THE AUTOCAR

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

EDITED BY H. WALTER STANER

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THE AUTOCAR.

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Notes.

The Speed Trials.

Last week the perpetual injunction obtained in the High Court by Mr. Mayner, restraining Earl De la Warr and the trustees of the De la Warr estate from allowing motor speed trials to be held on the Marina at Bexhill-on-Sea, completely upset the arrangements made by the Automobile Club for the speed trials which were to be held at Bexhill on August 4th. However, from the sporting automobilist's point of view, this is not a very serious matter, as speed trials were to be held at Welbeck Park on the Duke of Portland's private road, which was first used for speed trials in the thousand miles of 1900, and has recently been greatly improved. While some disappointment is naturally felt by many, there are others who are not at all dissatisfied, as they regard two sets of speed trials in one week as a little too much of a good thing, and Bexhill's loss will undoubtedly be Welbeck's gain, for the starters for Welbeck will, of course, be more numerous than they would have been if the Bexhill trials had taken place as arranged. The date first fixed for the Welbeck trials was Saturday, August 9th, but owing to the Coronation ceremony it has now been altered to August 7th. The majority of the competitors will drive down to Nottingham on the previous day, and in the evening they will dine with the Nottingham Automobile Club. The events start at 10.30 a.m., and promise to be exceedingly interesting, for over one hundred entries have been received. The cars will only run one way, and not up and down the course, as originally arranged. The general handicap will be made from Mr. Jarrott's 70 h.p. Panhard, which will be on scratch. It is reported that Earl De la Warr is already setting about constructing a better track on private land of his own some two miles from Bexhill, and in all probability this will be completed before another year. At the same time, Bexhill is not altogether an ideal situation for a track of this kind, as it is very inconvenient for residents in the North, and, while it is desirable that a track should be laid down within a moderate distance of London, it would, of course, be equally convenient to Metropolitans if the track were, say, seventy miles north of London. This would be, roughly, 140 miles nearer for those who drove down from the North, and no more inconvenient to London automobilists. Welbeck, it is true, is a little out of the way, but for all that, as matters stand, it is the best track available, and, as a matter of fact, far more centrally situated than the southern course.

A Study of Averages.

With regard to the final placings which we gave last week for the cars finishing in the Paris-Vienna race, it is instructive to go further into the matter after classifying the arrivals at Vienna. This throws an interesting light on the performance of the Napier. In the large car class, in which, of course, this vehicle competed, there were twenty machines which reached Vienna out of forty-two starters from Champigny, and out of this number the Napier finished eighth. Of course, if the matter is looked into from the point of view of average performances of the number of each make entered, the Napier has much the best of it, as one Napier started and finished. The machines in front of the Napier were six Panhards and one Mercedes, but thirteen Panhards started in the heavy class and four Mercedes, though perhaps it is hardly fair to count these as four, as Baron de Rothschild can scarcely be re-

garded as taking serious part in the contest. At any rate, as the matter stands, the English car beat every carriage in its class that started with the exception of the two makes named, so that it is not too much to say that the indications for English competition next year are decidedly healthy, when, all being well, there should be at least half a dozen Napier cars running besides other makes, about which it is too early to make definite statements at present. But it is not merely a question of good cars. If England is to make a really fine fight she must have good drivers, and there is no denying the fact that automobilists who have had sufficient experience to conduct a car through a big race are not easily found of British blood, and of the few who have the required practice, two at least are interested in foreign makes, and therefore in all probability can scarcely be reckoned upon to drive for England. People who have had little experience in these matters cannot realise the special qualifications that are necessary. Of course, it is impossible, and we would be the last to advocate it, that any attempt should be made to practise long-distance express speed work upon British high roads, but it is quite as much a question of endurance as of speed, and those who contemplate taking part in big competitions next year should use themselves to driving long distances without a stop. In fact, the majority in their earlier experiences will have very little desire to go fast, as they will find that when they have been driving for about four or five hours without getting down from the car that the strain is beginning to tell on them, and a rest, or a temporary change of occupation, would be most welcome; and they must remember that over and above this weariness in the race itself they have to face the nervous strain of really high speed work with the excitement, uncertainty, and the thousand and one items which crop up almost momentarily and claim attention and immediate decision in a great race. Therefore to the ambitious man who wants to represent his country next year we say practise long-distance work.

The Mont Cenis Climb.

The great hill-climbing trials which took place on Mont Cenis on Sunday were favoured by fine weather, and a considerable number of automobilists came from Turin and other places to witness the event. The course of fourteen and a half miles from Suse to the Grande Croix is a very difficult one, for though the gradient has an average of only about ten per cent. the sharp turnings and occasional steep rises are extremely awkward for motor vehicles. Forty cars took part in the competition, and in the speed category the results were as follow: Big cars: Lancia (24 h.p. Fiat), 30m. 10 2-5s.; Renaux (30 h.p. Peugeot), 31m. 21s.; Tourand (20 h.p. Brouhot), 42m. 15 1-5s. Light carriages: Storero (12 h.p. Fiat), 31m. 33s.; Kraetier (16 h.p. Peugeot), 31m. 49s.; Hemery (20 h.p. Darracq), 36m. 47 2-5s.; Wehrheim (20 h.p. Darracq), 45m. 24 2-5s. Voiturettes: Ceirano (7 h.p. Ceirano), 41m. 48 3-5s.; Ceirano (7 h.p. Ceirano), 52m. 36 3-5s.; Charles (8 h.p. Darracq), 1h. 6m. 25 2-5s.; Madame Wehrheim (6 h.p. Darracq), 1h. 6m. 39 3-5s.; Testa (6½ h.p. Peugeot), 1h. 31m. 30 4-5s. Motor cycles: Roselli (Roselli), 1h. 8m. 44 1-5s.; Roselli, 1h. 24m. 8 4-5s. Among the tourists, the best times in the different categories were accomplished by Ollion on a big car not named and carrying four passengers, in 40m. 10s.; Villa, on a 12 h.p. Rochet-Schneider, in 41m. 36s.; Martaglia, on a 12 h.p. Fiat light carriage, in 50m. 20s.; Vercellone, on an 8 h.p. De Dion voiturette, in 1h. 5m. 3s.; and Roselli, on a 2 h.p. Roselli motor cycle, in 52m. 57s. The prize offered by Princess Lœtitia for the vehicle doing the best time in the racing class was won by Lancia, who created a record with his big Fiat car on this course.

Baron De Caters's Record.

The advantage of being able to accumulate energy and utilise it for a short period would seem to leave the mile and kilom. records entirely at the mercy of steam and electricity, and after Serpollet's wonderful ride at Nice in the spring the possibility of the petrol car beating steam in short bursts of speed appeared very remote indeed. The Hon. C. S. Rolls got very near to the famous record with his Mors car on the Achères track, and now it has been tied by another Mors driven by Baron de Caters, who on Sunday and Monday made several attempts before he could succeed in equalling Serpollet's time for the kilom. The route selected was a fine stretch of perfectly level road along the side of the canal between Bruges and Nieuport, in the neighbourhood of Ostend. Timed by M. Edmond Herrmann and Count Fernand de Villegas, official timekeepers of the Automobile Club of Belgium, the three best performances of Baron de Caters were 31s., 30 4-5s., and 29 4-5s., the last being at the rate of seventy-five miles an hour.

Waylaying Motorists.

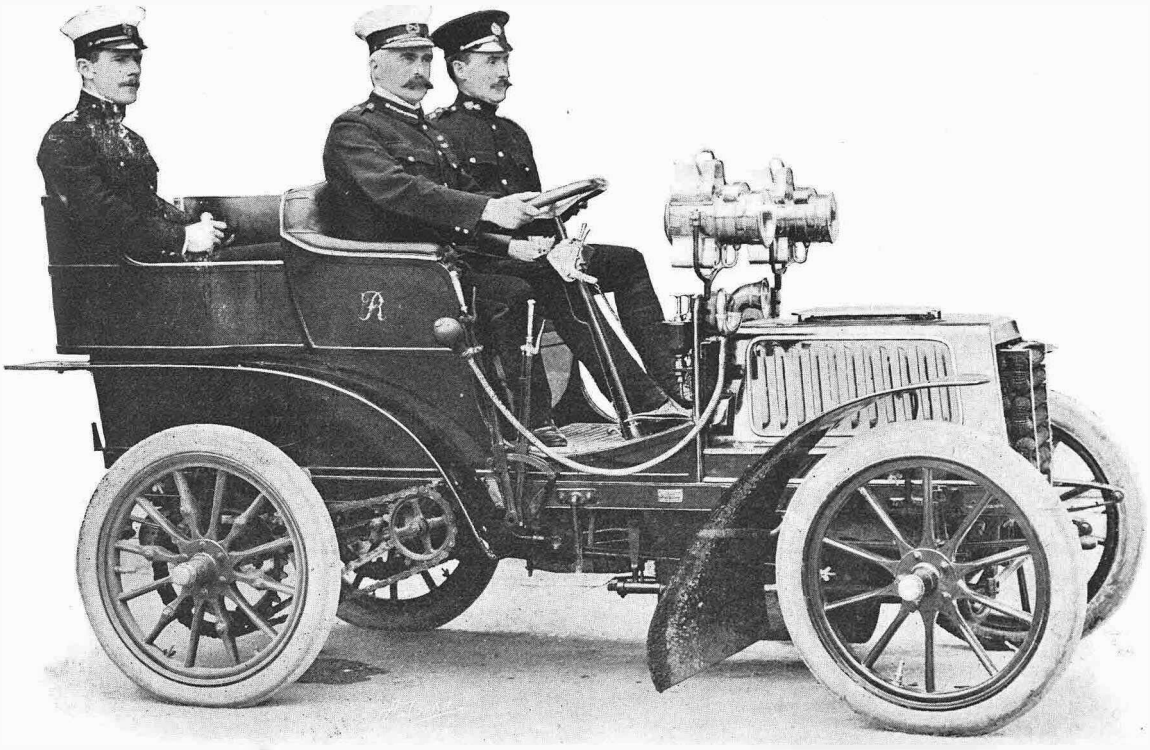
A correspondent informs us that a cunningly-devised trap has been set for autocarists on the Kingston and Kempton Road, close to the first milestone from Staines. He noticed on Sunday last that a constable in plain clothes stationed himself with a stop watch opposite a cottage situated about a hundred yards beyond the small bridge over the waterworks stream, whilst three other uniformed officers were in hiding on the right-hand side of the road some distance away, and acted on signals given by the mufti man. Our correspondent also points out that on the same day constables and plain clothes men were stationed on the road from Staines to Windsor. He advises, moreover, that motorists returning by the Portsmouth-Ripley Road to town should drive with care when passing Surbiton, as the police are in hiding at the corner of a road facing the river, close to the Roman Catholic Church. When questioned by our correspondent the police admitted that they were on the look-out for those automobilists who exceeded the legal limit. Rotten indeed is the administration of the law which permits of such petty persecution.

It is stated that thirty-five licenses to drive automobiles have been issued to lady drivers in Chicago. The qualifying examination is particularly severe.

* * *

Elementary education. It is proposed in Liverpool that a local manœuvring ground should be utilised for accustoming timid horses to the presence of autocars.

A STAFF OFFICER'S CAR.



Ten horse-power Brush car, built to order for the War Department (Chatham Division). Major-General Fraser, K.C.B., C.M.G., P.S.E. Commanding Officer, is at the steering wheel. Capt. Kennedy, R.E., is on his left, and Captain Paton, D.S.O., is in the tonneau

HOW CAN IT SMELL?

EVERY person has at one time or another seen a lamp burning without smoke or smell. A round-wick kerosene (paraffin) lamp with air supplied to its hollow flame, both inside and outside, will burn a great quantity of heavy oil in a closed room with no perceptible odour. The gasolene burner of the first Stanley steam waggon I ever saw gave out no smell at all, burning its least or greatest fuel. I have seen a 10 h.p. Secor motor doing hard work, and exhausting for test purposes into the engine room, with no smell perceptible.

These examples very conclusively show that under some conditions both light and heavy oils, gasolene and kerosene or paraffin, can be burned in the open air, or in a motor cylinder without smoke or odour. Hence an internal combustion motor, in which the fuel is burned under favourable conditions, except as to time available for combustion, apparently should give out no perceptible odour whatever.

It is the rule, however, that all cylinder-fired motor waggons leave a trail of smelling vapours behind them as they go, although it seems impossible that such should be the case, because the cylinder charge must take fire from a spark, and hence must be in condition to burn clean and perfectly without smoke or smell, or perceptible residue of any sort. True, the fact in practice is the production of soot, more or less, in the cylinder and on the sparking plug, and a vile-smelling exhaust. But how can this fact be?

A cylinder charge of mere air cannot be fired; mix carbon with this air in gradually-increasing quantities, and a point is reached where the compressed mixture can be fired by a spark, and a very weak explosion or burning will result. In some forms of motor having a very high friction the force of the spark-fired charge is barely enough to run the motor; gradually increase the fuel supply, and there is a long range of mixtures of different proportions of air and carbon, which will take fire from a spark and burn with fury, and drive the motor piston violently, and, as a rule, will produce a smelling exhaust. How can this be?

A mixture which can be lighted by a spark must be perfectly combustible, and must burn without residue of any sort perceptible to human senses. When the air in a motor cylinder is over-charged with carbon it cannot be lighted by a spark, as is well known, but so long as the cylinder charge can be lighted by the spark it is certain that the charge, at the point where the spark is delivered at least, must be perfectly combustible, and so cannot smell when exhausted, because the vile odours observed in the trail of the automobile are due to unconsumed carbon.

Hence the conclusion that fuel is contained in the ordinary internal combustion motor cylinder in

two entirely distinct forms—one form perfectly combustible, as proved by sparking firing, and the other form susceptible of roasting and charring only—is forced upon the observer.

In case the carbon of the charge is in the form of a fixed gas, incapable of condensation under existing conditions, odour can ensue only when the mixture is perfectly combustible at the spark and is incombustible at other locations in the cylinder; that is to say, the charge must be "stratified," or differently charged, with the combustible in different places.

Where liquid fuel is used, as gasolene or kerosene, it is never so treated as to take the form of a fixed gas. If it was so treated any mixture capable of spark-firing would burn cleanly, and could not possibly produce an evil-smelling exhaust, save by stratification.

But if the hydro-carbon fuel, gasolene, for instance, is merely atomised, and is only suspended in the air of the cylinder charge, then the possibility of exhausting unburned fuel, and so creating an abundance of smoke and bad smell, is existent, because this atomised fuel condenses the moment it touches a metallic surface not hot enough to burn it.

