill when taking the corners, and once the motor stopped there was no possible means of starting it unaided on such a grade. Among the voitures the most noteworthy performance was accomplished by Thellier on a Passy-Thellier car with Buchet motor. This vehicle made its first public appearance at Deauville, and it has since been showing up exceedingly well in the different races and trials. Thellier took only $58\frac{1}{5}$ s., beating the second by nearly sixteen seconds. In the afternoon the light carriages and big cars made an attack on the hill, Barras opening the way with a light Darracq using alcohol, and his time of $54\frac{1}{5}$ s. seemed very difficult to beat on such a course; but Rigolly, with



At the top of the Chateau-Thierry incline. Demester on a Griffon motor bicycle.

his Gobron-Brillié, succeeded in reducing the time to 52s., which placed him first among the light carriages. The best performance of the day, however, was accomplished by Gabriel on his Mors, which took $48\frac{2}{5}$ s., followed by Serpollet in $49\frac{4}{5}$ s., which is eight seconds more than his time at Gaillon, and, in fact, so far as it is possible to make a comparison, Chateau-Thierry is at least eight seconds slower than the classic course, as the result, chiefly, of the turnings and the sharp rise at the top. The Panhards, driven by Teste and Heath, took four and five seconds more than the Mors of Gabriel, but they beat two other Mors cars piloted by Augières and Durand.

It is noteworthy that both the light carriage and big car categories were won by vehicles with direct drive on the top speed, the motors being of a lower power than many of the competing engines, but Rigolly and Gabriel had previously tested the hill, and adapted pinions which allowed of their driving direct at top speed the whole of the way. The lower-powered cars also did well, the Mercedes of Dr. Pascal, driven by De Bignières, going up in excellent style in 1m. $6\frac{3}{5}$ s., while one of the new Georges Richards, driven by Brazier, only took 1m. $15\frac{1}{5}$ s. The times are given overleaf.



The Mount Ventoux climb. A corner of the Observatory Terrace on the summit. (See page 326, "The Autocar," Sept. 27th.)



The Criterium de Provence. Méry starting on his 24 h.p. Turcat-Méry, which finished second, beaten only by the 70 h.p. Panhard. (See page 309, "The Autocar," Sept. 20th.)

LARGE CARS.

	M.	S.
Gabriel (Mors)	...	48 $\frac{1}{2}$
L. Serpollet (Gardner-Serpollet)	...	49 $\frac{1}{2}$
Testé (Panhard et Levassor)	...	52 $\frac{1}{2}$
Heath (Panhard et Levassor)	...	53 $\frac{1}{2}$
Angières (Mors)	...	54 $\frac{1}{2}$
Durand (Mors)	...	56 $\frac{1}{2}$
Axt (Panhard et Levassor)	...	58 $\frac{1}{2}$
De Bignières (Mercedes)	1	6
Efgey (Panhard et Levassor)	1	9
Brazier (Georges-Richard)	1	15 $\frac{1}{2}$
Tourand (Brouhot)	1	19 $\frac{1}{2}$
Durand (Mors with four passengers)	1	30 $\frac{1}{2}$
Charrin (Fourillaron-Buchet)	1	39 $\frac{1}{2}$
Jousse (Fourillaron-Buchet)	1	40
Mercier (30 h.p. Gladiator)	2	9 $\frac{1}{2}$

LIGHT CARRIAGES.

	M.	S.
Rigally (Gobron-Brillié)	...	52
Barras (Darracq)	...	54 $\frac{1}{2}$
Edmond (Darracq)	...	56 $\frac{1}{2}$
De la Touloubre (Decauville)	...	57 $\frac{1}{2}$
Barbaroux (Clément)	...	57 $\frac{1}{2}$
Théry (Decauville)	...	59 $\frac{1}{2}$
Duray (Gobron-Brillié)	1	5
Rutishauser (Gardner-Serpollet)	1	6
Uhlmann (Decauville)	1	10 $\frac{1}{2}$
Barrier (Georges-Richard)	1	14
Millot (Peugeot)	1	16 $\frac{1}{2}$
Ravenez (Decauville)	1	17 $\frac{1}{2}$
Comte du Bois (Delahaye)	1	17 $\frac{1}{2}$
Deckert (Deckert)	1	21 $\frac{1}{2}$
Perrin (Delahaye)	1	21 $\frac{1}{2}$
Pirmez (Delahaye)	1	45 $\frac{1}{2}$
Dr. Metivier (Delahaye)	1	53 $\frac{1}{2}$
Valentin (Ader)	1	54 $\frac{1}{2}$
Menard (Vinet)	1	55 $\frac{1}{2}$
Richemond (Ader)	2	14
Gasté (Automotrice with four passengers)	3	16 $\frac{1}{2}$

VOITURETTES.

	M.	S.
Thellier (Passy-Thellier)	...	58 $\frac{1}{2}$
Volatum (Clément)	1	14
Hanriot (Passy-Thellier)	1	19
Oury (Clément)	1	30
Combiér (Georges-Richard)	2	4
Ginder (Locomobile)	2	21 $\frac{1}{2}$

MOTOR BICYCLES WEIGHING MORE THAN 50 KILOGS.

	M.	S.
Loste (Buchet)	...	49 $\frac{1}{2}$
Holley (Clément bicycle)	...	51 $\frac{1}{2}$
Osmont (De Dion using alcohol)	...	55
Bourdiaux (Philibert)	1	5 $\frac{1}{2}$
Osmont (De Dion carrying two passengers)	1	11

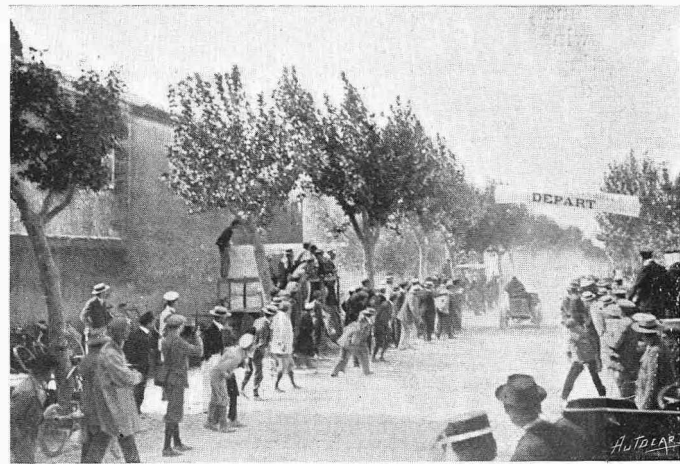
MOTOR BICYCLES WEIGHING FROM 30 TO 50 KILOGS.

	M.	S.
Lamberjack (Griffon)	...	55 $\frac{1}{2}$
Barré (Bruneau)	1	0 $\frac{1}{2}$
Carreau (Carreau)	1	0 $\frac{1}{2}$
Demester (Griffon)	1	1 $\frac{1}{2}$
Robin (Lamaudière)	1	18 $\frac{1}{2}$
Labitte (Werner)	1	22 $\frac{1}{2}$

MOTOR BICYCLES WEIGHING LESS THAN 30 KILOGS.

	M.	S.
Derny (Clément)	...	1 3 $\frac{1}{2}$
Muller (Clément)	...	1 34 $\frac{1}{2}$
Coudert (Lurquin et Coudert)	...	1 37 $\frac{1}{2}$
Coudert II. (Lurquin et Coudert)	...	1 38 $\frac{1}{2}$
Barré (Bruneau)	...	1 40
Doucin (Griffon)	...	1 52 $\frac{1}{2}$

The prizes are to be awarded after an addition of the times at Château-Thierry and Gaillon on Sunday, so that the same vehicles will no doubt be competing at this latter event, which is really intended to form part of the same trials.



