

# THE AUTOCAR

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

EDITED BY H. WALTER STANER.

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## THE AUTOCAR.

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### COLONIAL AND FOREIGN EDITION.

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Messrs. Gordon and Gatch.

### Notes.

#### After the Race.

Now that the Gordon-Bennett race is a thing of the past, and there has been time for quiet consideration of the happenings of the eventful day, it will not be without profit if we make an attempt to indicate some of the lessons of the race. In the first place we may remind those who prophesied

disaster, that the A.C.G.B. and I., with the assistance of that fine body of men, the R.I.C., and a whole host of volunteer workers, made it clear that a road race can be conducted with perfect safety to the general public, and incidentally, it should be remarked, provide a very large number of people (we are not speaking now of automobilists) with an exciting entertainment of a unique character. Without attempting to prophesy, it is fairly evident that the future contests for the Gordon-Bennett cup will be of a different nature from those of the past. The opinion is gaining ground on all hands that limitation of power must be insisted on, though, as last year's winner and others have pointed out, this will not be enough in itself; it will be necessary for a stipulation to be made that the cars shall not come below a certain predetermined weight. To take the reduction of power first. It is obvious that we have arrived at the limit if racing is to be of fullest service in tending towards "the improvement of the breed," as the Gordon-Bennett and all the other great races of this year and the majority of those of last year have been almost as much a question of drivers as of cars. We mean, the man who would take the greatest risks and had fortune favouring him has usually proved the winner.

#### Maximum Speeds Practically Equal.

It was demonstrated last week by the times over the flying mile that there was less than two miles an hour difference between the maximum speeds of the cars of England, France, and Germany on that particular stretch of the Irish course, and eventually the contest became one of tyres and men rather than of machines. It is only necessary to look back for a few weeks to see the element of uncertainty introduced by tyres. Then tyre troubles practically extinguished the chances of some of the makes of machines which performed most conspicuously on July 2nd. In other words, it would seem that tyres which had been reliable a few weeks before were most unreliable last week and *vice versa*. When a number of cars are proceeding at approximately the same speeds over the same courses it might be expected that the behaviour of the tyres would be the same on one occasion as on another, and yet this was not the case, though, of course, it is admitted on all hands that the strain and wear and tear on tyres at racing speeds are so enormous that it is remarkable any should get through a contest of this kind.

#### The Motors Themselves.

To turn to the engines themselves. They were one and all of them monstrosities from the average user's point of view, so much so that it is questionable whether any very useful information could be gleaned from their behaviour when considered from

the tourist's standpoint of reliability. Were the engine dimensions sufficiently restricted, the motors would necessarily approximate nearly enough to those in everyday use for something to be learned from their behaviour, as a race should be an extreme test. When there is so great a reserve of power as at present, it is physically impossible to drive the engine to its limit, as there is so much power in hand that for a large portion of the race it would be certain disaster to extend the engine, and, consequently, the lessons which might be learned from driving to the utmost and getting the last available ounce of power out of the engine all the time are not possible.

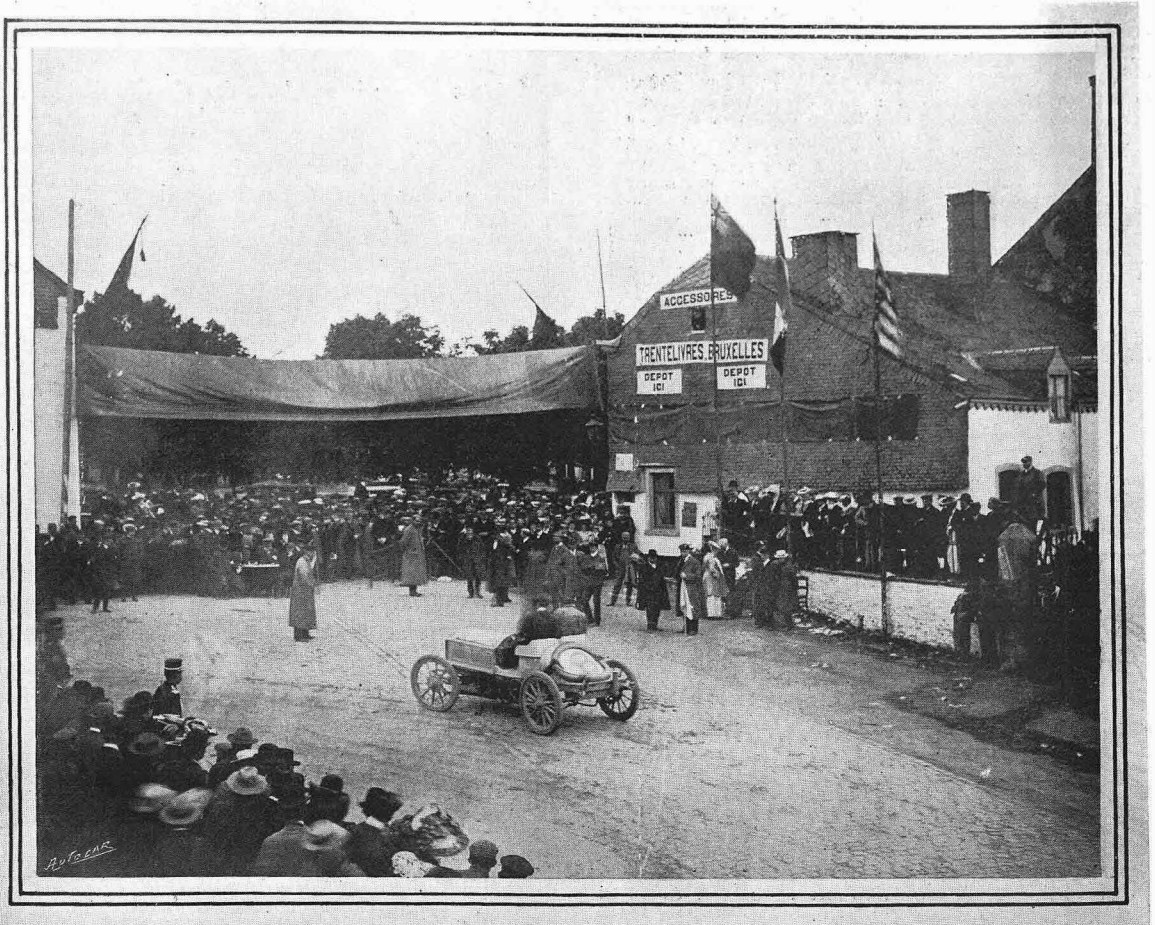
### The Weight Question.