Gasolene is now fed to cylinder-fired motors by two methods—carburising, in which the air is passed in close contact with the volatile hydro-carbon, and so picks up an uncertain quantity of the fuel as it goes to the cylinder; or by "atomising," in which process the cylinder charge of air is made to pass a small hole from which gasolene is flowing, and so atomises the fuel and carries part of it in suspension into the cylinder, and deposits part of it on every metal surface reached in the transit of the air from the atomising point up to the time of charge-firing by the spark.

With a violent air blast a jet of very finely-atomised gasolene was almost wholly condensed and changed to fluid form by being driven through a smooth brass tube, 5-32in. bore and 6in. long, with a short upcurving end of easy radius, so that the fuel entering this tube in the form of an almost invisible mist, and driven rapidly through it by an air blast, came out in fluid form, a sputter of small drops, instead of in an even and uniform mixture of atomised fuel and air, as was desired.

This simple experiment, with its invariable result of liquefying the atomised fuel delivered to the small diameter short smooth-bore tube, and driven out rapidly by an air blast, shows very clearly how the cylinder may have a perfectly combustible charge surrounding the spark, which is generally delivered as near the middle of the compressed charge as may be, and yet have gasolene in fluid form on the piston and compression chamber walls. Under these conditions the combustible part of the charge would burn, and that part of the charge which was too "rich" to burn would be roasted, and driven out with the exhaust, unburned and smelling.

This points to short charge-entering passages, and makes the fuel-wasting proclivities of all two-stroke cycle motors easily understandable. Every metal surface touched by the incoming atomised fuel takes a coating of liquid fuel, which cannot burn, and merely chars before it is exhausted.

With a four-cylinder motor, cylinders 1 13-16in. diameter by 2¼in. stroke, and admission ports leading to the admission valve only ¾in. long, the ports being 1in. by ½in., and the pistons making 1,500 double strokes per minute, with the fuel atomised directly into the ports, there was no visible exhaust, no perceptible odour, and, what is more to the point, no soot or discoloration of the piston heads, spark plugs, or interior of the compression chamber.

Such a toy-size motor is most unfavourable for the use of liquid fuel, because of the large containing wall surface as compared with the small combustible mixture bulk, and the consequently favourable conditions for fuel condensation. Yet by virtue of the short induction passage and the high piston speed, and the fact that but one valve is used for each cylinder, this single valve acting for both admission and exhaust, and so being hot enough to vaporise the fuel, and not hot enough to burn it, the fuel was all perfectly burned, without soot or smell anywhere.

The conclusion is irresistible that with slow motors using liquid fuel a smelling exhaust is unavoidable, simply because the motor *is* slow, and so gives time for condensation of the fuel and the formation of a compressed charge, some parts of which will burn, while other parts of the same charge will not burn, even in contact with the vivid sheet or mass of flame which fills the cylinder while the combustible part of the charge is burning.

The surprising readiness with which atomised liquid fuel resumes the fluid form, and the equally surprising quickness with which the high pressure established in internal combustion motor cylinders disappears, must always be considered in waggon motor designing, and the steam engineer who undertakes to burn his fuel on his cylinder pistons instead of under boilers finds he has a lot of things to unlearn. Steam is like a waterfall in its slow persistence of energetic action, and the motive fluid in a gas engine is comparable in effect with the blow of a sledge hammer: the effect is great, but it has no duration, and hence no expansion possibilities; and where liquid fuel is used with any form of spraying or atomising, the form of the admission port and passages is a most surprisingly important factor in the economical working of the motor.

HUGH DOLNAR.

The Automobile Club of Dauphiné was so extremely satisfied with the meeting just held that it has already met to make arrangements for a still more important gathering, to take place next year, and which it is intended shall last a whole week. The different manufacturers approached in the matter have so willingly agreed to the suggestion that the following list of prizes was at once drawn up, to be competed for in 1903: A silver plaquette, offered by M. Génin, treasurer of the Rhone Automobile Club; a prize in kind by the Rhone Automobile Club; prizes in kind offered by the firms of Mercedes, Dietrich, and the Continental Co.; a silver gilt medal offered by the *Auto-Vélo* to the first car in the general class using alcohol as carburant, without distinction of category; a silver gilt medal offered by M. Serpollet; another given by M. M. Richard; also by MM. Desjozeaux and Bary. Besides this, there will be the Viallet Cup, given by the president of that name of the Dauphiné Automobile Club.

THE PANHARD GEAR.

In describing the mechanism of cars it is usual to refer to the transmission and change-speed gear as being of the "Panhard type," and as so many cars are provided with such gear it will be of use to many if we briefly describe what the Panhard gear is, as the gears of the Daimler, Napier, Mors, and dozens of other well-known makes are substantially the same, though there may be, and usually are, modifications in detail. No new mechanisms are embodied in the Panhard type of gears. It is simply a combination of well-known elements in a form which, despite certain objections, has been found very practical, and the system as a whole is one which it is difficult to beat. Although, as we have said, improvements have been made, and are constantly being made, yet they are in perfection of the working parts, material used, and method of manufacture, and not in general principle. For instance, the cardinal defects of the system, as it was first constructed, were waste of power, short life, and noisiness. These have been largely eliminated, and the modern gears are much more

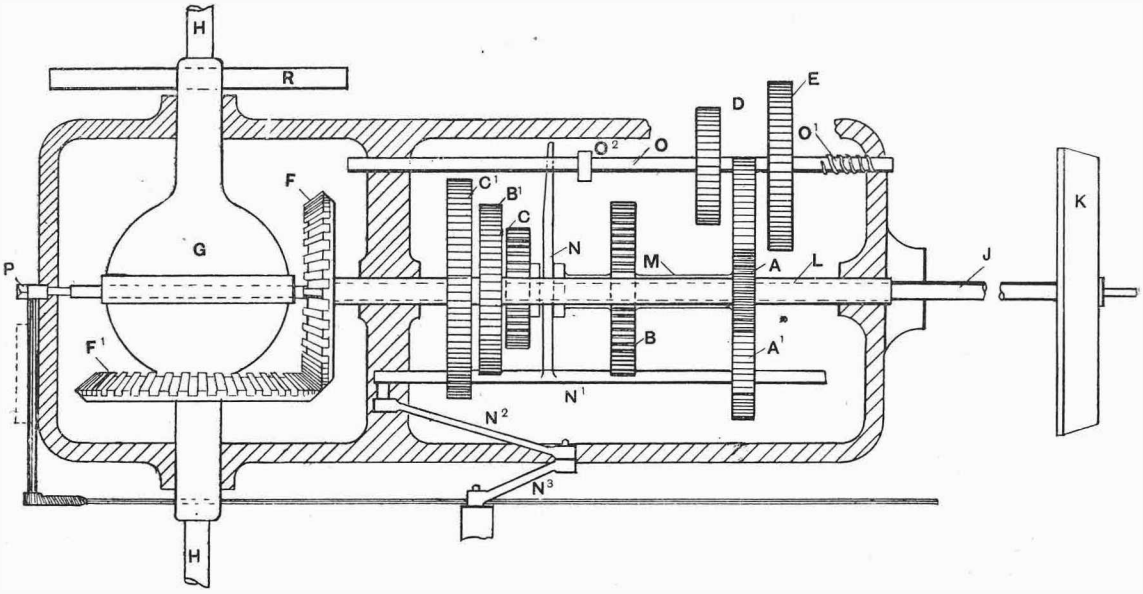


Fig. 1.—Sectional plan of Panhard gear

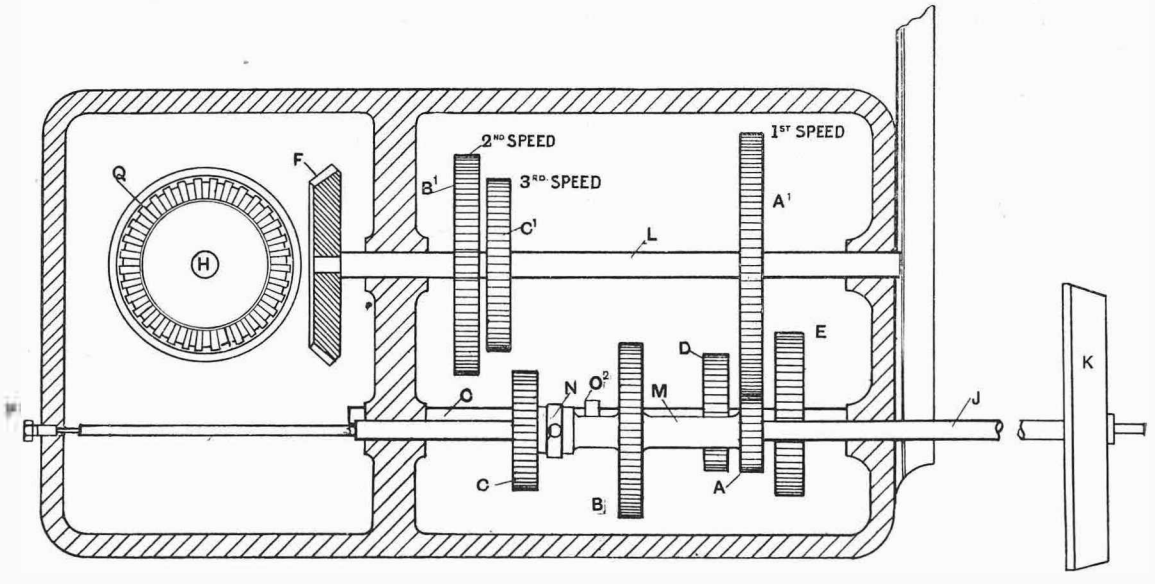


Fig. 2.—Sectional elevation of Panhard gear

A, B_1 and C_1, gear wheels on bottom shaft.
A^1, B^1, and C^1, gear wheels on top shaft.
D and E, gears for reverse action.
F, top shaft bevel wheel.
F^1, differential bevel wheel.
G, differential gear-box.
H H, countershaft or differential axle.
J, bottom shaft.
K, male cone of clutch.
L, top shaft.
M, sliding sleeve on bottom shaft.
N, arm operating sleeve M.
N^1, N^2, and N^3, connecting links to arm N.
O, reverse gear wheel shaft.
O^1, spring on reverse gear shaft.
O^2, stop on reverse gear shaft.
P, bolt for cone adjustment.
Q, bevel wheel of differential gear (in fig. 2 only).

efficient, durable, and free from noise than were the earlier specimens, though the parts and their relative missions are all the same, and no vital change has been made except in the method of providing the reverse motion, so that it no longer necessitates the objectionable feature of sliding bevels on the countershaft. To get the full power of the engine it is necessary that it should run at a fairly constant speed, and that being so, it will be seen that some method of altering the ratio of revolution between it and the road wheels is required. It is also needful that the engine should be started and in action before the car is started, and, further, that it should be possible for the car to be stopped without also stopping the engine. We will assume that the engine runs at 750 revolutions per minute, and that it has been started. It is connected to the bottom shaft of the change speed gear by means of a friction clutch. This clutch is in two parts. The fly-wheel of the motor is hollowed out, and the inner rim of the wheel is coned, so that the fly-wheel takes a bevelled concave form. On the bottom shaft a convex disc is free to slide, though it cannot rotate independently of the shaft. The bevelled periphery of the disc is lined with leather or some suitable substance, and it is held into the concavity of the motor fly-wheel by suitable springs. A pedal is connected to it, and by depressing the pedal the convex disc of the bottom shaft is held out of engagement with the concave fly-wheel of the motor. When the pedal is only partly depressed the two surfaces do not quite "bite," so that a certain amount of slip can take place, and by carefully working the clutch all sudden shock to the engine or the gear can be avoided. Moreover, the clutch spring is of such power and so adjusted that while it gives sufficient grip to drive the car it slips somewhat if the clutch is too suddenly applied. We can assume that the diameters of the gear wheels and chain wheels are such that on the top speed the engine makes four revolutions to one of the road wheels; but as the power of the engine is practically constant, it will be seen that when an ascent is encountered the engine, unless it is unusually powerful, will be unable to drive the car,

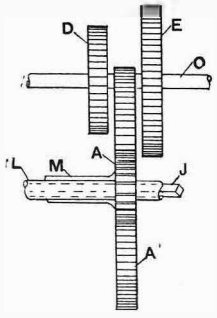


Fig. 3.—Reverse "out."

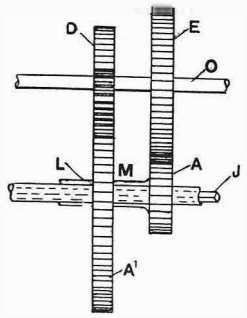


Fig. 4.—Reverse "in."

A, gear wheel on bottom shaft.
A¹, gear wheel on top shaft
D and E, gear wheels on reverse shaft.
J, square part of bottom shaft
L, top shaft.
M, sliding sleeve on bottom shaft.

as hill-climbing not only means propelling the vehicle forward, but also upward; so to meet the harder conditions the low gear is put in, and the engine, while revolving the same rate as before, makes, say, sixteen turns to one of the road wheels. so the car, as it is going only one quarter of the speed that it was on the top gear, can be lifted upward without putting such a retarding effect on the engine as to reduce its rate of revolution, and, consequently, its power.

Fig. 1 is a plan view of a Panhard gear arranged for three speeds. The four speed gears are just the same, except that there is another pair of gears (cog wheels).

The three gear wheels A, B, and C can be distinguished by being shaded in the darker manner. These are the gear wheels of the lower shaft. A is of small diameter, C is larger, and B is the largest. Above these are three other gear wheels on the top shaft axle, A^1, B^1, and C^1. The first A^1 is the largest, the third C^1 is smaller, and the middle one B^1 is still smaller.

The speed change lever by the side of the driver works the arms N^1, N^2, and N^3, which has a fork connected with it engaging with a double flange on the sleeve M on the bottom shaft, this double flange being shown just on the right of the gear C. Now the gears C, B, and A on the bottom shaft are fitted on a tube or sleeve M, and as the bottom shaft is square for a portion of its length, they can be moved to and fro upon it, and any one of the three gears on the bottom shaft brought into engagement with one of the three on the top shaft. At the end of the top shaft is a bevel gear F, which engages with a bevel F^1 affixed to the differential case G, and driving through it the countershaft H H. At the end of the countershaft chain sprockets are placed, which drive the road wheels by means of chains and chain wheels. The drum R is encircled by the band of the pedal brake.