Criterion de Provence. Chauchard, the winner, on his 70 h.p. Panhard, finishing.

THE SUPPLY OF SPARE PARTS.

In a recent conversation with Messrs. Gamage's manager, Mr. Vincent, he apprised us of a scheme which he is now putting in hand which will, we are sure, give satisfaction to many automobilists. From this time forward Messrs. Gamage intend to stock the spares of every well-known make of car, and, moreover, intend to forward them upon postal or telegraphic demand to any part of the country. Messrs. Gamage's idea is to convince the automobilist that they are a certain find for any part which by failure may cause a stop upon the road. Mr. Vincent mentioned several instances in which breakdown requirements of automobilists had been met by his firm during the present season, and said that they were moved to the adoption of this scheme by the congratulatory letters they had received from clients they had succoured in the manner indicated. Messrs. Gamage hope to be able to supply most parts liable to occasional failure out of the large and varied stock they will shortly carry, but if they are short of anything at the moment of demand it will be obtained by special messenger if obtainable in London, or by wire if Paris has to be resorted to, and dispatched immediately by passenger train. We feel certain that this announcement will reassure many an automobilist about to start on a tour, and who in the past may have had a trip spoiled by dilatoriness in attending to pressing appeals for spares. This scheme, of course, applies as well to motor accessories and fittings, of which Messrs. Gamage now carry a very large stock.

Recently some letters appeared in the *Scotsman* hostile to automobilism, but the question was promptly taken up by automobilists in the district, with the result that a more reasonable attitude pervaded the correspondence. Amongst other things, complaint was made by Mr. John Cuninghame of the large number of horses left unattended at public-house doors and other places, and, probably as the outcome of this, the chief constable of one county has given instructions that proceedings are to be taken against drivers of all horse-drawn vehicles who leave their horses standing unattended.

Correspondence.

AIR PRESSURE FOR STEAM CARS.

[2597].—As all users of steam cars know that it is tiring to pump up forty or fifty pounds pressure in the petrol tank every now and then, and steam pumps only add to the complication of the car, I describe a simple contrivance I saw some years ago fitted to an automatic benzoline blow lamp, and think it would answer for motors. It was a tank containing the spirit, with vaporiser, blow jet, etc. There was a pipe fitted in the top of the vaporiser and carried to the upper part of container, forming a circulating passage, as in a gas engine. When the lamp was set going with spirit in the usual way, the heat turned more spirit into vapour than the flame could burn, and so passed into the top of the container, and I saw sixty pounds registered on the gauge in a few minutes, after starting all cold, without any pumping; in fact, no pump was fitted, and I have a photograph of the furnace at work, and the gauge shows plainly fifty pounds. The furnace was made by Nelson and Sons, Twickenham, and it must be about nine years ago since I saw it. I shall be pleased to give further particulars. The editor has my address.

W. T. WARNE.

AN UNFORTUNATE COINCIDENCE.

[2598].—The following account of a distressing accident to a 6 h.p. De Dion motor car may be of interest to your readers.

One evening during a motor tour last month through the Dukeries with some friends, our supply of petrol ran short, and hearing of a motorist in the neighbourhood, we applied to him for a further supply, which he kindly proceeded to oblige us with. While pouring this out some portion was spilled upon the ground and was almost immediately ignited by the flame of a hurricane lamp standing a few feet away. This burned so fiercely that it destroyed both the car and the motor house, in spite of all efforts made to save them.

Thus through an accident, the like of which is liable to happen to any motorist, this gentleman, in acting the part of a good Samaritan, has sustained the loss of both his car and motor house.

Relying upon the sympathy that undoubtedly exists between motorists, I venture to appeal to your readers and their friends for subscriptions towards helping the unfortunate owner of the car, who, though a keen and enthusiastic motorist, is not a wealthy man, and quite unable to bear the loss. Any contributions will be gratefully accepted on his behalf, and acknowledged in *The Autocar* by Mayfield, Blackburn.

F. STEPHENSON.

[The above letter has been in type for a fortnight, but has been held over with other correspondence. We dealt with it briefly on page 291. At the moment of going to press, we have heard that our correspondent has received the following subscriptions: Dr. Stephenson, Blackburn, £5; F. Hodgkinson, Pleasington, £1 1s.; S. Goulesbrough, Worksop, £1 1s.; T. Golby, jun., Surbiton, 10s.; T. Burton and Co., Blackburn, 7s. 6d.; Dr. W. Jones-Greer, 5s.; a sympathiser, 2s. 6d.—ED.]

A CHALLENGE TO MR. CITROEN.

[2599].—I am often too busy to read the papers, and state this to explain why this letter is rather belated.

I have just seen a letter which Mr. Citroen sent to the press the other day, attempting to run down the Kelecom engine to the advantage of the Minerva, in which—after speaking of some victory he alleges the Minerva won against the Kelecom, in some match said to have been run somewhere in Belgium, and admitting that the Ormonde Motor Co. (sole agents for the Kelecom in England) had promptly challenged him (agent for the Minerva) to have a try at beating the Kelecom with a Minerva—he declines to face it in a match for a stake of £50.

I know a good many people who use Ormonde motor bicycles fitted with the Kelecom engine, and one or two who use motor bicycles fitted with the Minerva engine, and, comparing their experiences together, I challenge Mr. Citroen to produce four motor bicycles fitted with Minerva engines capable of beating four motor bicycles fitted with

Kelecom engines the same size. I will cheerfully stake £20 upon the Ormondes if Mr. Citroen thinks he would feel inclined to put the same amount upon the Minervas, and I confidently await the result.

If Mr. Citroen can be induced to meet the Ormondes in a match, I think it would be an excellent thing if *The Autocar* would see fair play, and perhaps be so kind as to approach both sides and arrange the match; and stakes then combined to £70 could be run for.

These are fair conditions under which the match should be run:

(1.) Four Ormonde motor bicycles to be matched against four motor bicycles fitted with Minerva engines.

(2.) A good long race to be the test, the winning team to be the one obtaining the largest total of marks.

(3.) The Minerva engines this time not to exceed the bore and stroke of the Kelecoms, and the dimensions to be identical with those the Kelecoms possessed in this former match Mr. Citroen is so fond of talking about.

LEOPOLD CANNING.

THE 12 H.P. BELSIZE.

[2600].—Since the publication of the results of the reliability trials we have had numerous enquiries from owners of our cars as to the reason of our low speed on the hills, saying that their experience is just the opposite, the hill-climbing powers being a strong feature of the car. As it is possible that many of your readers may be interested in this matter, we beg to state the facts of the case. On the day of the hill-climbing tests, owing to one cylinder misfiring, we were compelled to climb the hill from the start on the low gear, although only two days previously we had climbed it on the second speed, and had even picked up a fifth passenger on the steepest point shed from another car. We ought to say that we guarantee our 12 h.p. Belsize car to climb Westernham with six or even seven people with ease.

MARSHALL AND CO.,
J. HOYLE SMITH.

[2601].—As the owner of a 12 h.p. Belsize car, I was not surprised to find this car take a high position for reliability in the recent trials, but knowing its capability for hill-climbing, I was astounded to find it figuring so ingloriously in the climbing tests. Of course, when I learned the cause (one cylinder missing), its poor display was accounted for. The top speed of my car is geared low (eighteen miles), and I travelled recently with full load and heavy canopy from Holyhead to Blackburn—140 miles—only changing from top speed for a few minutes. Anyone who knows this hilly route will appreciate this performance. I have no interest whatever in this make of car beyond possessing one, but I have pleasure in bearing testimony to its power and speed up the hills and to its being a thoroughly reliable car, and British-made throughout.

FREDK. T. MARWOOD.

The Lodge, Pleasington.