When it comes to the question of weight, it is obvious that the 1,000 kilogs. limit has served its purpose, for we find at least three cars failed in vital parts during the progress of the Gordon-Bennett event. It is true the roads were bad when the high speeds were considered; but it is highly probable that none of these vital failures would have taken place had there been a larger margin left to constructors. It is not practical to dissociate the limitations of power from the weight question, as it will be seen at once that there is a great temptation to the constructor to sacrifice the strength of important

parts of the car to engine power. He cannot get both within the weight limit, and consequently he takes enormous risks in the hope that fortune may favour him, and his car may get through. There are many other points which might be raised, but these foregoing are the most important. From a sporting point of view, a race with lower-powered cars would unquestionably be less exciting. On the other hand, the cars might with safety be started very much closer together, and as the minimum weight would be set and the maximum engine dimensions fixed, it is reasonable to assume that the speeds of the competing cars would be very nearly balanced, particularly as there would be far less strain upon the tyres, owing to the lower velocities; and while tyres would still necessarily play an important part in the race, we should have a contest which would tend in every way to bring out most valuable lessons to constructors.

### What Might be Learned.

At the present time there is no definite agreement as to the best ratio of bore and stroke. This would be settled sooner or later if the sum of the two dimensions was fixed. The designer would be left free to build a long stroke engine or a short stroke engine; he would only be restricted by the stipulation that the bore and the stroke together should



Our illustration is from a photograph which was taken in the Ardennes race, and shows the immense interest taken in the event and also the excellent way in which the course was kept. The car which is shown turning the sharp corner at Bastogne is the 30 h.p. Germain, which made an average of 46½ miles an hour, and won the gold medal presented to the first Belgian-built car. Last year its driver, M. Evence Copee, also won the same medal on a similar make of car.

not exceed a given total. As the total weight of the car would be fixed, we should not only be learning a great deal about engines, but what is at least as important—possibly more important—about transmission, as the efficiency of the different systems would be put to the extreme trial of a hardly-fought race; and while the speeds would be low compared with the abnormal velocities of the moment, the contest would be of greater value. We may be told that these questions could be settled in the testing shop and laboratory, but while much can be learned there, nothing is final except the test of actual use on the road under the hardest conditions. As an instance, it is only necessary to mention the comparative trials instituted by the Admiralty between the Hyacinth and the Minerva. It might as well be insisted that they are unnecessary, and that every lesson could be learned without seagoing tests in which the two systems of boilers are tested to the extreme.

### Reliability Rather than Speed.

We believe, too, that the national genius would be better suited by tests of the kind indicated. Speaking broadly, the British engineer has rarely shown at his best in the designing or construction of monstrosities; but when it has come to efficiency—and that is what the every-day user of motor cars wants—he has ever shown himself in the best light. Dozens of instances might be quoted to prove this; but anyone who has only a moderate knowledge of the engineering world will endorse our statement. However, we need not go beyond the domain of the motor to prove it. In reliability trials the English

cars have, to say the least, shown themselves in every way equal to the very best of the foreigners, and every successive trial of reliability strengthens their position in this vital respect. To no small extent, last year's Gordon-Bennett contest resolved itself into a test of reliability, and consequently an English car won. In races, from one cause or another, it cannot be said that we have shone in an equal degree. It is true that very few English manufacturers have turned their attention to this side of the movement, and it must also be admitted that fortune has not smiled upon their productions; but after making every allowance for these and other incidental handicaps, we are convinced, as we have already said, that the English motor designer and manufacturer is seen at his best when building practical vehicles rather than leviathans which are suited for speed purposes alone. However, be the new rules what they may, England will win the cup again sooner or later, as her automobile manufacturers will not rest till they have again secured the coveted trophy. A defeat acts as a spur to further effort. Up to the present only three English makers have attempted to build racing cars. In France there are at least twenty firms who have this year made racers of one sort or another, and some have been making a speciality of this sort of machine since 1894. If the new racing conditions encourage the development of the normal practical vehicle, we have no doubt that several British makers will take a hand in the design and construction of sporting vehicles. We do not infer that they cannot build monsters, but rather that they do not believe in them.

## USEFUL HINTS AND TIPS.

### On Tyre Repairs (continued from page 5).

#### To Replace the Tyre.

Having effected the necessary repairs to the inner tube, the next point is to replace the tyre. If the holding-down bolts have been entirely removed, they should be put back into position, it being first noted that the nicks in the edges of the outer cover which permit of the valve passing through them are opposite to the hole in the rim. The holding-down bolts being in position, the valve of the inner tube is also placed in position, and the inner tube itself is then put into the cover, care being taken that it is not twisted. If this should be the case, when the tyre is blown up it will result in another rupture in the tube after a few miles running; in fact, even a few yards may do it. Place a liberal quantity of French chalk into the cover, and work it well round the tyre. Inflate the tube slightly, only just sufficiently, however, to expand it and prevent it being nipped. Then commence to replace the cover itself. Starting opposite the valve, the valve body should be lifted well up from the bead of the rim, and the edge of the cover placed into position four or five inches on either side of the valve. Pull the valve down as far as possible, but do not strain it. Then with the tyre lever work in another four or five inches on either side, lifting up from the bed of the rim the holding-down bolts as they are approached. With these bolts and the valve well up, work as much of the beaded edge of the cover into the edge of the rim as is possible,

taking great care that the tube is not nipped between the two edges of the cover. This being done, the rest of the operation is simply a repetition of the former practice—that is, putting in a few inches of the cover first one side and then the other. The last eight or ten inches are the most difficult of all to get in, and, although this is done by means of the lever in the same way as the other portion of the cover, it requires a certain amount of knack, which can only be gained by experience. It also requires a good deal of strength. Supposing the last piece of the cover to be in position and the edge engaged with the rim, the tyre should be taken in both hands and worked backwards and forwards two or three times until the circumference of the wheel has been covered. This admits of the air tube settling itself down in position, and if by any chance it has become nipped between the edges of the covers it will give it an opportunity of freeing itself. The holding-down bolts should be pulled down to the bed of the rim and the nuts screwed on. The tyre can now be inflated up to its full pressure, the bolts and valve nut being tightened up as the internal pressure forces them on to the bed of the rim.