When A is in contact with A^1, as shown in fig. 1, this is the lowest gear. By pushing the lever a notch forward A and A^1 are disengaged, and the gear wheel C engages with the gear wheel C^1. This is the second speed. If the lever is pushed farther over still the gear C passes through the teeth of C^1, and the gear wheel B engages with the gear wheel B^1. This gives the highest speed, as the lower axle turns at nearly the same speed as the top axle, thus giving the maximum speed of the car.

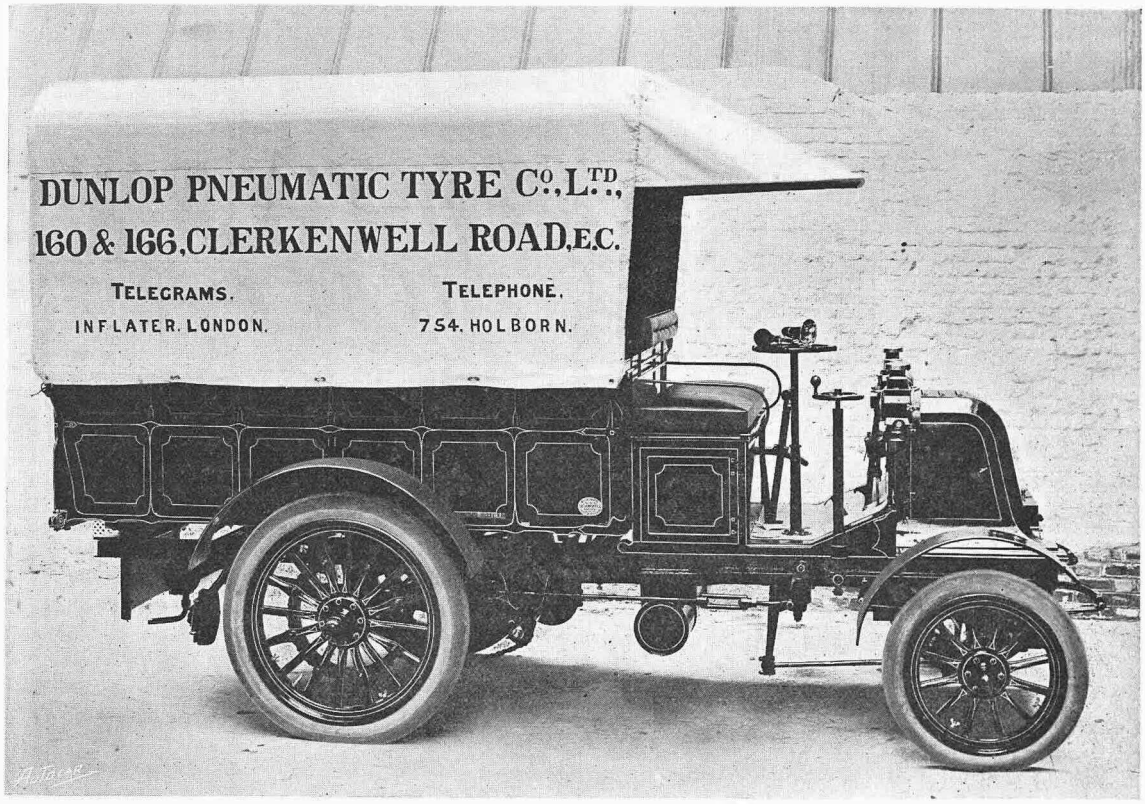
The reverse is obtained by the interposition of two additional gear-wheels, D and E, as shown in fig. 1. These gear-wheels, which are used to produce the reverse movement, are shown separately in figs. 3 and 4, where the reverse, both in and out of use, is seen. The gear wheels D and E are fixed to the third shaft O, which has at its one end the spring O^1, and towards its centre the stop O^2. When the speed change lever is brought back, the arm N comes against the stop O^2, and, at the same time, the sleeve M and the gear-wheel A are slid along the square shaft J until A engages with the gear-wheel E. As the speed change lever is brought further back into its notch the sleeve M and the shaft O move in unison until the gears A^1 and D intermesh, as shown in fig. 4. In this position the lower shaft J (see fig. 2) is no longer directly connected to the top shaft L, but through the gears D and E on the shaft O, so that whereas the shafts J and L were previously revolving in opposite directions when directly connected, they are now revolving in the same direction, and so the direction of the car is changed.

As soon as the fork is disengaged by the speed lever, it no longer presses on the stop block O^2, so

that the spring O[1] pushes back its axle, and its gears D and E go back to their original position. K indicates the male or convex portion of the clutch, and P the adjustment for the clutch grip by means of a rod, spring controlled, which runs right through the bottom shaft, which is hollow.

In cars in which no chains are used the Panhard type of gear is also usually employed, but the top shaft is lengthened, and the bevel at its end drives a corresponding bevel on the back axle of the road wheels, the necessary flexibility in the length of shaft outside the change gear box being provided by universal joints, or hinges at right angles to each other.

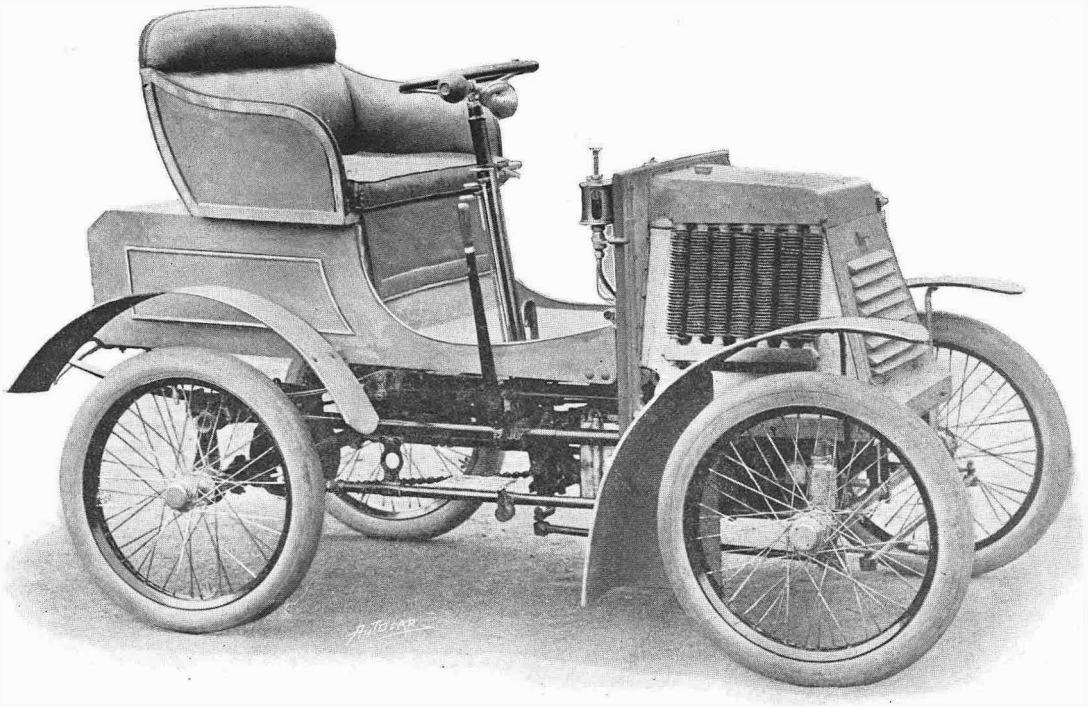
PRACTICAL TYRE TESTS.



The Dunlop Company have just purchased an 8 h.p. two-cylinder German Daimler lorry from the Motor Power Co. So far as the engine and the transmission are concerned they are of the standard type, the interest of the vehicle centring in its tyres, which, it will be observed, are pneumatics, Dunlops, of course, the front being 3½in. section, and the back 5in. They are of the new heavy or Gordon-Bennett type, and the machine will be in daily use in the London district delivering goods from the Clerkenwell Road depot. It will carry up to one and a quarter tons, dead load, in addition to its own weight, which is about 30 cwts., so that it will afford a thoroughly good demonstration of the wearing quality of the tyres, and will earn the distinction of being the quietest motor lorry in London, as it is, of course, most unusual for these commercial vehicles to be fitted with anything more luxurious than solids, while, as a rule, steel tyres are used.

A notable climbing feat is reported from Swansea. A motor car has been driven up the very steep Kittle Hill, on one of the main roads to the Peninsula of Gower, by Mr. George Thomas, foreman mechanic and motor expert to Messrs. Dan Morgan, Ltd., Swansea. The car was a Progress, fitted with an 8 h.p. single-cylinder motor, and carried besides the driver two well-known local motorists. It should be stated, says the writer of the account of the climb, that the car, with three up (thirty-six stones), was driven *viâ* Blackpill, ascended the lane from the "Woodman Inn" (on the Mumbles Road) to Mayals, and thence over the common down through Bishopston. To those who are acquainted with Kittle Hill it may be said that there is no run to start the ascent on the other side. The old stream bed, and a very rough one at best, has to be negotiated, and the commencement of the hill is one in five. The climb throughout was taken by the car without a falter, and was witnessed with considerable interest by some picnickers. It is locally considered a feat of much importance for a British-made car.

AN INTERESTING VEHICLE.



Messrs. Ryley, Ward, and Bradford, of Fleet Works, Coventry, have just completed a new voiturette which contains some features not usually found in this class of vehicle. In *The Autocar* of September, 1901, dealing with a low-powered machine by the same makers, we gave an outline of the present car, an illustration of which is now given. This is the first of these cars built, and is the outcome of experience gained in the building of small vehicles. The engine is a 5 h.p. Aster, water-cooled by natural circulation, the engine being placed in front beneath the bonnet, which also serves as a water tank on the system used by Renault and other makers. The usual electric ignition is employed, and a Longuemare carburetter supplies the engine with the necessary mixture. The principal feature in the design of the car is the transmission gear. This has been planned to keep all shafts parallel, dispensing with bevel wheels, and obtaining a high percentage of power at the road-driving wheels. The clutch is one of the internal expanding type, of the firm's own design and manufacture; the female part is formed out of a malleable iron casting, the male expanding ring being of cast-iron. This is normally held in by a spiral spring, the release being made through toggle levers by means of a cone. The female part of the clutch is carried on a short countershaft passing through one end of the gear box, the male part being mounted upon the engine crankshaft. On the clutchshaft within the gear box is a twenty-five tooth pinion, which gears into a sixty tooth wheel on a second countershaft, upon which there is also a thirty tooth pinion gearing into a fifty tooth wheel upon the shaft carrying the fixed change speed gear wheels. This train of gearing gives the necessary reduction of speed and enables the gear box to clear the engine. Upon the end of the shaft carrying the sliding change speed gear wheels is a sprocket wheel cut for a 1in. pitch Renold roller chain, which transmits the power to the rear live axle. There are three changes of speed, which, in the car under notice, give six, twelve, and twenty miles per hour with the engine running at its normal speed; a reverse is also fitted —an unusual thing in a car of this description. The gears are changed by a horizontal lever conveniently placed beneath the steering wheel, the reverse being brought into operation by pushing over with the toe a small knob projecting through the footboard. The clutch is at present operated by a side lever, but this could easily be worked by a pedal, as is usual and preferable. There are two band brakes, one being fitted to the rear axle, the drum for which surrounds the differential gear box; the other is fitted to the countershaft. Both are applied with pedals. There is one feature in these brakes which we should like to see in more general use, and that is the caged bands. In this case the cages are arranged to catch the band, holding it just clear of the brake drum, so that the least movement at the brake pedal brings it into contact with the drum, though the cage keeps it absolutely free when not in use.

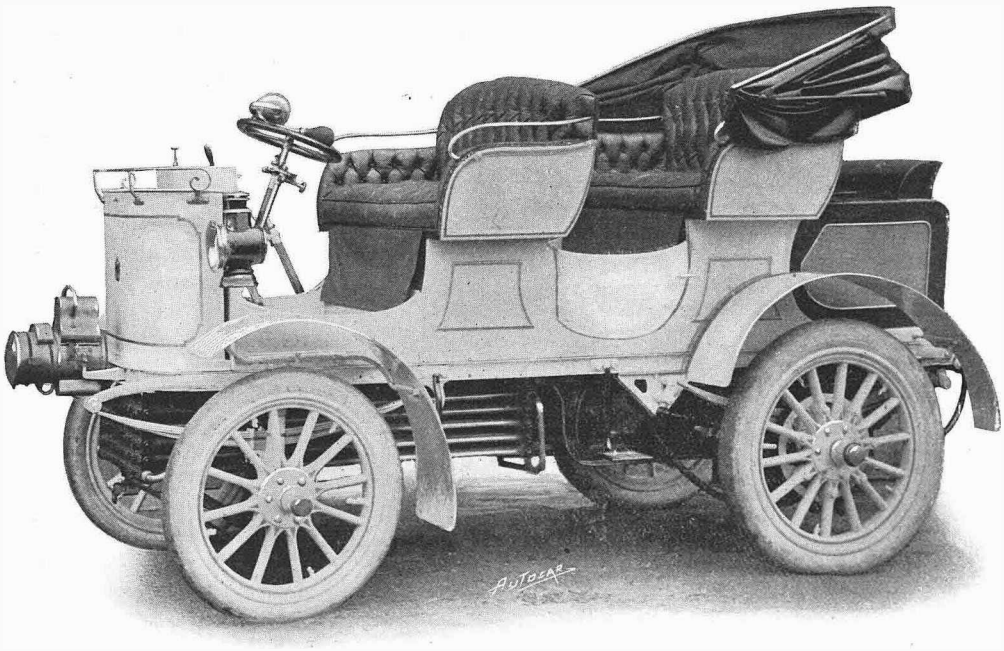
The frame is a particularly rigid yet light piece of work. It is constructed of 1¼in. weldless steel tubes in duplicate, the side and cross members being well braced together. Both back and front axles are rigid with the frame, no springs being interposed at these points. The back axle is built on the quadricycle lines, there being four ball bearings containing ⅜in. balls, the whole being very soundly built, no attempt at reducing weight being made at this point. The back axle being so constructed has a great saving effect upon the driving chain, as this is running over sprockets whose centres are

fixed, these only being altered when any adjustment of the chain is required. From the time the car was first put upon the road until the time of writing,no attention has been given to the chain. Although it has run over three hundred miles, being centrally situated, it is comparatively free from dust and dirt raised by the wheels. We particularly noted the condition of the chain after a run of thirty odd miles we had, and could not see that it had collected any appreciable amount of dust in covering the distance. The operation of the car is very quickly mastered, the levers necessary in driving being conveniently placed. The gas, air, and sparking advance levers are placed on the right-hand side of the steering column, the throttle being on the left below the change speed lever. There is a neat little trick for keeping these levers in position. Each lever works horiontally beneath a quadrant, which has a number of small holes drilled close together on the underside. On the top side of the lever is a small peg, which engages with any hole in the quadrant, the lever being kept up to this by a spiral spring placed at the ends of the rods beneath the floor boards. It is, therefore, necessary to slightly depress the lever before making any movement, but once the lever is in position it cannot be changed by any severe jolt or accidental movement. The steering movement is obtained through a toothed segment and pinion.