STEAM CARS.

Under this heading we have received letters which we summarise below. Mr. A. E. Cohen, on behalf of Weston Motors, replies to the letter from the Locomobile Co. of Great Britain, published in our last issue, with regard to the conditions of the trials. He entirely disagrees with Mr. Letts's interpretation of the meaning of the reliability rules, and maintains that nothing would prevent the manufacturer from building special machines for the trials if this reading is correct, and if he is not compelled to state that they are of special construction, as, unless this is done, he considers the public, when studying the results, would be led to infer that the competing machines were of standard design.—Mr. F. Thomas writes that the Locomobiles used in the trials were as supplied to the public, as his own car is fitted in the same way.—Mr. M. J. Johnson expresses his admiration of the pluck of the Locomobile Co. for entering their cars in the club competitions and runs so as to demonstrate what they will actually do in this country.—Motorist points out that none of the Locomobiles in the reliability trials gained full marks for brakes, and expresses the opinion that extra

brakes should be fitted, and these not tyre brakes—an opinion with which we entirely agree. On the other hand, it should be known that there is no difficulty about the fitting of a couple of band brakes on the hubs of the rear wheels. All the machines used in France are compelled to be so fitted by the motor regulations in force in that country. Motorist also thinks that a condenser should be fitted to all cars sent out by the Locomobile Co. This, we believe, is already done on all machines except the cheapest pattern. In conclusion Motorist considers that the brake trials show that makers generally would do well to devote special attention to their brakes.

We are compelled to hold over a number of letters through pressure on our space. Several answers to "Queries of General Interest" are also unavoidably withheld for the same reason.

Flashes.

The opening meeting of the winter session of the Nottingham club will be held on Friday, October 17th, when the usual informal dinner will take place. The guests of the evening will be Messrs. Edge and Jarrott, who have promised to relate some incidents in connection with the great Continental races of this year.

Next Tuesday week, October 14th, the 4½ h.p. Benz, driven by Mr. Hewetson 5,000 miles in fifty consecutive days (Sundays omitted), will be sold by auction without reserve at the City Garage, 34, Queen Street, Cheapside, E.C. Whatever sum it realises will go to King Edward VII. Hospital Fund. The garage has been placed at the disposal of Messrs. Hewetson free of charge, and the auctioneer gives his services gratuitously.

The Weston steam car is undoubtedly a smart little hill climber in the hands of a good driver. We lately ascended the Test Hill in Richmond Park in a Weston driven by Mr. Guttman at a speed of 14.03 miles per hour, the time being taken over the section set out in the "Badminton Book on Motor-ing," which includes the seventy yards of 1 in 7.8. This car was not in any way prepared for the test, but was the identical vehicle which Mr. Guttman has driven regularly for nearly two years, and which is estimated to have covered over 8,000 miles in that time.

To show the harm which is being done to the movement by the obnoxious police persecution of motorists in many parts of England, Messrs. Rennie and Prosser, of Glasgow, send us a letter which they have received from a client who had practically decided to buy a new car, but who, at the start of a tour on his old machine, was stopped twice and his name taken for alleged excess of the legal limit. This has so disgusted him that he has decided not to buy a new car. This attitude must appear a mistaken one to the majority of motorists. It is, of course, annoying to be stopped, but it is far better to motor and to have one's name taken occasionally than not to motor at all, and we cannot understand anyone who has tasted the joys of automobilism having any other opinion. Still, there are people who do not think this way, and the movement is undoubtedly hampered by the vexatious action of the police.

The motor car's reliability is not seriously in question; it is its exemplification of the unreliability of the horse which makes it so obnoxious.—*West Sussex Gazette*.

For the benefit of autocarists passing that way, we may mention that the road is up down Silverhill, near Hurst Green, Sussex, and very dangerous, being covered with loose unrolled stone to the depth of six inches in places.

Mr. Young, of Nottingham, has made quite a sensation in his town by riding to London and back in the day, the distance being some 260 miles, and the ride, we understand, was taken to demonstrate to Nottingham people what could be done on a motor bicycle, as it would appear that many are somewhat prejudiced as to the practical character of the machine. The cost of the fuel was only 3s. 9d.; the bicycle was one built by Mr. Young, and fitted with a well-known motor.



The photograph from which the above illustration is made has been kindly placed at our disposal by Mr. T. Goldby, jun., and shows the introduction of a young horse to a 12 h.p. Darracq while the engine is running. Mr. Goldby is one of those who does all he can to stem prejudice, and has persuaded many of his friends to bring their horses to him to have them broken to the motor, and he generally succeeds in getting them properly used to his car in a few minutes.

Mr. E. M. C. Instone, the commercial manager of the Daimler Co., Coventry, appeared before the Milverton Bench (Warwickshire) on Wednesday last, and was fined £5 and 14s. 6d. costs for that he did exceed the legal limit of twelve miles an hour over a measured stretch on the occasion of the recent run of the Midland Automobile Club to Stratford-on-Avon. The police stated that Mr. Instone covered a quarter of a mile in 35s.—a rate of speed which works out at twenty-five miles an hour. Mr. Instone pleaded guilty to exceeding the legal limit, but submitted that there was no danger in doing so, as there was no vehicular traffic on the road at the time he was pulled up, and that he had the car under complete control. He also pointed out that he had driven cars regularly for over six years without meeting with police interference, and that he had had the privilege of demonstrating on an autocar before His Majesty the King. Argument, however, was wasted on the Milverton magistrates, who signified their disapproval of automobilism in the usual manner. Mr. C. K. Welsh, of Coventry, was similarly fined for a like offence.

Werner Motors, Ltd., have again moved to much larger and more convenient premises, and are now to be found at 151, Regent Street. They tell us that the results which have been obtained from their machines this season are so satisfactory that they anticipate an exceptional demand next year, especially with the new 2 h.p. machines, and they mean to be prepared for it.



The vehicle illustrated above took the first prize in the Lancaster Floral Fête. The car is a John o'Gaunt, made by Messrs. W. Atkinson and Son, of Lancaster, and is the property of Miss Chandler, of Kirkby Lonsdale. She drives it herself without any male assistance whatever, and has covered over 2,000 miles on it this season. She not only drives it, but does all necessary adjustments, and looks after the car entirely herself. In all her driving she has always been able to land at her destination without trouble, the longest stop she has ever made being to fit a new exhaust valve, which she managed quite successfully, to the intense surprise of the men who stood round helpless, but who could give her no assistance. As to tyre punctures, she regards them as mere trifles, and has repaired half a dozen during her automobile career. She frequently visits Lancaster accompanied by other ladies in her car, and invariably her appearance excites the greatest interest. She was taught the management of her car by Mr. Atkinson, jun., who accompanied her in the floral fête procession. With regard to the car, it is driven by a 6 h.p. M.M.C. engine, placed in front, and has two gears, one belt being used for both. The car is three-seated, and is sold at a very reasonable figure indeed, while a larger type with an 8 h.p. engine is made for four people. Another John o'Gaunt car won the second prize at the fête.

Mr. A. R. Atkey, the hon. sec. of the Nottingham Club, will leave England for a journey through South Africa on October 25th. During his absence the secretarial duties will be undertaken by Mr. M. Ross Browne.

* * *

Mr. F. W. Webb, the locomotive engineer of the North-Western Railway Co., has ordered a 20 h.p. three-cylinder Maudslay. The makers of the Maudslay are to be congratulated on Mr. Webb's choice, as he has attended many of the shows, and has spent a long time in examining minutely the details of several cars, and not only so, but has tried many before coming to his final decision.

It is stated that contracts are to be invited for making the special automobile highway which King Leopold desires to see constructed between Ostend and Paris. The French Government will be approached with a view of continuing the work from the point at which the Belgian roadmakers will leave off.