#### The Care of the Tyre.

Many tyre repairs are occasioned through carelessness, or, in some cases, a want of knowledge on the part of the driver. A fruitful source of chafing on the edge of the tyre is the habit of driving close up to a kerbstone. Even if a car runs a short dis-

tance along the edge of the kerb it will chafe the greater part of the diameter of the tyre, especially when such small wheels as those which are very largely fitted at the present time are employed. The sides of the cover have the least quantity of material to resist wear, as it is obvious that if these are made very thick they lose a lot in resiliency. Therefore they are only made sufficiently strong to withstand the pressure to be put upon them. If by accident the sides of the tyres become chafed, it is always as well to have the damage repaired by the makers as soon as possible, as this is a comparatively trifling item in the first place, yet if it is left to go on and more rubbing takes place, the canvas of the tyre will be exposed and subjected to wet, and once the water has thoroughly impregnated the fabric rotting will very quickly take place. A very fruitful cause of damage is allowing oil to remain upon the tyres. We have seen many owners who are very careless in this respect. They allow oil to remain upon the floor of the garage, and drive their car in and out, when it regularly picks up grease. This is generally allowed to remain upon the tyre, with disastrous results. As all kinds of oils, greases, and the majority of acids have a deleterious action upon indiarubber, whenever any of these come into contact with the tyres, they should at once be thoroughly removed. If allowed to remain on the cover, the action of the oil is very slow, but equally sure. It softens the rubber, in the first place, making it into a spongy mass; then, when the air enters through the cracks, it hardens again, and so we get a bad cover, with rubber coming off it in more or less large quantities.

#### Inner Tube Accidents.

One of the most frequent causes of accidents to an inner tube is by nipping either between the edges of the cover or underneath the holding down bolts. It is imperative, therefore, that these points should be very carefully looked to in replacing the tyre. We do not propose to dwell at length on such accidents here, as they were dealt with extensively when describing the method of replacing the tyre. When the wheel is fitted with wire spokes, there is always the danger of protruding spoke heads puncturing the inner tube. If any spoke is found to project through the nipple, it should be filed down level, the filings being carefully cleared away from the rim. The tape is then laid over the rim in much the same manner as that obtaining with a bicycle tyre; but owing to the stiffness of the tyre, there is always more danger of displacing the tape than there is with the lighter tyre fitted to the cycle. With a wooden-spoked wheel the iron rim for the tyre is usually screwed into position, the rim being counter-sunk to admit the head of the screw coming down level, or at any rate slightly beneath the level of the bed of the rim. If by any chance one of these screws has not been put down tightly, there is every possibility of its tearing a large hole in the inner tube. It is advisable, therefore, to make certain that every screw is at least level with the edge of the rim, and that no sharp cutting edge is presented either to the edges of the cover or to the tube which the cover generally protects. Unless care is taken in the manipulation of the tyre lever, this instrument is also liable to damage the inner tube, and this particularly when lifting the outer cover into

place on the rim. The lever is inserted beneath the edge of the cover, and pushed into the rim to obtain a leverage upon it, so as to lift the cover into position. When in this position, unless the inner tube is lifted up so that the end of the lever bears upon the opposite edge of the cover, or upon the bed of the rim, there is every likelihood of its pressing the inner tube on to the base of the rim, so that the whole force of the lift is exerted on to the doubled-up portion of the tube beneath the inner end of the lever and the bed of the rim. When such is the case, it is almost impossible for the tube to escape damage. In order to obviate all possibility of damage by such treatment, instead of inserting the lever to such an extent as to reach the bed of the rim, it is better only to insert it sufficiently to rest just upon the edge of the rim, using that as the fulcrum instead of the base of the rim. With careful handling it will be found that it is just as easy to replace the cover with the lever in this position as in the other.

#### The Wear on Front Tyres.

There are cases where there appears to be unaccountable wear on the front tyres, and this the owner cannot understand. When such does occur it is always well to see if the front wheels are parallel with one another. Although they may have been quite true when the vehicle left the works, it is possible that through straining, caused by one wheel going over a large stone or similar obstacle, the distance rod of the steering gear has been slightly bent, so that a permanent set has been given to the wheels, resulting in a lateral inclination towards one another, the result of which is a certain amount of dragging action all over the tread of both tyres, as one tends to run in the one direction while the other runs in the opposite direction. As an illustration of this, suppose the two wheels were detached from the car and were set at their angle of inclination, and both were set in motion at the same time, they would, after running for some distance, come into collision with one another, as the paths they would follow would form a long armed V. It will be easily seen that each tyre is always dragging in relation to the opposite tyre. An easy method of testing whether the wheels are parallel or not is to make a pencil mark, or ink mark, as near as possible on the centre line of the tread on both tyres. Measure the distance between these two marks, and cut off a piece of string to the exact length between the marks. Then move the vehicle until the marks are directly opposite the previous part of the circle from which the measurement was taken. Again try the string, and it will be found that the distance is either greater or less, thus proving that the wheels require to be set outwards or inwards as the case may be to bring them parallel again.

*(To be continued.)*

Visitors to the forthcoming World's Fair at St. Louis, U.S.A., will be able to view the exhibition by means of electric motor Bath chairs, 2,000 of which will ply for hire at 2s. an hour. The chairs carry two passengers side by side, one of whom operates the machine. The maximum speed is three miles an hour.

## THE ORIENT BUCK BOARD.

By Hugh Dolnar.

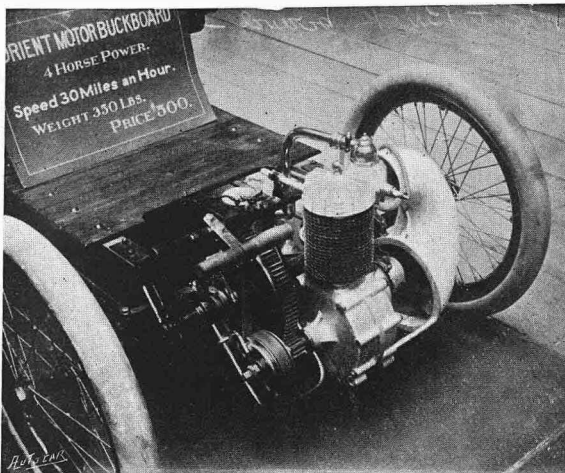
Among the cheerful indications afforded by the first really satisfactory American Automobile Show was the entire absence of anything in the way of an eccentric or equivocal construction.

This absence of irregularities may be accepted as proof complete that the day of widely divergent original creations in automobiles has passed, so far as the United States is concerned.

We undoubtedly have yet two irregular driving combinations on hand, the ratchet drive and the friction disc and traversing pinion, which will be fought out in the usual costly manner, with no regard to the fact that the crank-driven pawl has a constantly varying rate of angular advance, while the traversing friction pinion driving a flat disc has no definite pitch line, and must slip if the pinion revolves. Both the ratchet and the traversing friction pinion give cheap and readily varied speed changes, and that is quite enough to win them favour, for a time, no matter what their faults may be.