The springing of the car is carried out on a system which gives the occupants the greatest comfort, practically no vibration from the engine being felt while the engine is running free and the car standing. The forecarriage is sprung by helical springs contained in boxes on the steering arms.

We have at different times tried many two-seated cars of equal power to the one Messrs. Ryley, Ward, and Bradford have turned out, but we have not yet come across one built with the elements of durability which this one possesses. Up to the time of writing, the car has covered over three hundred miles with no attention beyond cleaning and lubricating the engine. On this journey we had not the slightest trouble with the car, and we are told it has always run in the same manner since it was first brought out upon the roads. The car is an experimental one, and we must congratulate the makers upon the success of their design. At present there is a danger of this little machine being lost to the public, as some capital, we understand, is required to turn the vehicle out commercially. We hope some interested persons will come forward and extend the necessary aid to produce an article for which there is at present an undoubted demand.

LORD HILLINGDON'S STEAM CAR.

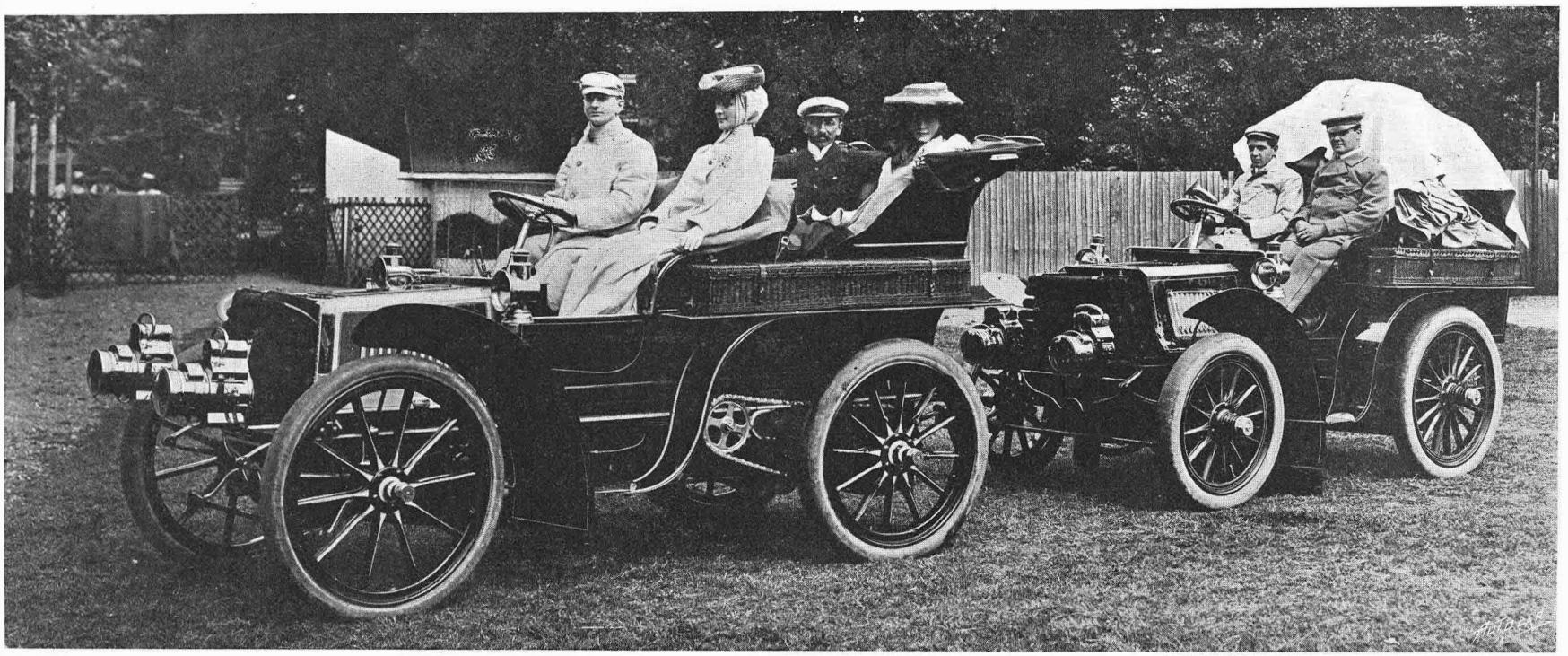


This car, which is a 12 h.p. British Serpollet, built by the Gardner-Serpollet at their English works at York, is of the standard type, and consequently needs no detail description, as we gave a plain general account of the Serpollet system in *The Autocar* of March 8th last. The four single-acting cylinders are 75 mm. bore by 90 mm. stroke. The occupants of the back are well protected from dust.

From America we learn that in some parts of that country gipsies have abandoned their horse-drawn caravans, and have taken to travelling about the country in automobiles.

The laws affecting autocars in Massachusetts fix their speed at ten miles an hour within the business or thickly settled districts of towns, and fifteen miles an hour in other parts of towns or public highways.

STARTING FOR A CONTINENTAL TOUR.



A LONG CONTINENTAL TOUR.

The photograph from which our illustration is made was taken of Mr. W. Bramson, a well-known member of the Stock Exchange, and a member of the Automobile Club, with his two 16 h.p. Napiers, just before he started for a long Continental tour last month. On the first car he and Mrs. Bramson are on the front seat. A lady friend who is accompanying them is at the back, as well as Mr. Bramson's head mechanician. On the second car, the back part of which has been turned into a luggage carrier, is carried all the baggage for the party. The machine is steered by his driver, who is accompanied by the valet. The route lies through France first, and then through Switzerland. From the Austrian frontier he follows the Paris-Vienna race route to the Austrian capital, right over the Arlberg. At Vienna he turns his cars homeward, and drives *vid* Italy, through France to the coast. Strangely enough, Mr. C. J. Glidden, of Boston, U.S.A., is also making the same tour, and on a 16 h.p. Napier. He started two or three days ahead of Mr. Bramson, so that it is quite possible if he should loiter long at any place on the road the two tourists will meet. The photograph shows the tourists when they were on the point of leaving home for Folkestone on the first stage of their long journey.

THE BURNLEY AND DISTRICT AUTOMOBILE CLUB.

An automobile club has been formed in Burnley. The president is Sir J. O. S. Thursby, and the vice-presidents Lord Shuttleworth, Mr. William Mitchell, M.P., and the Mayors of Burnley, Nelson, and Colne. The honorary secretary is Mr. P. H. Altham, Beechwood, Burnley, and the honorary treasurer Mr. J. Butterworth. Already the names of twenty members have been enrolled, and several more are likely to be elected within the next few weeks, so that the club seems likely to make good headway.

JOHN-O'-GROAT'S TO LAND'S END.

A WEEK'S TOUR ON A 5 H.P. WOLSELEY CAR.

The weather having at last showed signs of becoming settled somewhat after the inordinately long winter which we have experienced, it occurred to me to take a run from North Cumberland to Birmingham on my 5 h.p. car, to call at the Wolseley works, so that I could have a thorough examination and overhauling given to the car, to ensure it being thoroughly "tuned up" for the summer season.

Making an early start on a beautifully clear and fine morning, although quite alone, I was able to enjoy to the full the fine scenery in the Lake District. The motor pulling strongly, I had a grand non-stop

South of Bonar Bridge.

run to Kendal, which town always brings to mind my first experience of motoring. It was from here during the thousand miles trials in 1900 that I had the pleasure of a seat on Mr. Percy Richardson's Daimler as far as Carlisle, my fellow passengers being the Lord Justice Clerk of Scotland and Col. McGrath.

But to return to our little 5 h.p. Wolseley. After replenishing the lubricators, I hurried once more southwards, and ran right through to Birmingham (about 195 miles), arriving at Adderley Park Works at eight o'clock in the evening. During the whole of this long run I had no bother of any kind, two short stops to adjust chains and clean the mud off sparking plug being the only items to record. Previously to this my longest journey accomplished in one day had been from London to Birmingham (about 116 miles). It may be of interest to mention here other samples of "mileage" which I have accomplished at various times. In the Argentine Republic it has taken me two days and a half to cover 160 miles in a "diligence." In the same country I have done 300 miles on mule back in ten and a half days. On another occasion it took me thirteen and a half days to do the same 300 miles.

To come back once more to our subject. This splendid motor run seemed to have brought back all my love of travel, and so keenly that I made up my mind to try the famous End-to-end trip whilst I felt in the mood for it. However, I found such a lot to interest me in motor car construction at the Wolseley works that I stayed a couple of days there, knocking about the works and picking up any amount of useful motor knowledge. One grand point about the Wolseley staff is that they are most kind and obliging, especially to a man like myself, who is trying to learn a lot in a short time, and goes about bothering and asking questions about anything and everything.

Having sent the car on to Wick by rail, I joined a friend at Carlisle, and followed on next day, arriving there at four p.m. on Tuesday, June 17th, our railway journey having occupied the greater part of the previous night. Having refreshed ourselves with a good meal, we unshipped the car at Wick Station, filled up with petrol, and set out for John-o'-Groat's, which we reached at seven p.m. The day had been fine, and the weather promised well for the morrow. The price of Pratt's spirit at Robertson's, ironmonger, Wick, was but 1s. 9d. per gallon, which seemed to me very reasonable for such an out-of-the-way place. Very early on June 18th we took our departure from John-o'-Groat's, travelling through Wick, passing by Dunrobin Castle, and through Bonar Bridge to our first stop at Inverness. From here, after loading up with petrol and lubricating oil, and having something to eat, we continued *via* Carr Bridge to Kingussie, where we arrived at 7.30 p.m. The car climbed Berriedale Hill quite easily

Outside the Land's End Hotel.

with two passengers up, a lot of luggage, and, in addition, eight gallons of petrol and two gallons of lubricating oil (Price's).

As it may be of interest to motorists generally, I have ascertained the gradients of this hill. From the north, there is a descent of one mile, the gradients varying from one in twelve to one in eighteen, with two very sharp turns; ascending the south side, the gradient is one in ten for the first quarter of a mile,

for the next threequarters of a mile one in nine.

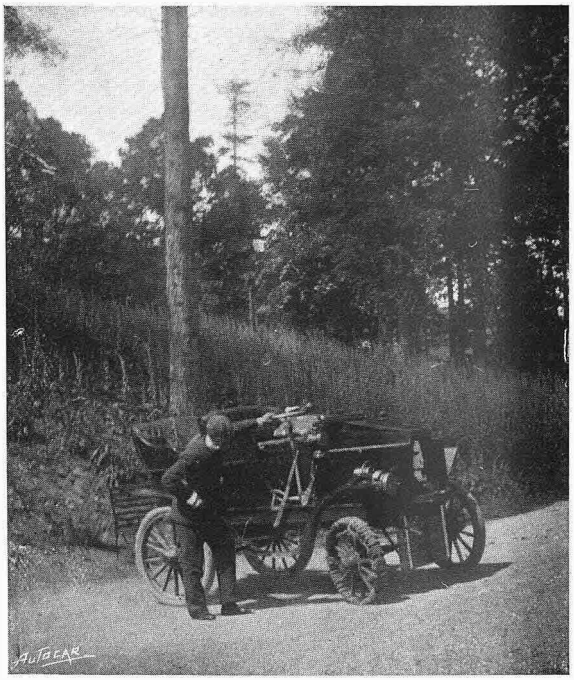
The weather continued fine, but the roads were bad from Brora to Bonar Bridge. Adjustments needed to the car during the day's run were caused by a faulty trembler on coil and the replacement of sparking plug. We went early to bed, and on the following morning made a good start, and came through the Highlands, keeping touch with the Highland Railway as far as Perth, and then away to Burnt Island Ferry, where we were delayed over an hour waiting the departure of the boat. After crossing to Leith, we got the car going again, but, unfortunately, missed the main road, and eventually put up for the night at Bonnyrigg, just west of Dalkeith. We got away rather late next morning, and made along by way of Galashiels, Selkirk, and Hawick to Carlisle, thence on *viâ* Penrith, Shap, and Kendal to Carnforth, the South of Scotland and Cumberland roads being in splendid condition. Here we stayed at a small wayside inn during the night.

Next morning we set out from Carnforth about nine o'clock, and when about fourteen miles from Preston experienced our first stoppage, three bolts giving way on the brake rim of the off driving wheel. We returned to a blacksmith's forge which we had passed two miles before, had some bolts made to replace the broken ones, and continued our journey after a couple of hours' delay. Whilst adjusting the brake during the blacksmith's absence, a man came up to me, and asked whether I had broken down. Being curious to see what he would say, I replied in the affirmative. He then asked, "Will you sell the car?" to which I again replied "Yes." He thereupon made the astounding offer of 10s. for it! When my breath had come back, I began to tell him in kindly tones to seek a warmer climate, and other things to the same effect, at which he made a hurried departure, with a grieved and chastened expression on his countenance. Things being all shipshape once again, we continued to Preston, from here to Warrington—worst roads in England—then through Wellington and Bridgnorth to Kidderminster, where we put up for the night. We got going early the next morning, and made good time to Bristol, thence to Bridgwater, over vile roads, which caused us to travel at a comparatively slow rate, eventually reaching Exeter at 8.30 p.m. The next day we had about the stiffest part of our journey to traverse, and made rather poor progress from a variety of causes. In the first place, the lanes of Devon and Cornwall are not conducive to fast running, being of the switchback variety, and also very narrow, with sudden turnings. The roads in this part of the country have far worse gradients than any we encountered in Scotland. In concluding this short account, I am well aware that far better times have been made over this famous route, but my intention in making this run was not in any way to compete with time, but merely to have the personal satisfaction of driving a good car over all kinds of roads. At the same time, I was extremely careful to avoid any trouble with the police, and took great care never to exceed the legal limit anywhere near a town. Nevertheless we accomplished the 880 miles in six days, at a rough average of about 147 miles per day. Beyond the slight adjustments which I have already enumerated, the car gave no trouble whatever, and is even in better condition now than when we started on our run. This, I think, speaks volumes for the care and skill bestowed in the manufacture of such a reliable little vehicle, and one can well understand the popularity which the Wolseley cars have so deservedly attained.