* * *

An automobile club has been formed for Sheffield and district, and at the inaugural meeting on September 25th thirty-six members were enrolled. The club is affiliated with the A.C.G.B. and L., and as the advantages of membership become known and appreciated, no doubt many more of the 120 odd automobilists of the district will join its ranks. Mr. J. R. Wade, of 25, Storth Lane, Ranmoor, Sheffield, is hon. secretary.

* * *

We understand that Messrs. Atkinson and Son, of Lancaster, are building new works for the purpose of manufacturing the John-o'-Gaunt cars. The premises will be in the centre of Lancaster on the main road to the Lakes and the North, and will provide storage for thirty or forty cars, so that the place should prove a very great convenience to touring as well as to Lancaster automobilists.

* * *

For the convenience of provincial automobilists, Messrs. Holding and Sons, the motoring and sporting tailors, have hit on rather a good idea. They are sending a representative round the country to hold exhibitions of all their latest motor garments. They will exhibit them next Wednesday at the Queen's Hotel, Coventry, and on the Friday at the Queen's Hotel, Birmingham, and so on throughout the leading centres of the country.

* * *

It is to be hoped that there will be a large attendance of automobile manufacturers at the meeting of the Institution of Mechanical Engineers on Oct. 17th, at Storey's Gate, S.W. A paper by Capt. Longridge on "Oil Motor Cars" will be presented for discussion, and as the meeting is essentially one of engineers, there is no doubt that much useful information may be elicited. Non-members desiring to attend can obtain invitations on application to the secretary of the institution.

* * *

When a suggestion for the licensing and numbering of cars was made at a meeting of the Penge Urban District Council, the Chairman (Mr. Bryce Grant) remarked: "All this interference with a great industry appears to me to be quite out of order, and it is a pity local bodies have nothing better to do."

* * *

At the Brompton County Court, London, on Monday last, before Judge Stonor and a jury, Mr. Newton L. Scott, Harrow-on-the-Hill, was awarded £30 damages from the London United Tramways, Ltd., in respect of damage to a Benz autocar caused through negligence on the part of one of the company's drivers.

For sheer impudence commend us to the Helmsley and Richmond Rural District Council. This supereminent body recently decided to petition Parliament "against the use of motor cars on the highways."

* * *

The county surveyor of Brecon, Mr. Best, makes use of his motor car when going round to inspect the roads, etc. He declares that it has saved a great deal of his time. A great advantage, he says, is that he can get about so quickly that the men on the roads never know when to expect him. Loafing is thus at a discount. We may incidentally remark that the Brecon roads are in excellent condition. We should like every county surveyor to be the possessor of a car.

* * *

We have at present a new motor head lamp going through the testing process. The lamp in question is known as the Helios, and burns paraffin through a circular wick burner, which is stated to give a 250 candle-power light. So far we have found the lamp satisfactory, and on the completion of its trials we shall illustrate and describe it.

* * *

The United Motor Industries, Ltd., have added another supplement to their already extensive list. This deals principally with spare parts for various motors, including Panhard and Levassor, Peugeot, Aster, De Dion, Mors, etc. Prices of both genuine and imitation parts are given, and it is interesting to note that the average price of the latter is just half that of the former. In addition to spare parts, several new accessories and fittings are dealt with. The combined lifting jack and tool set strike us as being a particularly useful combination.

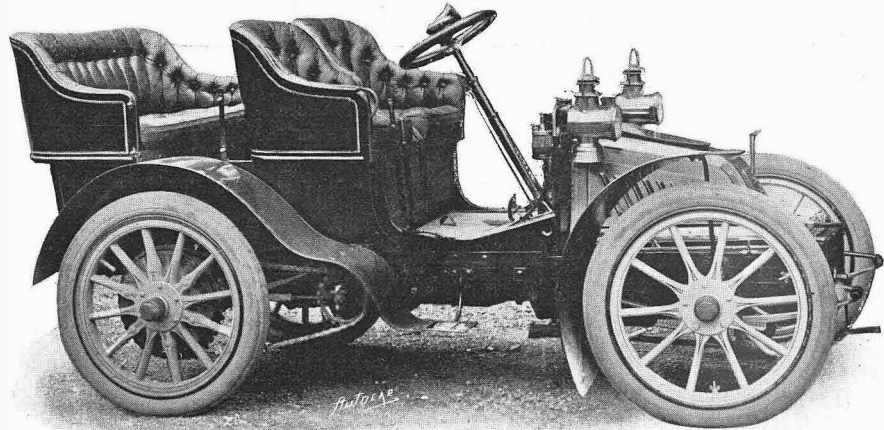
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We are very glad to note that the problem of silence is being attacked by the Motor Power Co., who are now engaged on a Napier petrol brougham for town use. So far the results have been most encouraging, and the makers hope to be able to turn out a petrol carriage which will have nearly all the advantages of the electric car, so far as silence is concerned, with the added advantage of being able to run unlimited distances equally well either in town or country and on hilly or flat roads, and as, of course, it will be lighter, pneumatic tyres can be used. The first brougham will be made for Mr. S. F. Edge's own use, and he has made up his mind to use it constantly in town and in the country before it is offered to the public. The little Oldsmobile is a good example of what can be done in the way of silent running, and we are very pleased to record that the matter has also been taken up by the makers of a larger car.

A police sergeant recently boasted to the Guildford Bench that he had "been the means of convicting between thirty and forty motorists this season." Extremely easy, and so safe, too, compared with looking after criminals.

* * *

At a meeting of the East District Committee of Berwickshire County Council, held at Ayton, the question of motor cars on the roads came under discussion. One mover proposed that they petition the Secretary for Scotland that motor cars should be preceded by a cyclist carrying a red flag. Another member declared that ninety per cent. of the people in charge of horses did not know how to drive. It was ultimately agreed to petition the County Council to enforce the twelve miles an hour rate of speed.



An 8 h.p. Peugeot with a double scolloped phaeton body. This vehicle is one which we saw at Messrs. Friswell's recently, and it struck us as being extremely comfortable. The two front seats are of the scolloped type, while the back seat, which provides very comfortable accommodation for two, will take three without crowding if desired. It can be fitted with a filling piece between the two seats, so that in cold weather the back seats are particularly snug.

To see how the automobile movement is spreading, one should take a stroll down the Strand about nine o'clock in the morning, before the traffic has begun to thicken. The City of Westminster's motor waggons are busy carting away office refuse, and business men are seen driving up to their respective offices in motor cars. Outside W. H. Smith and Son's, two large motor trolleys are being loaded up, and commercial cars are fitting across London while their progress is unimpeded by traffic congestion.

* * *

In our issue of August 30th, under the heading of "Cylinder Charge Firing," a mistake occurs in the second column on page 203. After the third line down some lines have missed and others inserted, which results in some curious reading. The sentence should read: "These pistons make the compression stroke in the same time, 1-50th of a second, and the advance in the firing time is at some 1-100th part of a second in advance of the time the piston begins its work of turning the motorshaft." To save turning up the article in question, we may explain that what this sentence conveys is that the spark occurs about 1-100th part of a second before the piston completes its compression stroke, and consequently before the working stroke commences.

Automobilists travelling through Coleshill will be pleased to know that petrol can now be obtained at Mr. F. D. Spencer's drug stores.

* * *

A glimpse of the inner consciousness of the typical Sussex magistrate is furnished by a letter in the *Standard*, in which one of their number plainly avows his animus against motor cars. The great fear seems to be that owing to the presence of autocars he and his class will not be able to continue sporting their restive horses on the highways, but that they will have to be content to ride or drive "the veriest old corks." This in effect amounts to the admission that vanity lies at the root of their antipathy to motor cars.