We have these two peculiar forms of driving to thresh out, and to cause some loss and delay, but the tricycle was not shown at the Madison Garden exhibition, and there was nothing on four wheels with that absurdly short wheelbase which has been so often seen in low priced American vehicles. There were plenty of vehicles exhibited that would have been vastly improved by a longer wheelbase, and there were also many shown with a wheelbase of 6ft. 8in. or more, and all comments overheard favoured a further increase.

The smallest and cheapest four-wheeler shown was the "Caudee," with tubular steel frame, single-cylinder motor, and a seat for one passenger only.

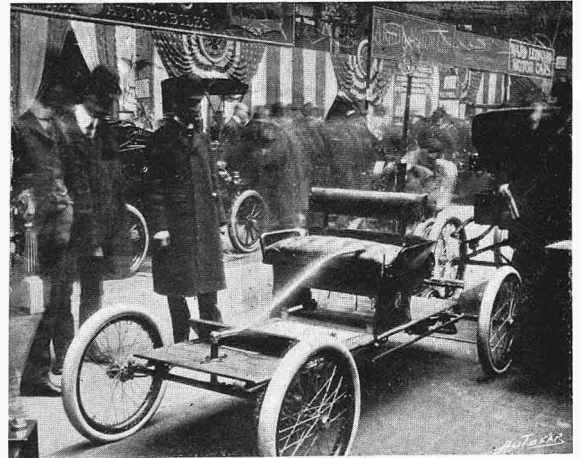


The Orient Buck Board, rear axle, leather strap starting device shown at left front, coiled on spring drum, and leading in front upward to the wooden two-hand starting handle, seen in low position over the rear axle balance gear drum.

Next in size, weight, and price, omitting a toy juvenile electric "runabout," was the "Orient Buck Board," of which illustrations are given herewith, built in the Orient cycle shops at Waltham, Mass., where the motor bicycle has been the subject of extended experiment. We have not taken to the motor bicycle over here to anything like the extent

which many, myself among the number, confidently expected, and very little interest is at present shown in the motor bicycles, but it is growing gradually.

Nor did the Caudee four-wheeler, unfavourably placed in the gallery, excite marked attention, though its price was certainly not great.



Orient Buck Board, a left oblique view, showing the seats for two passengers, weight 350 lbs.

Nothing to carry less than two persons seemed to meet the views of spectators, and though the makers of all the better class of two-passenger vehicles reported most satisfactory orders booked at the end of the show, it really seemed, taking the whole of the seven days through, that the tonneau body was the public's chief admiration and desire, and that those who bought two-passenger vehicles did so because they had fixed a price limit for themselves, not because they ordered what they really preferred.

Nothing whatever at the Garden Show was neglected—far from it; everything there was closely observed by hundreds and thousands of deeply interested investigators, but the large and costly vehicles were the chief centre of attraction.

The Orient Buck Board seems to be an attempt to place something low priced on four wheels, to carry two passengers, and stand between the motor bicycle and the full-fledged automobile. If this is the position aimed at, the price seems too close to the Stanley Brothers' light steam cars, built almost in sight of the Orient factory, and, as is well known, the Stanley cars are of ample dimensions to accommodate two passengers, and have more the appearance of ordinary vehicles than this very low Buck Board.

The Buck Board motor exhibited two features which were new, to me at least. One was the fan created air-cooling blast, very clearly shown in the rear axle illustration. The fan, quite large in diameter, is mounted on the motorshaft in the open lower end of the cornucopia shaped air lead, which diminishes in diameter as it rises and turns over ninety degrees at the top, and delivers the air blast on the corrugated thin copper cooling flanges thickly applied to the cylinder.

The other novel feature is the starting device, also applied directly to the motorshaft, and consisting of a spring drum, clutched one way to the shaft. The spring drum carries a spirally coiled leather strap, leading up to a wooden handle intended to be grasped by both hands of the starter, who stands on the ground at the rear of the waggon, and pulls up on the wooden handle, and so starts the motor, the spring strap drum recoiling the strap when the handle is released. [This device was used on a few quads in England and France a couple of years ago, but never became popular.—Ed.]

The motor is 3in. bore by  $4\frac{1}{4}$  in. stroke, maximum speed 3,000 revolutions per minute, and rated at 4 h.p. at 1,700 revolutions per minute, jump spark ignition, Dow coil, with a battery of four Excelsior cells, said to give 1,000 miles run before requiring renewal. Four gallons of spirit give a hundred miles run, two passengers up, over ordinary roads. The wheels are 26in. diameter, running on Waltham two-point ball bearings,  $\frac{3}{8}$  in. balls, and International single tube tyres of  $2\frac{1}{2}$  in. diameter. The weight of the vehicle is 3 cwts. 14 lbs.

No petrol or gasoline was allowed in the Garden, and I did not see this little motor started or running. It was said to start with certainty, and to be perfectly cooled by the fan and side-delivered air blast. Mr. L. B. Gaylor is the designer of this Buck Board, which has been under construction for about a year, and was shown at the Garden for the first time.

On a fair road, two passengers up, this midget is

said to do thirty miles an hour with ease, and the exhibitor asserted that it was a good strong hill-climber.

The wheelbase is 6ft. 8in., which gives smooth riding, and the two hickory reaches, one on each side, axle to axle, are very elastic, and afford an easy spring. The floor is formed of ash cross sections, 4in. wide and  $\frac{1}{2}$  in. thick, bolted to the reaches.

A foot operated band brake is applied to the differential gear box of the divided rear axle.

The engineshaft carries a single steel pinion, and the reduction from the motor to the rear axle is seven to one, one speed only by the gear, but a large range of speeds can be had by throttling the charge and advancing or retarding the jump spark.

The carburetter regulation and the brake are foot actuated, and the upright hand lever at the left end of the seat operates the flywheel clutch, lever and cone friction type, which connects the motor to the driving pinion.

The batteries, coil, and tools are carried in the box under the seat, and the steering is by a very long lever, far too highly polished to suit the camera.

There is no doubt that this little Buck Board can carry two passengers with some degree of speed and comfort at a very low mile cost, and there seems to be no reason why a four-wheeler of this general type should not be sold at a much lower figure than the price fixed by the Orient. The general opinion seemed to be that the cost was rather high for so small and light a vehicle.



W. Lawrence, Photo.

The view from the Moat of Ardsull, looking towards Athy, on the day of the Gordon-Bennett Race. Baron de Caters ascending the hill. Dublin.

# THE PHOENIX PARK SPEED TRIALS.

**T**HE Dubliner who was unable to journey to the wilds of Kildare to see the Gordon-Bennett race on Thursday, July 2nd, had some very fair examples of speed placed before him in Phoenix Park on the following Saturday. The three motor cycle events which will be found fully reported in the last issue of "The Motor Cycle" and the five classified events for touring cars were disposed of before lunch time, the speed events being reserved for the afternoon.