J. TODD.

AN IMPROVISED TYRE.

Some little time since Professor Hele-Shaw, when driving one of his cars, found that the front tyre on the off side was deflated. On examination, it was found to be past repair, as the air tube had perished, and as fast as it was mended in one place it blew



through in another. He therefore got some rope and wound it round the groove of the rim until it stood well outside, and then he bound it transversely, as shown in the illustration, which is reproduced from a snap shot of the improvised tyre. The car ran several miles without cutting the rope at all, and Professor Hele Shaw believes it might have been driven thirty or forty miles without injuring the wheel or making a very appreciable difference in the running of the car. Of course, Professor Hele-Shaw does not claim novelty for his makeshift, though we have no doubt the method will be new to many of our readers.

The cleansing department of the City of Glasgow Corporation have placed an order with Messrs. Rennie and Prosser, Ltd., for a Milnes motor tip waggon to carry three tons. The waggon will be used in connection with the cleaning of the streets and for removing refuse at night. The body is of special design, with a patent tip arrangement, and is now being fitted to the frame in Glasgow, under Messrs. Rennie and Prosser's supervision. Speaking from memory alone, we believe the Glasgow Corporation are the first to employ a motor tip waggon driven by an internal combustion engine, those in use depending on steam for motive power.

Correspondence.

We do not hold ourselves responsible for the views or opinions expressed by correspondents.

ENGLISH COILS.

[2560.]—In your excellent paper, I have noticed letters *re* electrical ignition and its troubles. Having bought a two-cylinder Darracq car some time ago, I had the greatest difficulty in starting it with the ignition arrangement supplied. Now, I am glad to state that with Van Raden and Co.'s high speed trembler coil, I can start the engine without the least trouble. I may state that I removed all the ignition arrangement on the two to one shaft, and fitted a new one. I have run over five hundred miles with this coil, and have had no trouble so far. I understand this coil can be fitted to any car. J. P. R.

[2561.]—In view of the statement made by Mr. Edge as to the trouble he had in getting his English-made coil to work fast enough, it may interest you to know that I have an English trembler coil (made by F. C. Blake) on my motor tricycle, and have no difficulty at all in getting the motor to run at over 2,000 revolutions a minute.

My experience is that, provided the coil is well made and all the contacts clean, the only thing necessary to make a trembler coil work at high speed is a very delicate adjustment of the trembler and screw.

Last Christmas I took the coil off the tricycle, and connected it up with an ordinary sewing machine. I placed the coil and accumulator on the sewing machine, connected one terminal of the accumulator to the primary of coil and the other to the metal on the machine, connected a sparking plug with the two secondary terminals of coil, and let a wire from the other terminal of primary circuit on the coil hang in the place where the shuttle goes. When I worked the sewing machine, the shuttle holder jammed the wire against the side of the machine, and so completed the circuit. After carefully experimenting with the adjustment of the trembler and screw, I found I could get a spark at every revolution, even when I worked the machine as fast as I could. I should think I got nearly one thousand sparks per minute.

I do not see why English people cannot make coils as well as foreigners, and hope the Napier Co. will give English makers as much encouragement as they can.

CYRIL SCOTT.

THE NUMBERING OF AUTOCARS.

[2562.]—I think it very much to be regretted that the Executive Committee of the Automobile Club, who represent the industry, should have so hastily committed themselves to approval of Mr. Montagu's Bill. It seems to me that in a matter which involves principles to the extent that this does, a general meeting should have been called, and a vote taken on the question before the principle of registration received the official sanction of the club.

As for registration itself, whether of owner or vehicle, I have no objection to it if it is so carried out as not to be offensive. The object aimed at is identification either of the car or of its owner. At present, if a car passes without stopping when called upon to do so, it is practically impossible for the police to identify it afterwards, and there have also been instances in which a driver who has been stopped has given a false name and address. These are the serious offences which all gentlemen deprecate, and which tend to bring the pastime and the sport of automobilism into disrepute.

But they will not be provided against by the device of affixing a conspicuous number to the car. The man who goes out with the intention of breaking the law and defying the authority of the police will smear his number over with mud, or will go so fast as to obscure it in a cloud of dust, and will still ride away without identification, so that in his case the remedy is illusory. The offender of that type can only be caught by telephoning along the road, and stretching chains or ropes in front of him. Every friend of automobilism will be willing that a man who refused to stop when ordered by a police constable should be subject to a heavier fine than now, and to imprisonment without a fine, if necessary.

There is also a perfectly legitimate objection on the part of a private individual to having his private carriage stigmatised with a large official number, which is associated in the public mind with cabs or omnibuses. No one, however, need object to a small number-plate, say, six inches by three, which could be screwed on to the body of the car, and open to the inspection of a police constable or anyone else who had lawfully stopped the car. Every car with a number should also have a registered owner, and he should be made ultimately responsible for any fines incurred by any person driving his car. Such a small plate on the car would provide all the identification that is necessary or practicable, and the mere fact that a register of cars existed, localised, say, in each county, would in most cases enable the police, by a process of exclusion, to identify any car which had failed to heed an official summons to stop. Moreover, by increasing the severity of the penalty for this offence, the temptation to commit it would be much reduced, especially if the justices were given power to order that a person convicted of refusing to stop should not be allowed to be registered as an owner for the remainder of the year.

To allow it to be thought, however, that the club, as representing the whole body of automobilists, is voicing their wishes in endorsing a proposal to inflict upon us large and offensive numbers, would, I think, be regrettable, and I have, therefore, been moved to send you these remarks, and to express my entire agreement with the similar observations of Mr. Sturmey in a previous issue.

RUSSELL.

THE CUP CARS.

[2563.]—I should have thought the Wolseley Co., after reading the letters of excuse from Mr. Graham White and Mr. Austin, would ask to be saved from their friends.

I, in common with nearly everyone else, am pleased to know that the Wolseley Co. are taking interest in proving to Continental nations that English cars are good ones. Would their champions, however, not have been well advised to have let the matter end where it did? It is obvious to everyone who is watching the matter closely that the horizontal cylinder is bad—how bad we shall probably only know if we could hear the truth from Peugeot and other influential firms who have used it and discarded it.

Can the Wolseley Co. not be persuaded to give up what must be an obsolete type, and for next year's race make something like the successful Napier or Mercedes?

The Wolseley champions' excuse that their cars are experimental ones applies to every racing car ever used, but those who are guided by other people's experience, and profit by what has gone before, seem to be able to make fairly successful experimental racing cars, judging by the way they get to their journey's end. S. A. SMITH.

[We publish this letter because it is our practice to give both sides of a question, but we think the writer is rather missing his point. It is admitted that the weight should be kept low on any motor vehicle, and particularly on racing cars. This can undoubtedly be attained more fully with a horizontal engine. The lack of success of the Wolseley Paris-Vienna cars cannot be attributed to their horizontal cylinders any more than the success of other cars can be accounted for by the fact that their engines were vertical. We may add that more than one advanced designer is contemplating the horizontal engine for high speed cars. We should like to see the objections to the horizontal engine categorically stated by someone who believes that the vertical is the only right position, as this would give those who believe otherwise a good opportunity of stating their reasons for adopting the horizontal position.—ED.]

BRITISH WORKMANSHIP.

[2564.]—I have seen several letters in your valuable paper, of which I am a regular subscriber, about the relative value of English v. foreign-made motor cars. I am not an expert, to know which gives the best results for the cost of the car, etc., but, having had no end of trouble with a small French car, I determined to go in for an English-made car, and got a 10 h.p. Wolseley. The day I had it I drove it eighty miles, and the day after I started

with two friends and a lot of luggage, including a tent and camping outfit, on a six hundred miles tour.

We did our tour without a single breakdown, except a couple of exhaust valve springs, which I think I was partly to blame in breaking, as I was not used to the car. Now, as I am more used to it, I have had them go three hundred miles. We gave it some hard knocks, once being driven off the road suddenly and going over a ditch about a foot wide and a foot deep, while we were travelling at about fifteen miles an hour. The body bumped on the axles, and I thought the springs were gone, but they were not injured in the slightest, nor was any part of the car shaken. I, therefore, do not think any car could be more reliable.

I may say I have not had much experience in driving motor cars, and have never driven a Wolseley before.

A BELIEVER IN BRITISH WORKMANSHIP.

P.S.—Of course, I am not in any way connected with the Wolseley Co., either financially or otherwise.

THE BEXHILL MOTOR RACES.

Injunction Against Earl De la Warr.

In the Chancery Division of the High Court, before Mr. Justice Farwell, on Thursday last week, the action of Mayner v. Earl De la Warr was heard, this being the case which has been heard of frequently lately on interlocutory applications for an injunction against Lord De la Warr and his co-trustees of the De la Warr estate at Bexhill to restrain them from permitting the motor races and speed trials to take place along the Marina at Bexhill, in contravention of the plaintiff's rights and those of his tenants of property adjoining. The motion stood over till the trial, which now came on. Mr. Upjohn, K.C., and Mr. Cave appeared for the plaintiff; while Mr. Jenkins, K.C., Mr. Boxall, K.C., and Mr. Prior represented the defendants.

Mr. Upjohn, in stating the case, said that in May last Earl De la Warr granted to the Executive Committee of the Automobile Club the right to use the cycle track on the south side of the Marina on twelve occasions during the year, and the Earl undertook to close the course and keep it clear of traffic and passengers to the best of his ability while the motor trials were in progress. In pursuance of this agreement, a race for motors was held on Whit-Monday, and plaintiff alleged that this seriously interfered with his rights of way. The plaintiff purchased certain land on the estate, which included a plot having frontages on the Marina, and thus obtained a right of user for himself and tenants of the roads on the estate. He had erected two houses, which fronted the Marina, at a cost of about £6,000. Plaintiff submitted that the Earl had granted rights to the Automobile Club, which were quite inconsistent with those granted to the plaintiff. There had been put up, for the purposes of these races, barriers at the ends of the roads, so as to prevent people from getting on the Marina, and Earl De la Warr granted licences to certain persons, which allowed them to draw waggonettes across the ends of the roads, so as to enable spectators to view the races therefrom. Mr. Mayner himself was prevented from going along the Marina to his own property. The other side said that was a mistake, and no doubt it was; but there were other persons (occupiers or lodgers along the front) who were refused a passage on the occasion in question.

Mr. William Mayner, the plaintiff, was called, and bore out his counsel's opening statement. He said the motor cars went at a terrific rate, and it would have been impossible to ride or drive a horse along the Marina on the day named. There was a great crowd of people there.

Cross-examined by Mr. Jenkins, witness said that different persons hired rooms in his houses to see the races, and he admitted that he gave permission to put up a stand and let windows of his houses for the same purpose.

You did not object to the races at that time?—I could not tell what a nuisance they would be.

You did not try to make any arrangement with Lord De la Warr to get what you wanted, but issued your writ?—That is so.

Mr. Fred Mayner (son of the plaintiff), Mr. W. A. Young, and Mr. Harry Prendells (job-master), corroborated.

Mr. Jenkins said the defendants made no claim to a right to block the roads leading to the Marina by means of carriages or any other permanent obstruction. He, however, maintained they had the right to have motors running over the Earl's private road, whether the vehicles were racing or not, or, in the alternative, they claimed to be allowed to have them running along the cycle track. He pointed out that a coastguardsman was stationed at the end of each road to warn people when the motors were coming.

His Lordship supposed the case of a car going about fifty miles an hour, and asked in what space such a car could be stopped.

Mr. Jenkins replied: Within about fifty feet.

His Lordship: I should be sorry to be in it. (Laughter.)

The argument continued, His Lordship saying that it was not for him to say how near the line the defendants might go, and he was not going to deliver a lecture on the general law. He would simply determine the particular case here. It could not be contended that what was complained of constituted the ordinary user of the road.

Mr. Jenkins, addressing himself to the question of alarm on the part of horses, said it was incidental and natural to what was a new method of progression. Horses shied at bicycles at one time, but never did so now. The same thing applied to motors.

Mr. Jenkins then summed up the case for the defendants, and said the plaintiff had no substantial grievance. Some people liked motor cars and some did not. He did not claim to block any road permanently, but he did claim to stop a person coming down, for his own good, and to warn him that a race was going on. Besides, this was not a case of infringement of public rights, where the Attorney-general would be joined; it was simply a question of the plaintiff's right.

The Judgment.

His Lordship, in giving judgment, said the defendants had not merely contracted to let the road to the Automobile Club, but Lord De la Warr had also covenanted that he would, to the best of his ability, close the course and keep it clear of passengers and traffic for the motor races. He passed over the fact that the plaintiff was stopped by the policeman and was not allowed to go into his own house. As Lord De la Warr, before the action was brought, said he was sorry for it, and, so far as that was concerned, he did not say there was any restriction of right there. But there was no doubt about this—that Lord De la Warr did let to the job-master at Bexhill the right to put his carriages, without horses, so as to block one, if not two, of the roads leading to the Marina, over both of which the plaintiff had rights. The job-master thus made a harvest on Whit-Monday by leave of Lord De la Warr for a monetary consideration. Counsel at the Bar were unable to justify such proceedings, and it was certainly done for the purpose of closing the traffic. The races were run from end to end of a cycle track which was private property of Earl De la Warr and adjoining the road to the east of the plaintiff's property. The barriers which were complained of had been removed, and the races were to be continued along the Marina to a point considerably to the west of the plaintiff's property, with a further run beyond in which the motor cars could pull up. It was said that this was not an interference with the plaintiff's right of way for horses and carriages. In His Lordship's opinion, it was perfectly clear that it was. Plaintiff gave his evidence very fairly, and it was apparent that it would be almost insane to drive horses along the Marina while the races were going on. He had no evidence to show with exactitude how many races were run, or how many cars took part, but Mr. Gray thought about twenty-five races and that about two hundred motor cars were there, the occupants of very many of whom only came to see and not to race, while there were about 20,000 spectators. This Whit-Monday event was the first effort. The claim by the defendants was to run further races. It seemed that Lord De la Warr intended to close the course and stop the traffic by his agreement with the Automobile Club. Then it was said that the defendant was unreasonable, but cars driven at forty or fifty miles an hour were calculated to terrify anyone out driving, and no one with any respect for his bones would drive in the vicinity while the races were going on. He granted an injunction restraining the defendants from using, or permitting to be used, the road called the Marina for the purpose of speed trials or motor races, and from erecting barriers across the roads, so as to exclude the plaintiff and his tenants from access thereto, and he made the injunction perpetual.