* * *

Garages, Ltd., Westminster Garage, at 19, Princes Street, so well known to members of the Automobile Club, has been acquired, with the adjoining Royal Aquarium, by the Wesleyan body, and, as they require it, the garage will be closed. Pending the opening of new premises in the West End, Mr. Harrington Moore informs us that his company are able to receive cars for storage, repair, or sale, at their City garage, 34, Queen Street, E.C. Temporarily, until the old premises in Princes Street are finally taken over by the Wesleyans, the White steam cars are being exhibited there.

* * *

A French chemist, M. Henry Charles, has lately been making some experiments with picric acid as a carburating substance. To 95 volumes of petrol he has added five volumes of a saturated alcohol solution of picric acid, and has found that the addition of that amount of the saturated solution to the petrol permits of the addition of so much larger a quantity of pure air to the formation of an explosive mixture that a saving of thirty per cent. per horsepower hour is effected. In addition, Mr. Charles claims that the resultant exhaust is quite inodorous. Nothing, however, is said as to the action of the picric acid on the valves, cylinder walls, and piston rings.

* * *

The Coulthard stand at the Royal Lancashire Agricultural Society's Show held at Preston a few weeks since. Each of the two vehicles shown secured



the society's medal. The vehicle for Lord Ashcombe was awarded a medal on account of the novel feature of the boiler, which is constructed without a fire door, this doing away with unequal expansion, while the Road Carrying Co.'s lorry secured a medal for the excellence of its transmission gear.

At Ongar on September 27th, a brake driver was fined 2s. 6d. and 6s. costs for obstructing the free passage of the road so as not to allow a motor car to pass.

* * *

A Mr. Burra approached the Rye magistrates one day last week and applied for redress, alleging that he and his horse had been "nearly run over" by a motor car. The Chairman said they had no power to deal with the matter, but Mr. Burra replied that he would be willing to pay for one or two policemen for a month or so that they might catch the drivers. This is a novel idea of the functions of a policeman, and if carried out at all extensively may account for the numerous traps laid for automobilists about the country.

* * *

An interesting case, arising out of a motor car colliding with a mineral water van in June, was heard before Judge Emden at the Maidstone County Court last week. A mineral water manufacturer by the name of Fairburn sued Messrs. Garrett, Saveall, and Co., mechanical engineers, of Maidstone, for £30, damages sustained through the defendants' motor car running into his van in Mill Street, Maidstone, on June 26th. The defence was that, June 26th being fixed for the Coronation, and therefore observed as a Bank Holiday, the man who was driving the motor car was not acting within the scope of his employment; and evidence was called to prove that the driver was guilty of gross misconduct in taking the car out of the workshop while the premises were closed and his master away. The driver contended that he went back to work to finish off a bicycle, and as he wanted some spoke nipples he took the motor car out to get them at a place about three miles distant. It was, however, proved that he was absent, giving some friends a ride, about five and a half hours, and the judge found that he was not acting within the scope of his employment. The action was therefore dismissed, with costs.

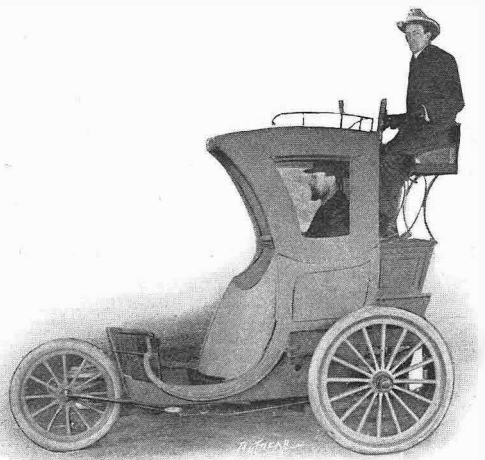
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Mr. A. J. Young, a medical man, of Manchester, gives us some brief details of an excellent run made by himself and a friend on a 10 h.p. Cottreau De Dion car at the beginning of last month. Starting from Manchester at 6.15 a.m. on September 3rd, they reached Preston at 8.15 a.m., where they were delayed by the crowds attending the Guild, but getting clear by 8.30 Kendal was reached at 11.45. Quitting the latter town, they climbed over Shap in a gale of wind, and ran into the Border city at four p.m. Dumfries was gained two hours later, the roads all the way from Shap having been strewn with the branches of trees torn off by the furious blast. The night was passed at Dumfries, which was left next morning at 9.41, and with an hour's halt at Old Cumnock for lunch and another at Kilmarnock, where they halted to dry and warm themselves (as from the start the run had been made through heavy rain, accompanied by a strong cold wind), they reached Glasgow at four p.m. On the first part of the journey the gale blew on the near side, but afterwards became a dead nose-ender. Their only trouble, says Dr. Young, was the shorting of the high tension to the wet waterproof rug just below the box containing the coil, but this was easily remedied by some rubber tape. Dr. Young considers, and we agree, that the above was a very creditable run.

The French Government is advancing sums of money for the experimental treatment of road surfaces with heavy oil in several departments. The latest vote is a sum of £160 to the chief engineer of the Alps Maritimes, to which vote the Touring Club of France has added £40.

* * *

The *New York Herald* has several interesting illustrations of some trick riding by automobilists as practised in America. The machines used appear to be small light steam carriages, and none of the tricks are new, except a very difficult one indeed, which is said to consist of putting an open watch in the road and then backing off the pavement and closing the watch with one of the back wheels, but at the same time not breaking the glass. A double turn at right angles with a three-wheeled machine is referred to, but, of course, this is perfectly simple, if people do not mind badly straining their cars and tyres, besides risking their necks. This applies more or less to all the other tricks, which consist mainly of cutting figure eights and serpentine courses generally, such as were indulged in at Richmond in 1899. Driving over huge boulders is also referred to as trick riding.



The Duryea three-wheeled hansom.

The conduct of a Locomobile is very easily and quickly acquired, and when one has driven and cared for one for even a week confidence is gained in both one's self and the car. We write this after a week's driving of a Locomobile, and have no hesitation in saying that the little steam car is *par excellence* the vehicle for the crowded streets of a busy city. The absolute ease and certainty with which pace can be accommodated to every need, quick sharp spurts made to take advantage of openings, so that one worms one's way through even congested traffic at a telling speed, must be experienced to be appreciated. The care of the water level becomes second nature after a day or two's driving, so that the hand goes mechanically to the by-pass lever at the side of the car whenever the gauge-glass shows a necessity for more water in the boiler. The knack of making and keeping a sufficient head of steam is soon acquired, and sympathy growing with custom soon makes the efficient driving of the car a keen pleasure.

A. M. Wolfgang has made the passage of the Stifser Joch, one of the highest passes in Europe, on a $3\frac{1}{2}$ h.p. De Dion voiturette.

* * *

A new service of motor cars has commenced running from Gravelly Hill to Erdington, near Birmingham. A fare of twopence is charged for the journey, under a mile and a half in distance.

* * *

Progress always meets with opposition at first, remarks a Sunday contemporary—and there is no doubt that the autocar makes for progress. But apparently the insane animosity that is now levelled at it by persons of meditative temperament and deliberate habits will in due course be extended to the airship.

* * *

Doubtless the innkeepers and tradesmen of Ripley, as well as of other places in Surrey (where the police are just now specially active against autocarists), are appreciative of the efforts of the constabulary to drive customers out of the county. Strange to say, nothing more has been heard of the appeal of the person who struck Mr. Campbell Muir in the face with a stick. The Ripley "Dogberry" might take a hint. A motor user well marked with a stick would be easily identified any time within the next fortnight, and if that period is too short, a Lee-Metford, or even a pom-pom, would remedy that defect. Surrey traders pay rates and taxes, which include the expenses of the persons who do their little best to keep their customers out of the county.