The fine, broad, uninterrupted stretch of road in the Phoenix Park between Castleknock Gate and the Gough Statue—uninterrupted, at least, but for the Phoenix column, round which the cars had to be steered—was in magnificent condition, although when the turn of the fliers came to perform it was evident that it would have been better for a little more oiling. A strong wooden fence had been erected some twenty feet back from the broad paths which run parallel to the road on each side, and this with the services of a mixed force of the R.I. and Dublin Constabulary served to keep the course absolutely clear from the beginning to the end. The side paths were utilised for the transport of officials and despatches by cars and motor cyclists respectively.

### Classification by Price.

We cannot say we think the classification of the tourist cars by price was a success, at least from a spectacular point of view, while the public would have been able to follow the racing more closely, and consequently with greater interest, had the entries been arranged in heats, and these heats adhered to in the running. There was much to be desired in the drafting of the programme, copies of which were only obtainable on the course, after the racing had commenced, the supply even then being very inadequate. The tourist cars were run in pairs,

and, as Messrs. Hutton, Rolls, and the Baron de Forest showed in their sporting matches, this was quite possible and safe; so might all the racing events have been, to the greater interest of the public. The meeting was attended by an enormous crowd, the course being lined with spectators from end to end during the afternoon.

### The Records.

In the race for *The Daily Mail Cup*, Baron de Forest covered the kilometre in 27 $\frac{1}{8}$ s., but cut  $\frac{3}{4}$ s. off this when travelling for *The Autocar Cup*, doing 26 $\frac{3}{8}$ s., or a speed equal to eighty-four miles per hour. This terrific rate of progress, however, cannot be taken as a world's record, as the Phoenix Park course falls for the major portion of the whole of Saturday's track, the actual kilometre clocked being wholly on the down grade. By reference to the times given on another page, it will be seen that Gabriel on his

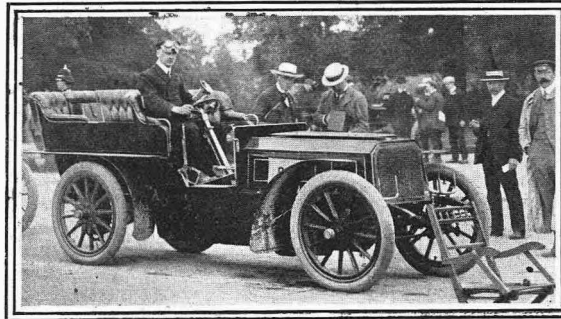


Photo. Argent Archer.  
Mr. Chas. Sangster at the wheel of the new 20 h.p. Ariel.

Mors was only  $\frac{1}{8}$ s. slower than De Forest in the same race, while Rigolly on the 100 h.p. Gobron-Brillié did 27 $\frac{1}{8}$ s., and the Hon. C. S. Rolls achieved 28s. dead. But Mr. Weigel's record made the other day in Lincolnshire was also 28s., and was certified to have been driven over a level stretch of road. But, however that may be, the spectacle of the cars flying over the ground at a speed excelling

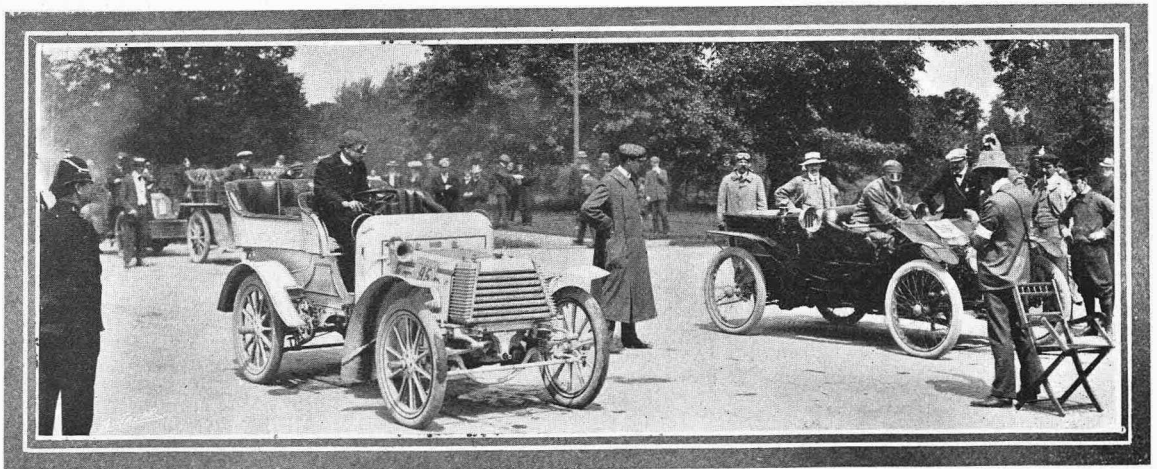


Photo. Argent Archer.  
Mr. E. Manville's 22 h.p. Daimler, the second in Class E of the Phoenix Park trials, about to start in the heat with a 10 h.p. Lanchester, driven by Mr. A. J. W. Millership.

that of the world's fastest express trains roused the Dublin audience to immense enthusiasm, and the daring chauffeurs were cheered to the echo. Edge, who also went for *The Autocar* Cup, was accorded a great reception. The weather was perfect throughout, with a nice fresh wind blowing across the course, which was thus quickly cleared of any dust raised by the flying cars.

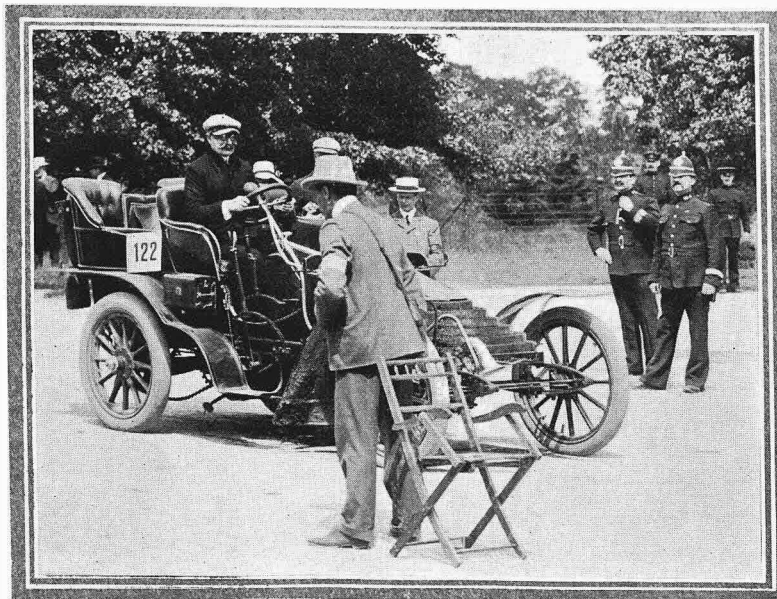
#### The Signalling System.