Flashes.

At the Staffordshire Assizes on the 21st ult. Mr. T. S. Bailey recovered £28 from a farmer named Stubbs for damages to a motor car caused by trying to avoid running into a lorry which carried no light behind on a dark night. This verdict was given by the jury in face of some remarks by the judge which were all the other way.

* * *

A sign of the times. The following notice was issued by the Manchester Automobile Club on the occasion of its run to Macclesfield on Saturday last: "It may be desirable to caution you that the police between Alderley Edge and Macclesfield will be on the look out for furious driving. Members are therefore requested to make note of this fact."

* * *

We are informed that both Major Willoughby and Captain Hill have placed orders for Daimler carriages.

* * *

We have had a very serious complaint from a gentleman who was riding a bicycle at Petersham last Saturday concerning the behaviour of a driver of an electric car. Our correspondent tells us that the erratic steering of the driver of the car compelled him to run into the hedge, and that then the person on the car used bad language and expressed his regret at not having smashed the rider and his bicycle.

* * *

While the subject is under discussion whether it is better, when caught by a thunderstorm in an automobile, to drive fast or slow, a telegram comes from Vienna with the news of the death of one German automobilist and of the severe injuries received by his companion, who, driving at express speed, were struck by lightning.

* * *

The Nottingham and District Automobile Club is giving a club dinner on Wednesday, August 6th next, at the Victoria Station Hotel, at 7.30 p.m., to meet and welcome members of the parent club visiting Nottingham for the Welbeck race meeting. A garage has been engaged for the members of the A.C., and those desiring to store their cars at this establishment must apply to Mr. A. R. Atkey, Trent Street, Nottingham, so that space may be reserved.

Tourists passing through Sandwich, Kent, will be glad to know that Mr. A. J. Allgood, of High Street, stocks petrol, undertakes repairs, keeps spare parts, and provides storage facilities.

* * *

We are sorry to see that a contemporary, in reprinting Mr. Austin's letter which appeared in *The Autocar* of July 19th, does not give it in full, but devotes itself instead to a summary of the misfortunes which dogged his cars in the race. We cannot look upon this as fair play, for Mr. Austin has been the one unsuccessful competitor who has had the pluck to give a full account of what happened to his vehicles, and when it is remembered that more than half the cars in the 1,000 kilogs. class did not get through the race, it is hard to see why this one particular competitor should be singled out, and the three points for which he claimed and deserved credit omitted from the reprint of his letter.

* * *

In response to many enquiries as to whether there would be any changes in the Orangia laws under the British occupation, as is the case with the Transvaal, Mr. Reginald W. Barker, 56, Ludgate Hill, E.C., has made special representations at headquarters, and has just been informed by the Acting Secretary to the Orange River Colony Administration that for the present the laws that were in force under the former *régime* are still being adhered to.

* * *

At Ledbury one evening last week a cyclist collided with a trap which carried no light, and died as a result of his injuries, yet the coroner's jury returned a verdict of accidental death. Had a motor car been the cause of the fatality, the driver might possibly have been committed for manslaughter.

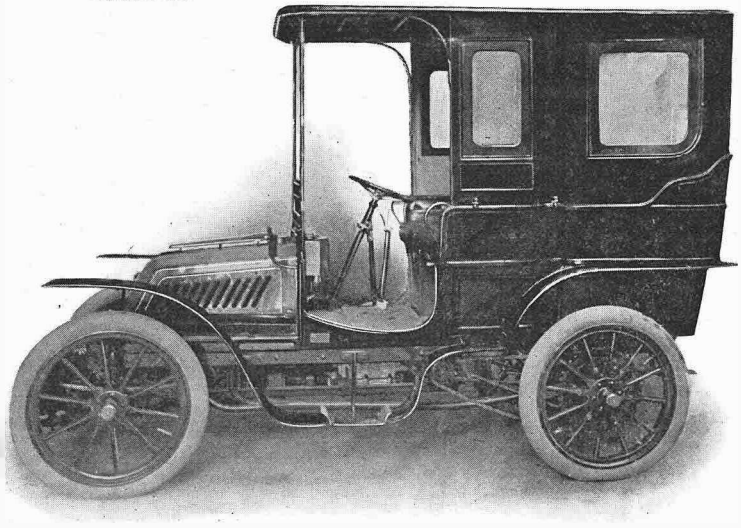
* * *

Subject to the consent of the Local Government Board, it has been decided to order a motor ambulance for the Metropalitan Asylums Board at a cost not exceeding £1,000.

* * *

Captain Wells has submitted to the Fire Brigade Committee a model of a motor tractor he has devised. It can be used, he thinks, to draw either a fire engine or a ladder on a van, and would be more serviceable than an inseparable motor. An experimental motor fire engine is also being built in the brigade workshops.

THE 10 H.P. WOLSELEY, WITH IMPROVED HANSOM CAB BODY.



This car provides luxurious accommodation for two people. The cab front is bevelled, and the driver's seat is in the middle, with all the control brought up to the centre, so that both occupants of the cab have a clear view ahead.

A race from Paris to Toulouse is the next event under consideration in automobile sporting circles.

* * *

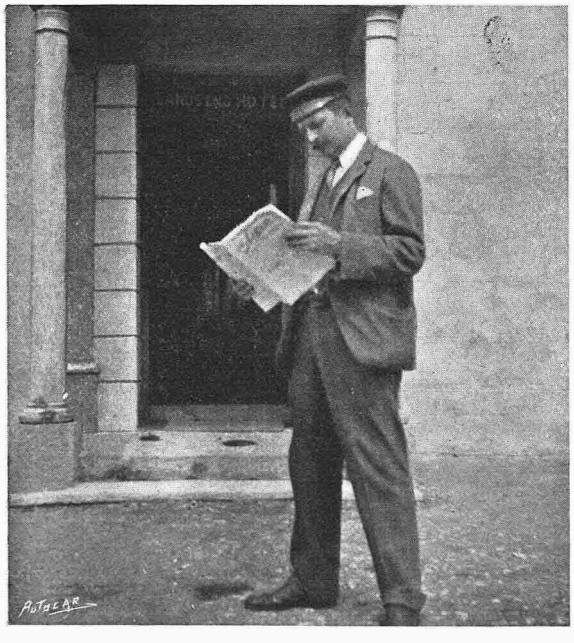
It is stated that half a dozen American millionaire motorists are going to construct across Long Island a steel racing track fifty miles long at a cost of £120,000. Car owners who are annual subscribers, or pay a separate toll fee, will have the privilege of using this steel road, and speed trials, as well as international races, will be held on it.

* * *

Despite the statement to the contrary, we find that Lord Onslow still drives his little Locomobile. Last year he used it a great deal in Scotland, and we reproduced a photograph of him descending the Devil's Elbow on the machine, and when in London he constantly uses it between his London house and Clandon, and has now had it in constant running over twelve months.

* * *

The Kahlenberg, on the outskirts of Vienna, which rises 482 metres in less than five kilometres, has been climbed by a Locomobile touring car. The roads were extremely difficult in places, especially near the top, where, in making the sharp turns at speed, extreme care has to be taken, as the gradients are as sharp as the curves. One of the small touring cars had already been driven up in sixteen minutes, but the new model B made the ascent in 9m. 45s., despite a check for a dog, and, later, for a load of hay.



Mr. Roger H. Fuller reading "The Autocar" prior to starting on the Land's End to John-o'-Groat's journey with Mr. J. W. Stocks on the 8 h.p. De Dion.

In connection with his recent End-to-End ride, Mr. Stocks noted that people in some of the northern districts still regard the motor vehicle with awe, and the horses in the remoter parts "simply go mad" at the sight of a self-mover.

Mr. H. T. Vane on his 7 h.p. Panhard (Centaur engine). The car is fitted with the new Dunlop heavy motor tyres (Gordon-Bennett type).

At the Marylebone County Court, before Deputy Judge Clement Lloyd, a jury awarded a jobmaster £18 11s. 6d. for the loss of a horse, said to have been injured owing to the alleged negligent driving of a motor car by Mr. Edward de Wilton, of Bayswater, W.

* * *

Mr. Hugh Rae, 21, St. David Street, Dumfries, informs us that he stocks Pratt's motor spirit and Carless, Capel, and Leonard's petrol; also lubricating oils and spare parts. He undertakes repairs of all kinds, and is having his premises prepared for the accommodation of four or five large cars.

* * *

A useful price list of appliances and accessories for electric ignition has been issued by H. W. Van Raden and Co. Prominent among the articles dealt with are woven glass accumulators and high speed trembler induction coils. While mentioning the Van Raden specialities, we may say that the coils which gave so much trouble to the drivers of the Napier and Wolseley cars in the Gordon-Bennett race were not of this make.

* * *

Messrs. David McGeoch and Son, coachbuilders, Paisley, purpose adding a garage for motor cars to their present business, and also to undertake repairs. The premises are in every way suitable for the purpose, being fitted with modern machinery, lit with electric light, and situated twenty yards from the main thoroughfare between Glasgow and Paisley. Mr. McGeoch, jun., has had considerable experience of motors and motor carriages, and has every confidence in taking up this class of business. Petrol will be stocked, and will be obtainable at all times, as the works are practically open night and day.

Among other unconsidered trifles which fell into the hands of the Vienna police at midnight was a derelict autocar, "an elegant vehicle, with seats for two occupants and driver." It was ignominiously "run in," to await the possible arrival of an absent-minded claimant.

A Weston steamer on the road near Boston, U.S.A.

Mr. H. P. Salsbury informs us that he is going to make a business tour on behalf of the British Automobile Commercial Syndicate in the North of England, East Midlands, and East Coast. He will use a 9½ h.p. Clément car, and will drive from place to place with a view to appointing district agents, and of showing the car to prospective purchasers. The Clément will, of course, be fitted with the Talbot tyres, and the tour will afford an excellent opportunity for those who have not yet been able to examine one of the 9½ h.p. Cléments to do so.

* * *

Some time ago the corporation of Leamington advertised for designs and specifications for a motor tender for their fire brigade. In the face of keen competition, the design of Mr. Chas. T. Crowden, the motor engineer of Leamington, was accepted, and the order for the vehicle placed with him. In this design, the motive power is a four-cylinder petrol motor developing 20 h.p., and capable of propelling the vehicle at a speed of about twenty miles an hour. Four speeds and a reverse are included in the transmission gear, which is on the Panhard system, the power being conveyed from the countershaft to the road wheels by side chains. The road wheels are built under Crowden's systems and patents, being double dished to withstand lateral strains, and are shod with solid rubber tyres. Seats are provided for six men, and provision is made for a small fire escape, scaling ladders, chemical engine, and three hundred yards of hose, with nozzles, branches, etc. We hope to give an illustrated and detailed description of this machine at an early date. Mr. Crowden has also something quite new in motor bicycle construction on the stocks, but at present we are not at liberty to give any details.

The Ormonde Motor Co. have received an order for an "Ormonde" motor bicycle from the Hon. Leopold Canning.

* * *

Once more has the autocar triumphed over the railway locomotive. On Monday there was a ceremonial opening of the new county asylum at Saxondale, seven miles from Nottingham, at which Lord Belper had stated it was impossible for him to attend because he could not get a train back to his place at Kingston, which is some ten miles the other side of Nottingham. However, His Lordship's presence was keenly desired, and he was anxious to attend the opening, so Mr. E. P. Hooley, the county surveyor, and a good friend to automobilism, immediately rang up Mr. A. R. Atkey, the hon. secretary and treasurer of the Nottingham and District Automobile Club. As soon as Mr. Atkey grasped the situation he at once took out his 8 h.p. De Dion and drove over to Saxondale. From there he took Lord Belper straight home in good time at a speed well up to the legal limit. This was Lord Belper's first motor ride of any distance, and he was thoroughly delighted with the experience, as well as impressed with the practical value of the automobile.

* * *

Shakespeare's advice to automobilists tempted of "roaring forties":

"Let's teach ourselves that honourable stop,
Not to outsport discretion."

Mr. Ernest H. Arnott.

This photograph was taken just after he had completed his End-to-End journey on a Werner motor bicycle. The flagstaff at the back is just outside John o'-Groat's House.

Some extraordinarily light dust coats have been made by Messrs. Holding and Sons, of Maddox Street, W. The material is a non-dirt and non-dust-showing silk, and the coat can be folded into such a small compass that it can be put into one's pocket.

* * *

We hear that the Motor Car Depot, Liverpool, is organising a large repairs department in connection with its works in Seel Street. It is fitted with electric plant, screw-cutting lathe, and so forth. As Liverpool is rapidly growing in matters automobile no doubt this enterprise will meet with its due reward.

* * *

In referring to Mr. E. H. Arnott's successful run from Land's End to John-o'-Groat's on one of the 1902 Werners, we inadvertently made it appear that this was the first occasion that a motor bicycle had been driven from End to End. This, of course, is not the case, as the honour of being the first man to succeed in driving a motor bicycle from John-o'-Groat's to Land's End belongs to Mr. Hubert Egerton, and a full account of his run was given in *The Autocar* of August 17th, 1901. Only those who have tried it know the pluck and determination which are required for a ride against time over the trying 880 miles course; but we think no one will deny, despite the shorter time taken by Mr. Arnott, that the first ride was fully equal to it, as the Werner of to-day is a faster and altogether better machine than the older type. On the other hand, Mr. Arnott, although second to accomplish the End to End feat on a two-wheeler driven by motor power, is the first to beat the marvellous record made by G. P. Mills on a pedal-propelled bicycle. Mills's time was 3 days 5 hours 49 minutes, but then he never slept from start to finish, while Arnott, who took twelve hours less, was able to take a few hours' sleep on both nights of his ride.