* * *

By those who have the figures of the reliability hill climbs in mind, it will be remembered that No. 81, the 20 h.p. M.M.C. car, made a very poor show for a vehicle of such power in the climb up River Hill, and did still worse up the steeper grade of Westerham. This bad running was due almost entirely to faulty ignition, the new coils with which the car was fitted getting badly out of adjustment. Knowing full well that the car when doing its best was capable of holding its own with similarly powered cars up such hills, Mr. Iden drove No. 81 to Westerham from Worthing last week-end to test now that the troublesome coils have been replaced. Mr. Buckea, one of the Motor Manufacturing Co.'s directors, drove Mr. Harry J. Swindley down from town on another 20 h.p. M.M.C. to meet Mr. Iden, and with four passengers up and a considerable extra load in rugs, tools, etc., No. 81, driven by its constructor, made two trials over the measured climb. Getting away rather slowly on its second speed from the start, the car was asking for its first, and got it about seventy yards above the Pilgrim's Way. Mr. Iden held the inside of Hell Corner all round, owing to the better surface, and the car made the summit in 2m. $43\frac{3}{5}$ s., equal to about twelve and a quarter miles per hour. At the second attempt, Mr. Iden got the car away in a much brisker manner, and the second speed was held this time for quite thirty yards farther up than at the first attempt. Getting down to its first speed, Mr. Iden held the car rather farther out from the bend, and made the summit this time in 2m. 40s. dead, which is equal to a little over twelve and one-third miles per hour. Mr. Iden is of opinion that he can still knock some seconds off this time.

TYRES RUNNING IN THE 3,000 MILES TRIAL. THE FOURTH WEEK'S RESULTS.

DISTANCE, 814½ MILES. TOTAL DISTANCE COVERED, 3,000 MILES.

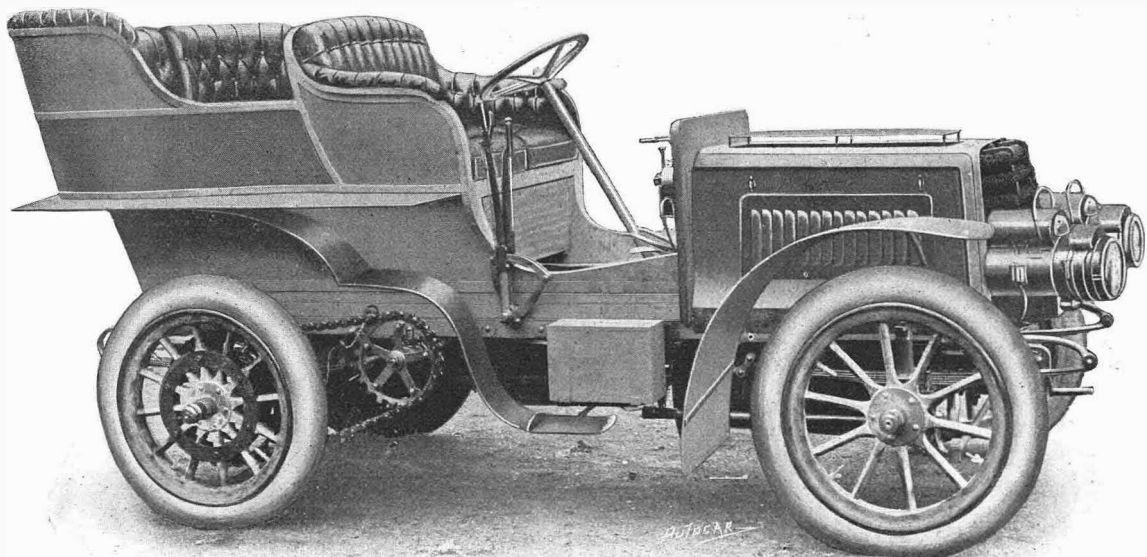
(For the first week's results see "The Autocar," Sept. 13th, page 275.)
 (" second " " " " 20th, " 302.)
 (" third " " " " 27th, " 337.)

Official No.	H.P.	Car.	Tyres.	Weight.				Marks lost during week.	Cause of loss.	Total Marks lost.
				Laden.		Unladen.				
				Tn. cwt.	qr. lbs.	Tn. cwt.	qr. lbs.			
T 1	12	Panhard.	Dunlop.	1 11	2 0	1 5	1 0	6	Extracting nail and pumping.	39
T 2	11	Napier.	"	1 11	0 0	1 5	1 0	—	—	56
T 3	10	Panhard.	"	1 4	3 16	0 19	3 0	73	Off hind cover burst, reserve tyre put on, puncture.	133
T 4	10	Wolseley.	"	1 6	0 0	1 0	1 0	62	Extracting nail and pumping, new tube to near hind tyre, puncture, changing hind off cover, burst, two new tubes.	262
T 6	12	Panhard.	Maison-Tib't	1 1	2 0	0 15	3 0	330	New tube, replacing tube, puncture, pumping, fitting leather shields, changing over tyre from front near to hind off wheels, fixing new nail catcher.	449
T 7	11	Napier.	Collier.	1 11	1 0	1 5	0 0	3	Pumping.	37
T 12	16	Napier.	Midgley's.	1 16	2 0	1 11	1 0	28	Hind near tyre burst, reserve cover fitted.	66

NOTE.—T8 was withdrawn after eleven days running. T10 was withdrawn after fifteen days running. T2 has 158½ miles to make up. T6, 437½, T7, 75½, and T12, 187 miles to complete the trials. T6, the 12 h.p. Panhard which replaced the 16 h.p. Clement, weighed, laden, 1 ton 6 cwt. 2 qr., unladen 1 ton. T2 did not run on Thursday, as the car was undergoing repairs.

The following were the runs: Monday, Newbury (159½ miles); Tuesday, Oxford (149½ miles); Wednesday, Norman Cross (159½ miles); Thursday, Worthing (158½ miles); Friday, Dover (187 miles).

THE 20 h.p. STAR CAR.



A description of this car was published in "The Autocar" of August 30th, page 200.

THE UNCONTROLLABLE HORSE.

Fifty-three Persons Killed and 411 Injured in Thirty-three Days.

Our deadly tale of accidents caused by horses is continued this week, bringing up the total number of victims during the thirty-three days covered by the record to fifty-three killed and 411 injured. The period is just a day or two over a month, but a rough calculation will enable the reader to form an idea of the enormous sacrifice of human life annually made in this country alone to the vagaries of the horse. Estimating the number roundly at three hundred persons per month injured, and fifty killed, we arrive at the staggering result of 3,600 injured and six hundred killed during a year, or a total of 4,200 casualties. But, of course, a great many of the accidents which occur escape public notice in the newspapers, and of those which are published a large number must of necessity escape capture by the net we have spread, so that on the whole it would be an under estimate rather than an over estimate to say that some five thousand people are killed or injured as a result of horse accidents in the United Kingdom in the course of twelve months. There is no reason to suppose that the month just ended is in any way more prolific in such accidents than others, but rather the reverse, as the season has been cold and wet, and altogether unfavourable for much pleasure driving. To set ourselves right in regard to the motive for which this list is compiled, we must again reiterate that we have not undertaken the investigation out of any ill feeling or prejudice against the horse, which we acknowledge to be a most serviceable animal, but simply to show that there is no more necessity—nor so much—for stringent repressive regulations being laid down for autocars than for horse-drawn vehicles. Indeed, if horses were always broken in properly and entrusted to the care of competent and capable drivers, the number of so-called motor car accidents would be reduced practically to a negligible quantity.