The course was signalled, cleared, or blocked by volunteer flag-waggers placed at intervals of about two hundred yards from end to end. When the road was open, these signallers displayed their white flags, which they dropped as a car passed, raising the red one in its place. The all right signal came from the winning end by the elevation of the white flags in sequence up the line, as soon as the competing cars were off on to the return roads. No accident of any sort marred the day's proceedings. The chief officials were: Judges and marshals, Messrs. E. H. Cozens-Hardy and M. O'Gorman; honorary electrical timekeeper, Mr. R. E. Phillips; honorary official timekeepers, Mons. Tampier (official timekeeper A.C. of France) at the winning-post, and Messrs. Harry J. Swindley and T. H. Woolfen (honorary official timekeepers A.C.G.B.I.) and T. W. Murphy (I.C.A.) at the start; hon. clerk of the scales, Mr. J. Lyons-Sampson; club sec., Mr. J. W. Orde.

#### Tourist Section.

**Class C.**—Tourist cars costing £300 and under which need not carry more than two people. First prize: Cup presented by the proprietors of *Madame*.

Heat 1.—Mr. Henry Sturmev's 10 h.p. Duryea phaetonette (driver, E. T. Baker), walk over. Time: Standing mile, 1m. 37s.; flying kilom. 50 4-5s.



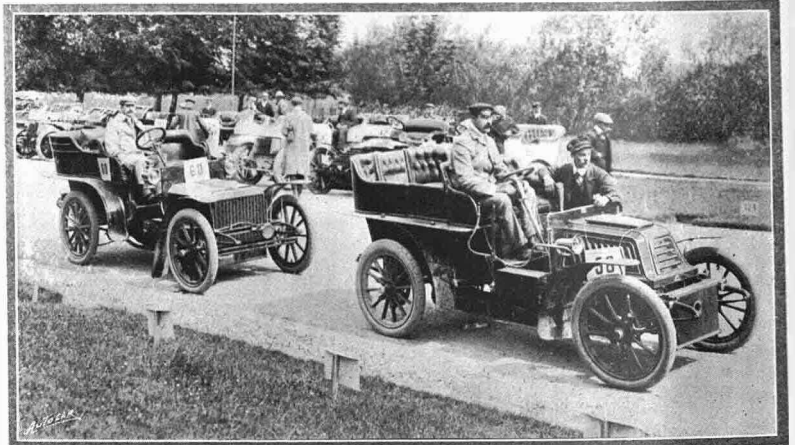
Mr. Douglas B. Hall on the 30 h.p. Wolseley, the winner in Class F in the Phoenix Park Speed Trials.

Heat 2.—Dr. Ed. Lehwe's 10 h.p. Durkopp (owner driving) beat Mr. H. Belcher's 5 h.p. Humber (driver, G. Burnett). Time: Standing mile, 1m. 51 2-5s.; flying kilom., 58 4-5s.

FINAL.—The 10 h.p. Duryea beat the 10 h.p. Durkopp. Time: Standing mile, 1m. 38s.; flying kilom., 52s.

**Class D.**—Tourist cars costing over £300, but not more than £650, to carry four people.

Heat 1.—Mr. Alec Govan's 16 h.p. Arrol (owner driving) beat Sir J. L. Thornycroft's 20 h.p. Thornycroft (driver, J. R. Sharp). Time: Standing mile, 1m. 53 2-5s.; flying kilom., 35 4-5s.



Mr. H. du Cros, jun., on one of the new 12 h.p. Ariels. Immediately in the rear is Mr. T. B. Browne, driving one of the first 18 h.p. James & Browne cars.

Heat 2.—Mr. T. B. Browne's 18 h.p. James and Browne (owner driving) beat Mr. Harvey Ducros, jun.'s 12 h.p. Ariel. Time: Standing mile, 1m. 50s.; flying kilom., 54s.

Heat 3.—Mr. W. Jaco's 10 h.p. Renault (owner driving) beat Mr. E. Lanchester's 10 h.p. Lanchester (owner driving). Time: Standing mile, 1m. 52 3-5s.; flying kilom., 56 3-5s.

Heat 4.—Mr. J. T. Overton's 24 h.p. Georges Richard (owner driving) beat Mr. R. W. Leader's 16 h.p. Century (owner driving). Time: Standing mile, 1m. 30 2-5s.; flying kilom., 43 2-5s.

Heat 5.—Mr. Art. J. Clay's 16 h.p. Decauville (owner driving) beat Mr. Frank Atherley's 12 h.p. Magnet (driver, H. Lee). Time: Standing mile, 2m. 13 3-5s.; flying kilom., 1m. 13 2-5s.

Heat 6.—Mr. J. Lisle's 10 h.p. light Star (owner driving) beat Mr. R. W. Buttemer's 10 h.p. Decauville (owner driving). Time: Standing mile, 1m. 57 1-5s.; flying kilom., 57 4-5s.

Heat 7.—Mr. J. Wilson's 18 h.p. Elswick (driver, R. J. Dickson) beat Mr. Instone's 12 h.p. Belgica (disqualified). No time returned.

Heat 8.—Mr. A. E. Crowdy's 24 h.p. Wolseley (owner driving) beat Mr. H. Austin's 12 h.p. Wolseley (driver, S. Girling). Time: Standing mile, 1m. 54 3-5s.; flying kilom., 59s.

Heat 9.—Mr. Harry Kent's 20 h.p. Wolseley (driver, A. C. Visick) beat Mr. C. Baker's 20 h.p. Dennis (driver, R. Dennis). Time: Standing mile, 1m. 42s.; flying kilom., 52 3-5s.

Heat 10.—Capt. J. R. Smiley's 12 h.p. De Dietrich (driver, H. Norman) beat Capt. A. G. Stevenson's 24 h.p. Darracq (owner driving). Time: 1m. 30 1-5s.; flying kilom., 57 1-5s.

Heat 11.—Capt. Neil Haig's 16 h.p. Boyer (driver, W. L. Adams, with owner). Time: Standing mile, 1m. 55s.; flying kilom., 56s.



Heat 12.—M. A. Rawlinson's 24 h.p. Darracq (owner driving) beat Mr. G. E. B. Pritchett's 12 h.p. Meteor (driver, F. Perry). Time: Standing mile, 1m. 47 1-5s.; flying kilom., 1m. 3 1-5s.