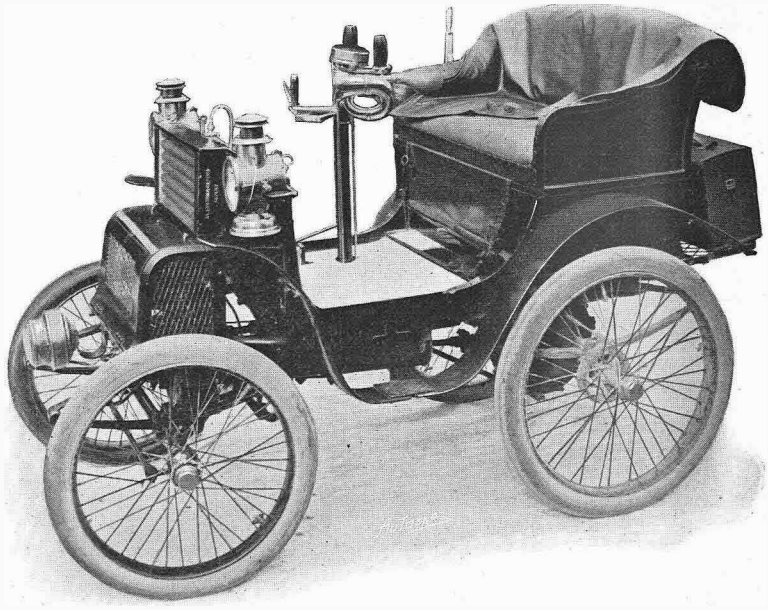
* * *

Facilities for the supply and maintenance of first-class automobiles keep pace with the growth of the movement in Scotland. The latest venture is in Glasgow, the moving spirit being Mr. W. H. Kingsbury, already well known as the Scottish representative for Panhard and De Dion cars. Mr. Kingsbury is now joined by Mr. Laidlaw Auchinvole, and in conjunction with Mr. J. B. Talbot Crosbie, A.M.I.E., as consulting engineer, they have opened extensive premises at 21 and 23, Renfrew Street, Glasgow. Here autocarists and would-be autocarists will find everything up to date in Panhard, Motor Power Co. (Napier), and De Dion-Bouton cars, as well as the multitude of accessories supplied by the United Motor Industries. Tyres of assorted sizes are also in stock, and with a competent staff of engineers the new concern will be eminently situated to undertake the repair of any type of car.

There are, says the *Morning Leader*, nearly 250,000 jinrikishas in use in Japan, and the Japanese are so terribly anxious to be up to date that automobiles should have a good chance in their market.

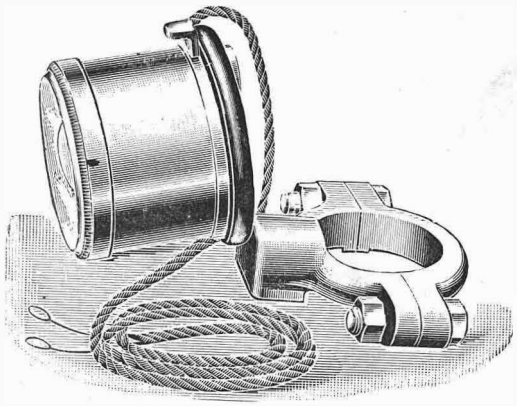
* * *

Last week we gave a diminutive picture of His Imperial Highness the Archduke Frederick of Austria driving in a Locomobile. Since then he has made further trials. He left his palace in Vienna accompanied by Count Cesckl, Herr Von Risch, and Mr. Abbott. At the start the roads were very bad and stony, and a short distance from Vienna the mud was very deep and the holes and water channels disgraceful. They appear to have lacked foundation, and this, with the wet weather and heavy traffic, had reduced them to such a condition that it was impossible to find a smooth track. However, the full complement of four passengers, not to mention a full tank, had little effect on the big 10 h.p. touring car with its 20in. boiler, double fire, and superheating coil, and it waded through the ten miles slough of despond very comfortably. Once across the Hungarian frontier and well above the level of Vienna, the roads were good, and the remaining sixty-five kiloms. to the Archduke's country seat at Halbthurn were reeled off at a better speed than that compassed by the Hungarian passenger trains. The Archduke is now using the car to convey him between Halbthurn and Pressburg, where he has his palace as commander of the 5th Army Corps. On one day a trip was made round the Neusiedler See, and the Duke expressed his opinion that the performances of the car were "Gross artig." Steam cars are extremely popular with the Austrian nobility, and it is probable that the Emperor of Austria will take his first drive in one of the three Locomobiles which are now being specially built for use in the grand manœuvres in September.



This car is a 3 h.p Argyll, the property of Mr. Reginald H. Cocks, of Abingdon-on-Thames. It was, we believe, one of the last 3 h.p. vehicles turned out by the Hozier Co., and the little machine has certainly seen good service, as it has been in constant use for twelve months, and has covered between 9,000 and 10,000 miles, having averaged twenty-five miles a day for the year. Its owner has found it invaluable for transporting photographic apparatus from place to place, and we have to thank him for the excellent photograph, which by the way was taken by himself, of his well-travelled vehicle.

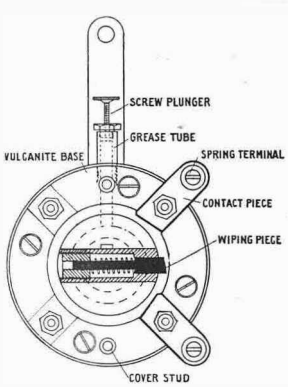
A most useful accessory for night driving has been brought out by the United Motor Industries, Ltd., of 42, Great Castle Street, W. It takes the form of a steering-pillar electric lamp. The little lamp socket is made to clamp on to the steering-pillar, and the lamp can be turned at will on to the lubricators,



dashboard clock, change speed levers, or water gauge. It is supplied with current from the accumulators used for ignition, and a four-volt lamp is used. It strikes us as being a very useful fitting, and one of which we have little doubt many motorists will avail themselves.

* * *

A very neat and well made contact breaker of French manufacture (the Guenet) is being marketed by Messrs. J. C. Meredith, Ltd., of Summer Lane, Birmingham. The principal features of this are that it may be used for engines having one, two, or four cylinders, by inserting the required number of contact pieces; the duration of the spark may be adjusted to occur through a long or short period; a wiping contact which is unaffected by oil is obtained; and the time of firing may be regulated in the usual way. Our illustration depicts the apparatus, with contact pieces for two cylinders fitted; diametrically opposite to these are studs and slots into which other contact pieces may be fitted for use with four-cylinder engines. When not so used, the slots are filled in with vulcanite blocks. The central revolving piece is of brass, running in a steel bush in the aluminium baseplate, and is bored out for a ⅝in. shaft, and has a keyway cut in. The spring wiping piece, which is shown in section, is carried on the end of this. The contact pieces are of steel, and fit into slots cut into the vulcanite insulating ring. They are provided with slots, through which the studs pass, and are held in place by nuts. The contact face which they present to the wiping piece is an inclined plane, so that by pushing the contact pieces towards the centre the wiper bears upon it for a longer time, and so produces a correspondingly longer duration of the spark. By withdrawing the contact pieces, the wiper is in contact with them for a shorter period. Spring terminals are fitted to the contact pieces, so that to make a connection it is only necessary to depress the terminal and insert the wire in the hole provided. Lubricant is supplied to the bearing by a type of Stauffer lubricator.



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As stated last week, Mr. Dan Albone, of Biggleswade, has brought out and exhibited, to the satisfaction of all who have seen it, a motor to take the place of horse power on farms in nearly every direction. Of course, the capital outlay on such a machine is not a small item, but considering the numerous ways in which it can be utilised, there can be no doubt that in a very few seasons this would be above covered, and the owner possessed of a compact, capable, and easily workable piece of machinery, which would repay its cost over and over again in the amount it would save in labour alone. The new implement, which is provisionally protected, and is named the "Ivel Agricultural Motor," is an eight horse-power, double-cylinder, petrol motor with water circulation; it has electric ignition, one speed forward and reverse, and with a few lessons anyone of ordinary intelligence can learn to drive it. The engine is free, and when put in motion a friction clutch transmits the power through an intermediate shaft to the balance gear shaft of the road wheels, by means of some patent silent-running chains. To the wheels, which have extra wide rims, with "grips" to prevent skidding, detachable rubber pads can easily be placed, by means of thumbscrews, for travelling on the high road, and by these vibration is lessened and the motor enabled to run more easily. The cost of fuel, etc., is said to be very small, and to come out considerably below that of horse labour. As briefly intimated above, it has been designed chiefly for the use of farmers, and, in addition to its being a portable motor, it is constructed so as to draw reapers, mowers, and other implements of a like nature, while almost any agricultural machine can be attached to it in a few minutes. The connection is formed by a motor spring coupling between the motor and a short pole, and from all appearances most satisfactory results can be obtained. In addition to the uses it can be put to in the fields, its capabilities at home are varied and invaluable, for among other things it can be utilised for cutting chaff, pulping roots, grinding corn, and the varied like operations which go to make up the daily round of toil on a farm, while also it will just as easily convey to and fro loads of goods or other things. On Wednesday of last week a large company assembled at Hill Farm, near Biggleswade, to witness a trial of the new invention in taking round a mower. Amongst them were Lord Alwyne Compton, M.P., Mr. Edwards, of Stamford, (uncle to Mr. Dan Albone), Mr. Briggs, of Stamford, Mr. Capon, and numerous farmers. The motor, for over an hour, travelled round and round at the rate of six or seven miles an hour, drawing a mower, and the grass was clean cut to the general satisfaction of all. Everyone appeared to be extremely pleased, and general satisfaction was expressed that this invention met exactly the want which had been felt for so long in agricultural circles.

THE MANCHESTER AUTOMOBILE CLUB.

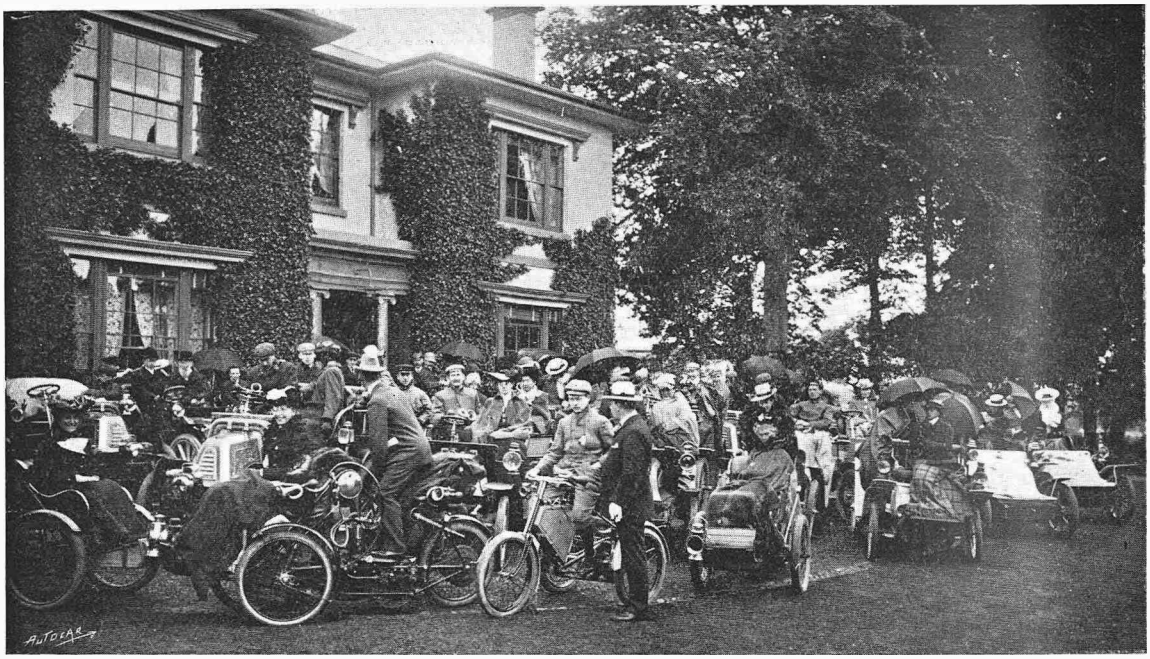
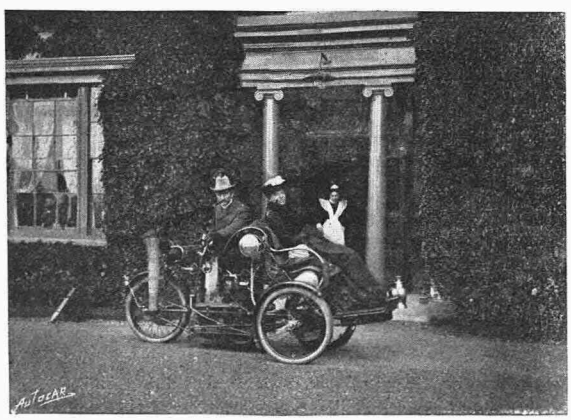


Photo R. Banks, Manchester. The gathering of the cars outside Ivyholme.

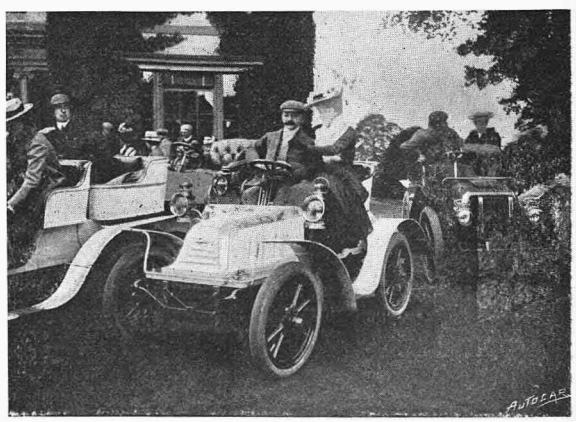
On Saturday afternoon last, the 26th ult., the members and their friends took a run to Macclesfield—the eighth of the season—the meeting-place being, through the kindness of Mr. Gerald Higginbotham, "Ivyholme," his picturesque residence, charmingly situate on an eminence on the outskirts of the town, commanding extensive views of the surrounding country. Members had the choice of two routes, each leading through delightful well-wooded country and quaint old-world villages, so quiet and secluded that the motorists must have felt like intruders. The roads could not have been in better condition, and the gentle rains of the morning had effectually laid the dust, making travelling most pleasurable. Singularly, the first two cars to arrive at "Ivyholme" were both of low power, Mr. R. C. C. Yates taking first place on his "Swift" motor tricycle, closely followed by Mr. W. E. Rowcliffe (chairman of the committee) on his 5 h.p. Century voiturette, and soon after half-past three the main body of the cars came in, until about thirty-five were in attendance, which is by far the largest number yet attained by the club at any previous run. No furious driving was indulged in, as it was known that the police were on the *qui vive*, and members had been warned in good time.