	Injured.	Killed.
Brought forward from last week ...	314	42
SEPTEMBER 13TH.		
One accident in which no person was injured ...		
SEPTEMBER 16TH.		
One accident causing injuries ...	1	
SEPTEMBER 19TH.		
One accident causing injuries ...	3	
SEPTEMBER 20TH.		
Twelve accidents causing injuries ...	17	
Seven accidents, no persons injured ...		
SEPTEMBER 21ST.		
Three accidents, no persons injured ...		
SEPTEMBER 22ND.		
Two fatal accidents ...		2
Seven accidents, causing injuries ...	11	
Two accidents, no injuries ...		
SEPTEMBER 23RD.		
Two fatal accidents ...		2

	Injured.	Killed.
Six accidents, causing injuries ...	11	
One other accident, no injuries ...		
SEPTEMBER 24TH.		
Three fatal accidents ...		3
Three accidents, causing injuries ...	4	
One accident, no injuries ...		
SEPTEMBER 25TH.		
One fatal accident ...		1
Seven accidents, causing injuries ...	13	
Four accidents, no injuries ...		
SEPTEMBER 26TH.		
Two fatal accidents ...		2
Twelve accidents, causing injuries ...	20	
Four accidents, no injuries ...		
SEPTEMBER 27TH.		
One fatal accident ...		1
Eight accidents, causing injuries ...	17	
One accident, no injuries ...		
	411	53

POLICE TRAPS.

Several intimations have come to hand from correspondents as to the location of police traps in different parts of the country. Special activity seems at the present time to prevail in the North of England. Confirmation of this is forthcoming from the report of the Richmond Rural District Council, by which we learn that upon the question of the speed of motor cars being brought up, the members were informed by their clerk that the police all over the North Riding were taking vigorous steps in the matter.

There is a trap on the road between Richmond (Yorks.) and Barnard Castle at the foot of the hill on the south side of Greta Bridge. This will catch motorists going out of Yorkshire to the Lake District unless they are very careful.

There is another trap near Altrincham, at Bucklow Hill, in the vicinity of the Old Clarion clubhouse. Here police in hiding rush out and stop all motor cars. Similar tactics are pursued on Runham Rise, and we are informed that it is unsafe to drive at more than ten miles an hour until three miles beyond Altrincham. There are sometimes traps at Schools Hill, Cheadle, and also at the four roads, Gatley.

There is also a trap on the North Road, near Baldersley Station, where, within two hundred yards of the level crossing, a policeman conceals himself and professes to record by the aid of field glasses and a watch the exact second that a car passes a heap of road refuse half a mile further up the road, which is perfectly straight.

A trap was exposed by Mr. Staplee Firth in defending an automobilist (Captain Elwes) at the Richmond Petty Sessions the other day. He elicited the fact that there was absolutely nobody on the road at the time of the alleged offence except a number of policemen in plain clothes, and one concealed at the end of a trap. The magistrates in this particular instance did not apparently favour the police tactics, for, although they considered a technical offence had been committed, they only inflicted a nominal fine of 2s. 6d.

There was a trap recently two miles north of Cotterick Bridge. A little to the north of Leeming Lane, a man was hidden to signal to a policeman, who was also hidden, and just south of Northallerton the same game was being played. Referring to these traps on the old Great North Road, a correspondent reminds us that this road was built

specially for fast through traffic, and that there is very little local traffic upon it; as a rule, not more than one horse per five miles. If there is any honesty in the statement that these steps are taken for the safety of the public, the police would not select places where it is perfectly safe to travel fast, and where the "public" are practically unknown to put the law in force. I drive every day, continues our correspondent, and have driven for three years without an accident to anyone, stopping the car and also the engine on the least sign of horse trouble. Still, if I happen to drive through a "trap" I shall, of course, be fined.

The police have a measured quarter of a mile on the North Road just south of Buckden, from which place they are in telephonic communication with Norman Cross.

The neighbourhood of Shoreham is also a dangerous locality for automobilists owing to the activity of the police.

Ripley is another police-infected area, most elaborate measures having been adopted here for entrapping automobilists. The constable who on occasion has hidden in the ditch on the left going south on the London side of the turning to Ockham has now got a watch and a man to help him, and signals by raising his arm.

Mr. L. Savory, manager of the Westminster Motor Car Garage, 55, Victoria Street, S.W., informs us that he has a large plan of Ripley which is at the disposal of any motorist who may fall into trouble there.

Owing to a complaint of an inhabitant of Cobham, Surrey, as to the high speed at which automobiles passed over that stretch of the Portsmouth Road lying between Esher and Cobham known as the Fair Mile, a sergeant in plain clothes and an officer in uniform were detailed for special motor-catching there on Saturday and Sunday last. So far as Saturday went, however, the myrmidons of the law had a blank day, for, learning early what was intended, a sympathiser posted himself at the top of the hill by which the eastern end of the Fair Mile is reached, and warned every automobilist who passed down the road of what awaited him further on. Hence the empty bag. We have not yet heard whether any captures were effected on Sunday, but we did what we could to apprise autocarists of the trap by wiring a warning to the *Referee* and the Press Association for insertion in the Sunday morning papers. It duly appeared in the *Referee* and other papers, so that we hope many were thus rendered "wise in time." Before returning, we learnt at Cobham that the police were instructed to "knock off" at 6 p.m., and, finding the sergeant about to start on his long tramp back to Esher, we offered him motor transit thus far. Of this he gladly availed himself, and experienced the pleasures of motoring for the first time. We believe Mr. Spiller performed a similar office on behalf of the uniformed officer, who seemed thoroughly to enter into the spirit of the joke.

There is also a measured stretch near Kenilworth, Warwickshire.

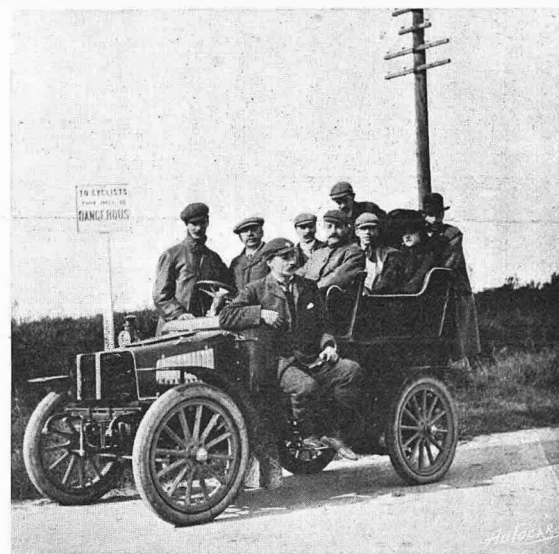
THE YORKSHIRE AUTOMOBILE CLUB.

Many members of the club accepted Mr. and Mrs. Walter Jackson's invitation to Harrogate on Saturday last, and a most enjoyable half-day was spent. The majority of the members and friends met at Pool Bridge at 3.30 p.m., and at four o'clock a general move was made towards Harrogate. As the road was mostly on the rise it enabled all the drivers to put on all speed. However, the police had got scent of the run, and had a measured quarter of a mile nicely prepared near Weeton. Luckily the occupants of the first car saw the signal of a dropped handkerchief, and gave warning for all cars to stop, after which delay the run was continued towards Harrogate, where the cars were drawn up on the Stray to be photographed. Whilst here, it was noticeable that two or three horses were being broken in to the cars. Afterwards the cars were put under cover in the spacious yard of the Prince of Wales Hotel, where tea was ready for five o'clock. A hearty vote of thanks was accorded Mr. and Mrs. Jackson for their kind hospitality.