FINAL.—Mr. J. T. Overton's 24 h.p. Richard beat Mr. Alec Govan's 16 h.p. Argyll. Time: Standing mile, 1m. 31s.; flying kilom., 45 4-5s.

**Class E.**—Tourist cars costing over £650, but not more than £1,000, to carry four people.

Heat 1.—Mr. G. Cornwallis West's 20 h.p. Brush (owner driving) beat Mr. Harvey DuCros jun.'s 20 h.p. Ariel. Time: Standing mile, 1m. 41 4-5s.; flying kilom., 1m. 48s.

Heat 2.—Mr. J. W. Cross's 20 h.p. Humber (owner driving) beat the Hon. Jno. Scott Montagu's 22 h.p. light Daimler (owner driving). Time: Standing mile, 1m. 29 3-5s.; flying kilom., 42 1-5s.

Heat 3.—Mr. E. Manville's 22 h.p. Daimler (owner driving) beat Mr. A. W. Millership's 16 h.p. Lanchester (owner driving). Time: Standing mile, 1m. 31 3-5s.; flying kilom., 37 4-5s.

Heat 4.—Mr. E. Pitman's 18 h.p. Peugeot (owner driving) beat Mr. H. Goldschmidt's 15 h.p. Pipe (driver, H.

Heat 3.—Mr. D. B. Hall's 30 h.p. Wolseley beat Mr. H. Barbour's 22 h.p. Daimler (owners driving). Time: Standing mile, 1m. 31 4-5s.; flying kilom., 46 2-5s.

Heat 4.—Mr. R. H. Fuller's 16 h.p. Napier beat Mr. Jas. F. Ochs's 16 h.p. Napier. Time: Standing mile, 1m. 43 1-5s.; flying kilom., 52s.

Heat 5.—The Hon. C. S. Rolls's 20 h.p. Panhard (driver, C. W. Hocking) beat Mr. A. M. T. Fletcher's 18 h.p. Mercedes. Time: Standing mile, 1m. 33 3-5s.; flying kilom., 46 2-5s.

FINAL.—Mr. Douglas B. Hall's 30 h.p. Wolseley (owner driving) beat the Hon. C. S. Roll's 20 h.p. Panhard (driver, C. W. Hocking). Time: Standing mile, 1m. 28 3-5s.; flying kilom., 45s.

**Class G.**—Steam tourist cars costing not more than £800. First prize: Ten guineas cup presented by Mr. Anzi Lorenzo Barber.

Mr. J. W. H. Dew's 6 h.p. Gardner-Serpollet (driver, W. J. Warren) drove over. Time: Standing mile, 2m. 46s.; flying kilom., 50s.

At this juncture was the interval for luncheon, after which came

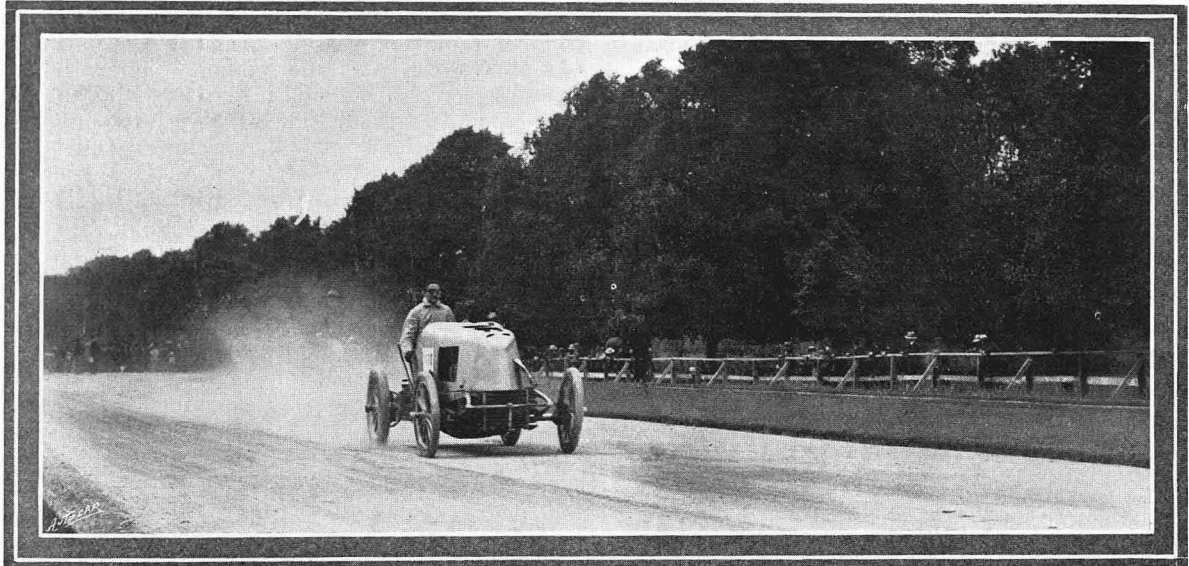


Photo.

Argent Archer.

Baron de Forest with his 70 h.p. Paris-Madrid Mors getting up speed for the flying kilometre which he did in 26½secs., establishing a record, and breaking the previous record for the second time, in the race for "The Autocar" cup.

Pamois). Time: Standing mile, 1m. 38 3-5s.; flying kilom., 46 3-5s.

Heat 5.—Mr. C. C. Maudslay's 25 h.p. Maudslay (owner driving) beat Mr. E. M. C. Instone's 22 h.p. light Daimler (owner driving). Time: Standing mile, 1m. 43 3-5s.; flying kilom., 52 3-5s.

Heat 6.—Mr. G. H. Lanchester's 16 h.p. Lanchester (owner driving) beat Mr. Bucham's Special Design. Time: Standing mile, 1m. 37 1-5s.; flying kilom., 52 1-5s.

Heat 7.—Mr. W. J. Crampton's 16 h.p. Decauville (driver, Moffat Ford) beat Mr. Ed. Kennard's 12 h.p. Napier. Time: Standing mile, 1m. 36s.; flying kilom., 44 3-5s.

Heat 8.—Mr. Geo. Iden's 20 h.p. M.M.C. (owner driving) beat Mr. F. Barbour's 10 h.p. Panhard (owner driving). Time: Standing mile, 1m. 36 3-5s.; flying kilom., 49 4-5s.

FINAL.—Mr. J. W. Cross's 20 h.p. Humber (owner driving) beat Mr. E. Manville's 22 h.p. light Daimler. Time: Standing mile, 1m. 24 3-5s.; flying kilom., 41 3-5s.

**Class F.**—Tourist cars costing over £1,000, to carry four people. First prize: Twenty guineas cup presented by Mr. Jas. Ochs.