Immediately on their arrival, the members and their friends were received by Miss Clarke and Mr. Gerald Higginbotham, with whom they took tea, Mr. W. E. Rowcliffe, at the request of host and hostess, acting as master of the ceremonies. After tea a good time was spent in inspecting the cars and strolling in the grounds attached to the house.

It would be impossible to imagine an establishment more complete than "Ivyholme," everything, even to the pump, being worked by electricity generated on the spot. The members were intensely interested in examining Mr. Higginbotham's magnificent installation, partially fitted up by his own hand, with fittings manufactured by himself in the



Mr. W. E. Rowcliffe, chairman of the Manchester Automobile Club.



Mr. Hoyle Smith, the hon. sec

elaborately equipped workshop and forge adjoining, and which are also patterns of neatness and completeness, the same skilled hand being clearly manifested in every detail. Here again electric energy was put to practical uses. The arrangements also include two motor houses, with inspection pits, which were turned to good account by those afflicted with various motor ailments.

Shortly afterwards the cars with their passengers were arranged in front of the house and photographed, and this done a start was at once made for the neighbouring village of Gawsworth, about three miles distant, to visit, by special permission of Mr. William Birchenough, J.P., the ancient tilting-ground there. The village is but a small one, consisting of a few straggling cottages, but is remarkable for the extreme beauty of its situation, and the picturesque grouping of its chief buildings—the old hall, the church, and the rectory.

The pleasure of running was slightly marred towards the latter part of the afternoon by somewhat heavy rain. A few members were unable to proceed to Gawsworth, owing to slight breakdowns, in the repair of which, however, they were exceptionally fortunate in having everything in readiness at "Ivyholme."

HOW MR. EDGE WON THE GORDON-BENNETT CUP.

A Combination of Fortuitous Circumstances.

We were unable last week in our report of the congratulatory banquet to Messrs. Edge and Napier to give in full the characteristic speech which Mr. Edge delivered in reply to the toast of his health. Although a week late, we feel sure that that part in which he detailed the various mishaps which occurred to him on his great ride will be read with interest After some remarks upon the importance of the victory, not only for England, but as furnishing a stimulus to the whole world to endeavour to wrest the trophy from England, he said:

"I think in getting the cup here, we were assisted by what one might term a combination of fortuitous circumstances. Many things occurred that ought under reasonable conditions to have put us completely out of the race, or what even might have resulted in there being no race at all. In going to Paris, we came upon a bit of road which looked suitable. We tried it, but where the road ought to have gone straight, it tried to return home again. Mr. Napier had not made a car for this race that would go backwards. We tried to turn it round and break things up, but they would not. I do not know why. (Laughter.) On getting to Paris we had various difficulties with the gentlemen who issued the papers for the race, and the result was that at seven minutes to six on the last day of weighing in, we were still talking to these gentlemen. We got away eventually. They treated us very well—very differently from when I went before to get similar papers. Mr. Johnson and I went off to the Automobile Club. I apologised to him: 'I am sorry we shall have to drive fast through Paris.' The result was that some policemen on bicycles stopped us. Our time was getting short, but they seemed to wish to chat with us. We only had about four minutes. I showed them my watch and various papers, and eventually the passport. A large crowd collected, but the police could make nothing of us, and eventually sent us away, looking upon us as hopeless lunatics. (Laughter.) There was Mr. Johnson sitting with all my papers in his hand. If the police had seen them, they would have been confiscated. We got away eventually on the great race, and everything was peace. Shortly afterwards, for some reason or other, I looked down, and saw that the battery box had lost its strap, and was about to drop off. We only saw it just in time. We went along again with little troubles to the coil; Mr. Austin suffered in the same way. It is very annoying when you have four cylinders to find that you can only work two. Next thing my man, whom I expected to meet at Belfort with new tyres, was not there. I looked up trains, and found it was highly probable he would arrive at half-past two in the morning. I might meet him at the station, and get back just in time to start if the train was punctual. As it happened, the train was punctual, but the people at the station said it was imposible for me to have the case, as it was booked through to Innsbruck. We got the box out of the train, and while my man was engaged in argument with the station officials, I opened the box and got the tyres out. They kept my man and the box, while I went away with the tyres—(laughter)—and all was perfectly peaceful again. (Renewed laughter.) We proceeded through Switzerland without the slightest incident. I found great comfort from the circumstance that the representatives of the Panhard mistook our car for a small Panhard, and fed us with champagne and sponge cakes—(laughter)—and gave us petrol for nothing, and poured water on our tyres. I saw no reason to object, although I really did not understand what they said, and we went along peacefully until we got to Bregenz for the second day. It seemed all up with us next morning, for when we went to the car, we found two of the tyres flat. We did not care to pump them up and chance it, so we took them off and replaced them. The result was that we started late, in the wind, and we had a frightful day. We went along steadily—as steadily as one can go when racing—till the road failed to go straight when it ought to have done, with the result that we flew off the road into a field. When that happened, I did not worry any more about the race. I thought all was over. We got down from the car, and drove off some people who wished to push it up a bank. We found that no damage had been sustained, except that the water tank had had its connections broken. We wired these up as well as we could, and got along happily again. We went over the Arlberg Pass, and had no particular trouble there, though we wore our tyres going down. The next thing we came across was De Knyff's car when we were very near our journey's end. We recognised the car, and we assumed that the race was over. We asked him if he had won the race, and we congratulated him as we passed. He evidently thought we were making fun of him. We went off, knowing nothing of what had actually befallen him until we got to a village near Innsbruck. The first intimation we had was from Mr. Jarrott, who came up on his car, and said, 'You've won the cup; you have only ten kilometres to go!' We then jogged on, and, there again, we ought not to have finished. We improved our pace, and were going rather fast when we came to a curve, and thought we were going to finish up against a wall. Somehow, the wheels struck the bottom of the wall, and the car escaped injury. On the whole, I call the incidents of this race a combination of fortuitous circumstances, any one of which, had it taken a different turn, would have been quite sufficient to put us completely out of the race. At the finish of the Gordon-Bennett course, a great many people said, 'You will make a great mistake to go on to Vienna. Why don't you stop at Innsbruck?' I thought over that question, and it seemed to present itself to me in this way: We have won the Gordon-Bennett cup through other competitors breaking down. Those competitors had cars with very big horse-powers, and their margin of safety was not so big as ours; they suffered the penalty in the same way that we had done the year before, when we had a powerful and fast carriage. In carrying that excessive horse-power, we had to take risks which were not so great with a smaller horse-power. We will go on to Vienna, and show that our vehicle is capable of travelling nearly as far again over rough roads. The roads to Vienna on the last day were really more difficult that any roads we had had during the Gordon-Bennett race. Great importance was given to the Arlberg Pass, but really there was nothing the matter with that, unless one chose to fail to take a corner. That was my reason for going on to Vienna after the Gordon-Bennett race was over. There was an element in the race, however, which I can hardly call luck, due entirely to Mr. Napier. The whole reason for this car existing is one personal to

Mr. Napier, who built it entirely for his own satisfaction after his experiences of the previous year. He said, 'We have only one car running in this race against 150, and our chances are as one to 150. Our only chances are in making a car of an abnormal character. If we make a car for excessive speed, we shall have no chance; if we make a car just like the others we shall have no chance.' He built this car entirely in a novel way with the object of gaining experience; it was built entirely for his own satisfaction, and not as a commercial speculation, and when it was built, he said to me, 'Will you drive it?' I replied that nothing would give me greater pleasure, because I have driven cars of Mr. Napier's for some years, and in starting a race with one of his cars, I have the greatest confidence, if he says, 'There is a car that you can race on,' that he has thought out every point in connection with it, and that I shall be absolutely safe. In that respect I think Mr. Napier must be looked up to in this country. He has dealt with the matter scientifically, and for that reason was able to build a car which, for the first time of asking, managed to win the Gordon-Bennett cup."

A NOTABLE WEDDING.

Photo *R. Banks, Manchester.*

As society papers say, the wedding of the week was unquestionably that of Earl Beauchamp and Lady Lettice Grosvenor, the youngest sister of the Duke of Westminster. The illustration is made from a photograph taken of the arrival of the Duke of Westminster and party at Eccleston Church gates in his motor car. The Duke, it will be remembered, gave away the bride.

For the Ardennes Circuit, the arrangement for the supply of tyres, etc., *en route* has been most carefully studied. At frequent intervals depots will be installed by the Michelin firm, who are thoughtful enough to give the dimensions of the pneumatics to be found. Other firms have followed suit, so there should be no lack of resources in case of a breakdown. Great reserves of alcohol are also being installed by Messrs. A. Mottay and V. Risart, with Carterine, and other special oils. In addition to this, a cart laden with these two necessaries and water will during the race make the tour of the course, and will thus be always at hand. Englebert pneumatics will be awaiting those *en panne* at Bastogne and Habay-la-Neuve. The Baron Pierre de Crawhez will be the first to start, as his was the first entry. He will drive the car (Panhard and Levassor) with which René de Knyff won the Arenberg Cup in the Paris-Vienna race. The Ardennes Circuit is indeed a far more dangerous course than might be imagined, as the last competitor will not have left the starting-point before the first will reach it again, and so on. Baron de Crawhez, however, knows every inch of the route, and, as the indefatigable organiser of the meeting, everyone will wish him success.

A TYRE WRINKLE.

A fruitful source of leakage with motor tyres, but one which is not always suspected, is located at the junction of the valve with the air tube. Where the valve is fixed to the air-tube the latter is reinforced by a rubber patch, and both tube and patch are pinched together by the valve head inside the tube and the washer outside the patch by a hexagon nut. When this has been done at the factory the tubes are tested, and found to be perfectly air-tight; but sometimes, after the tyres have been in use for a time, varying from a week to a month or more, no matter how firmly the hexagon nut may have been tightened up in the first instance, the rubber squeezed between the valve head and the washer becomes set or shrunk, so that the pressure is insufficient to maintain the perfectly air-tight junction of the valve with the tube. The result is that air slightly leaks out between the tube and the valve head. The remedy is, when such is the case, for the hexagon nut to be tightened up again with a spanner. It will usually be found that when once this shrinkage has taken place, and the nut has been tightened up, no further shrinkage will occur, so that there will not be any further leakage of air at this point.

THE NOTTINGHAM AND DISTRICT AUTOMOBILE CLUB.

On July 24th the Nottingham and District Automobile Club participated in a very pleasant outing in response to an invitation by the president of the club, Mr. R. M. Knowles, J.P., to visit the Cresswell Colliery, owned by the Bolsover Co., of which Mr. Knowles is a director.

The members in attendance were (in addition to the president, who drove in his 6 h.p. Serpollet) Mr. G. Cowen (vice-president), 6 h.p. Progress; Mr. R. Harbidge, 6 h.p. Progress; Mr. M. Ross Browne, 8 h.p. Humber; Mr. R. Cripps, Baby Peugeot; Mr. S. Harvey, 4½ h.p. Renault; Mr. B. Winter, 7 h.p. Panhard; and Mr. H. Rimington, 12 h.p. Daimler, members of the committee; Mr. A. R. Atkey, hon. secretary and treasurer, 8 h.p. De Dion; Mr. Joseph Burton, 6 h.p. Serpollet; Mr. C. L. Schwind (Derby), 6 h.p. Daimler; Mr. B. Grainger, 6 h.p. Progress; Mr. H. W. Bartleet, 5 h.p. Clement; Mr. H. Belcher, 12 h.p. Humber; Dr. Houfton (Shirebrook), 6 h.p. Benz; Mr. A. F. Houfton (Mansfield), 8 h.p. De Dion; Mr. C. L. Stevens, 6 h.p. Darracq; Mr. R. R. Latham, 6 h.p. Progress; Mr. A. Watts, Baby Peugeot; Mr. A. Ward, 8 h.p. Humber; and Mr. P. S. Hardy, Baby Peugeot. Most of the members were accompanied by friends, the party totalling about sixty.

The meet was arranged at Mansfield at eleven o'clock, whence the visitors proceeded to the colliery, under the guidance of Mr. A. F. Houfton. Arriving at the colliery, they were received by Mr. Knowles and Mr. J. P. Houfton, J.P., the colliery manager, who together courteously guided the visitors round the different parts of interest. All the arrangements of the colliery are on the most modern principle, and in laying out this wonderful undertaking, the law of gravitation has been utilised to the fullest extent, so that to a visitor much of the work seems to be doing itself. Trucks were to be seen running about the rails, apparently with no motive power whatever, and seemed to know their appointed places as perfectly as the type on a linotype machine. Even the fires fed themselves, and nearly all the mechanical arrangements of the place tended to give the visitors the impression that wood and iron are not at all such insensate things as they have been regarded.

On reaching the surface, luncheon was partaken of in the public hall, Mr. Knowles having very kindly provided an excellent repast, to which full justice was done. Mr. Knowles's health was drunk, upon the proposition of Mr. Atkey, that gentleman remarking how much Mr. Knowles was appreciated in his office of president, and hoping that he would long continue in its occupation.

Mr. Knowles, in answer, gave a very interesting description of the colliery and of the model village, managed entirely by the men, which is built upon the estate.

The club afterwards visited the Dukeries, taking tea at Edwinstowe, and all agreed that it had been one of the most pleasant excursions in the annals of the club.

Answers to Correspondents.

TO CORRESPONDENTS.

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

H., Ltd.
Col. Crompton.
T. F. Woodpier.
P. P. W. and Sons
Joseph A. Graham.
A. D. Jackson.
Dr. Humphriss.
F. G. de Faye.
J. A. G. (Omagh).
O. H. Bayldon.
F. E. Hemsley.
M. Tench.
J. G. West.
J. George.
J. B. (Prieska).
L. C. Scott.
Veitch Wilson
E. H. Arnott.
G. Shrimpton.
D. A. B.
T. J. Wallop.
H. Dewy.
M. E. Ramsay
D. Darroch.
W. Ward.
S. Lomax.
R. M. Hardy.
J. Bruce.
R. H. Cocks.
M. Mills.
W. H. Davies.
W. Martin.
V. F. F. (Streatham).

Our thanks are due to the following for items of news and various topics of interest which have been or will be dealt with: T. S. Bailey, P. H. Altham, W. A. L., and J. Hoyle Smith.

NOTICES.

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BANQUET TO THE WINNERS OF THE GORDON-BENNETT CUP.

Photo *Fradelle and Young.*

On the left of the Chairman, Mr. Roger Wallace, K.C., will be observed Mr. M. S. Napier. On the right of the Chairman is Mr. S. F. Edge, and next to him is M. Girardot (see page 97).