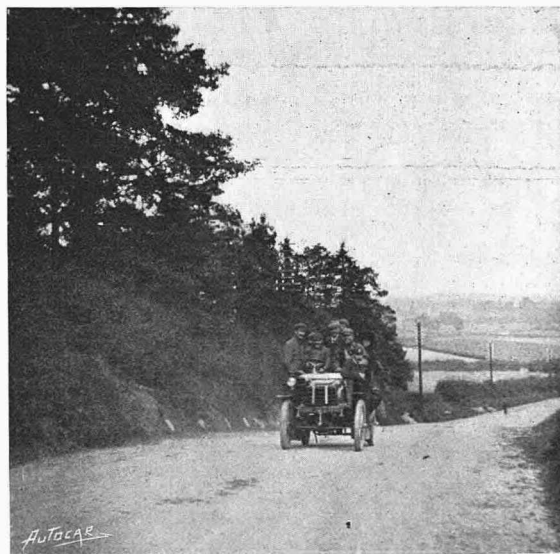
Mr. A. Armitage writes, for the information of tourists on the east coast of Yorkshire, that he has discovered a most obliging repairer at Filey in the person of Mr. W. Manning, who also is able to supply petrol.

A HILL-CLIMBING TEST.

A few days ago an interesting test was made of one of the new 9 h.p. Rex cars. One of these had been sold to Mr. J. G. Stafford, of Nottingham, by Messrs. A. R. Atkey and Co., Ltd., subject to the condition that it carried six passengers up Bunny, a well-known local test hill (average gradient one in nine). The car was driven over on Saturday afternoon by Mr. W. Williamson, the managing director

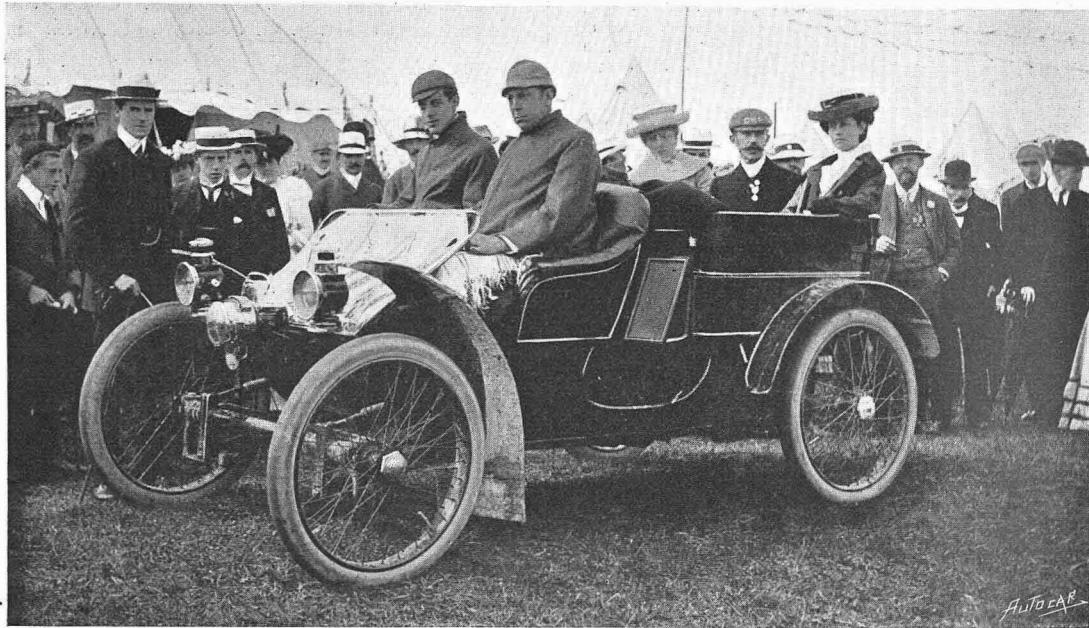


of the Rex Company, and next day a small party consisting of Messrs. Stafford, Williamson, A. R. Atkey, and M. Ross Browne, proceeded to the hill. Mr. Atkey drove his 12 h.p. Gladiator to the top, and then awaited the Rex. The new car started at the foot with the required number of six passengers, but before reaching the knuckle Mr. Williamson, who



was full of confidence as to its powers, invited three others to climb on to the car, and it carried what is up to the present a record load up the steepest portion of the hill. Needless to add, this performance more than satisfied Mr. Stafford, and the "deal" was ratified.

THE HARROGATE CAMP CHAPLAIN.



The Rev. Rawdon Briggs, who officiated at the Harrogate camp as chaplain on Sunday, August 3rd, was due to preach in Bradford in the evening. The towns are some twenty miles apart, and as there are no convenient trains he availed himself of the offer kindly made to him by Mr. Sidney D. Dixon, of Bradford, and the latter drove him on his Lanchester to

his destination, with plenty of time to spare before entering upon his evening duties. He appeared extremely pleased with his run, particularly when the pace was fully up to the legal limit. Mr. Dixon is on the right hand of the Rev. Rawdon Briggs, Mrs. Dixon is immediately behind, and Major Smith, the president of the camp, is in the centre.

TO CORRESPONDENTS.

Owing to the pressure on our columns, we have found it necessary to reply by post to all questions from our readers to which we may not consider the answers of general interest.

This week the following correspondents have been, or will be, replied to by post:

G. F. S. W.	A. B. Pope.
D. W. F.	Geo. Bristow.
Oldtown.	W. H. G. (Reading).
C. L.	A. W. Bell.
Sunderland.	E. H. Collumbell.
G. W. Waterlow.	M. Franklin.
E. R. (Wiesbaden).	C. Plowden.
W. E. Teschemaker.	J. H. S. A. (Morecambe).
H. T. Fisher.	H. R. Goodall
P. F. Rowe (Exeter).	(East London, S.A.)
H. H. Davis (Sandwich).	E. Aylward.
L. T. Barnes	A. E. Penneman.
(Huddersfield).	A. Ramsay.
N. Neumeyer.	R. H. Cocks.
Stanley Prescott	Drisell.
(Keswick).	W. H. Davies.
E. de Salis (Jersey).	E. Soller.
R. N. Mossop.	F. M. Robb.
L. White Atkins.	

Our thanks are due to the following for items of news and various topics of interest which have been or will be dealt with: Richard Howard, A. L. Davies, G. Owen, L. Savory, A. W. Heard, John Cuninghame, J. R. Wade, F. J. Lobley, E. G. Y., W. Hartnup, jun., R. Howard, T. Shaw, A. J. Young, A. F. Garmham, C. W. Pennell, A. Van Praagh, F. Rooper, T. Barton, Commonsense, and B.

W. Crompton and A. Ford.—Letters forwarded.

NOTTINGHAM AND DISTRICT
AUTOMOBILE CLUB.

The concluding run of the season was held on Saturday last, the 27th ult., the destination being Newark for tea, via Stapleford Woods. Shortly after two o'clock members began to arrive, and punctually on the stroke of 2.30, the president, Mr. R. M. Knowles, J.P., led off on his Serpulet car. He was followed by Vice-president Mr. E. W. Wells in his new 12 h.p. Daimler and the following members: Messrs. M. Ross Browne, 8 h.p. De Dion; Smith (Derby), 6½ h.p. Gladiator; B. Granger, 6 h.p. Progress; A. Ward, 8 h.p. Humber; H. Belcher, 12 h.p. Humber; H. W. Bartleet, 5 h.p. Clement; W. Hugh Warburton (Leicester), 8 h.p. De Dion; E. R. Latham, Baby Peugeot; and A. R. Atkey (hon. secretary), 12 h.p. Gladiator. On arriving at the Red Lodge, the party were joined by Messrs. S. Harvey, 4½ h.p. Renault; R. Harbidge, 6 h.p. Progress; and C. L. Stevens, 6 h.p. Darracq. The return journey was made "go as you please," and all the cars completed it without incident.

NOTICES.

SUBSCRIPTIONS.

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