Heat 1.—Mr. Jno. Hargreaves's 20 h.p. Napier beat Mr. J. M. Gorham's 20 h.p. Daimler (owners driving). Time: Standing mile, 1m. 34 4-5s.; flying kilom., 49 2-5s.

Heat 2.—Mr. P. Richardson's 22 h.p. Daimler beat Mr. M. Egerton's 10 h.p. Panhard (owners driving). Time: Standing mile, 1m. 46 1-5s.; flying kilom., 48s.

**The Racing Section.**

The cars were sent down the course one by one, and the race awarded to the fastest on the watch. The returns of Mons. Tampier from the end of the course only give the time for the winner, so that we are unable to show any comparison per mile and kilom. with the other two competing cars in Class H.

**Class H.**—Racing cars weighing less than 650 kilograms. (12 cwts. 3 qrs. 5 lbs.) For the Irish Automobile Club's hundred guineas challenge cup and purse of twenty guineas.

Mr. J. Crampton's Decauville light racer (driver, Thery); time of full course, 1m. 53 1-5s. Mr. A. Rawlinson's 30 h.p. Darracq; time of full course, 2m. 10s. Mr. E. Brun's 20 h.p. Prunel made a false start. Mr. H. Hewetson's 60 h.p. Parsifal did not finish.

**Class J.**—Racing cars weighing not more than 1,000 kilograms. (19 cwts. 2 qrs. 20 lbs.) For the Irish Automobile Club's two hundred guineas challenge cup and purse of twenty guineas.

1. Mr. J. E. Hutton's 60 h.p. Mercedes (owner driving). Time: Standing mile, 1m. 1-5s.; flying kilom., 28 2-5s.; full time, 1m. 28 3-5s. 2. Baron de Forest's 70 h.p. Paris-Madrid Mors (owner driving). Time: Standing mile, 1m. 3 1-5s.; flying kilom., 26 2-5s.; full time, 1m. 29 3-5s. 3. the Hon. C. S. Rolls's 80 h.p. Panhard (owner driving).

Time: Standing mile, 1m. 1s.; flying kilom., 28 4-5s.; full time, 1m. 29 4-5s. 4, Mr. E. Campbell Muir's 60 h.p. Mercedes. Time: Standing mile, 1m. 3 3-5s.; flying kilom., 29 3-5s.; full time, 1m. 33 1-5s. 5, Baron Turckheim's 45 h.p. De Dietrich. Time: Standing mile, 1m. 10 1-5s.; flying kilom., 31 2-5s.; full time, 1m. 41 3-5s. 6, Mr. G. Higginbotham's 60 h.p. Mercedes. Time: Standing mile, 1m. 11s.; flying kilom., 32 3-5s.; full time, 1m. 43 3-5s. 7, Mr. H. Austin's 45 h.p. racing Wolseley. Time: Standing mile, 1m. 14 4-5s.; flying kilom., 37s.; full time, 1m. 51 4-5s. 8, Mr. Goldschmidt's 24 h.p. Pipe. Time: Standing mile, 1m. 16 4-5s.; flying kilom., 35 1-5s.; full time, 1m. 52s.; and M. Gobron's 100 h.p. Gobron-Brillié. Time: Standing mile, 1m. 24 1-5s.; flying kilom., 27 4-5s.; full time, 1m. 52s. 9, Mr. C. Cordingley's 40 h.p. Mercedes. Time: Standing mile, 1m. 18 1-5s.; flying kilom., 38 3-5s.; full time, 1m. 56 4-5s.

**Class K.** Scratch race for the *Daily Mail* challenge cup. Presented to the fastest car, weighing under 1,000 kilogs., over the flying kilometre, irrespective of whether the successful car be driven by steam, electricity, petrol, or other motive power, provided it covers the kilometre in under 40s. = 90 kilos., or 55.9 miles an hour.

- 1, Baron de Forest's 70 h.p. Paris-Madrid Mors; time, 27 1-5s.
- 2, the Hon. C. S. Rolls's 80 h.p. Mors; time, 28s.
- 3, M. Gobron's 100 h.p. Gobron-Brillié; time, 28 2-5s.
- 4, Mr. J. E. Hutton's 60 h.p. Mercedes; time, 28 4-5s.
- 5, Mr. E. Campbell Muir's 60 h.p. Mercedes; time, 31 2-5s.
- 6, Baron Turckheim's 45 h.p. De Dietrich; time, 31 2-5s.
- 7, Mr. G. Higginbotham's 60 h.p. Mercedes; time, 32 4-5s.
- 8, Lt. Mansfield Cumming's 50 h.p. Wolseley; time, 33 3-5s.
- 9, Mr. H. Austin's 45 h.p. Wolseley; time, 35 2-5s.
- 10, Mr. C. Cordingley's 40 h.p. Mercedes; time, 39 3-5s.

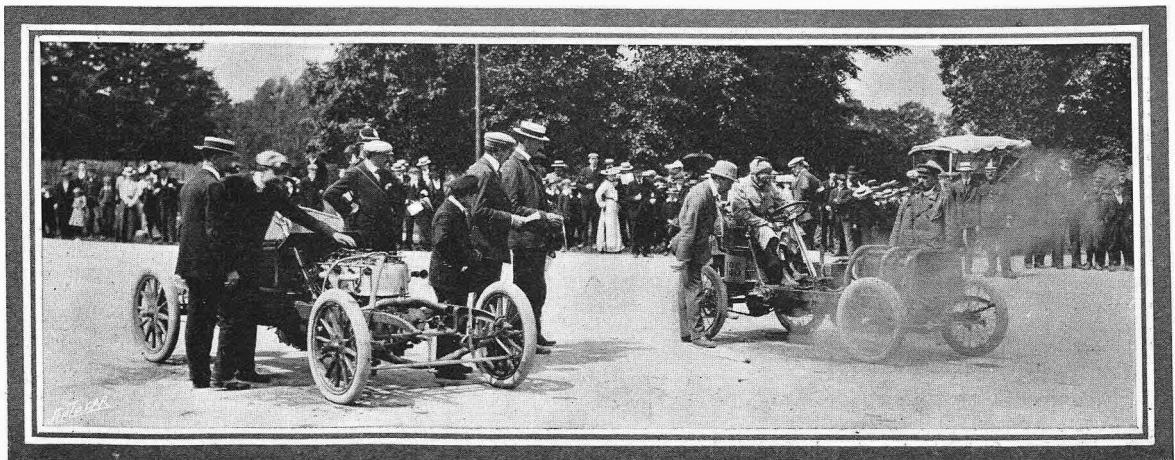
**Class L.**—Scratch race for *The Autocar* challenge cup. For motor vehicles of any power or weight propelled by any form of motive power. Prize: The winner will receive and become the holder of *The Autocar* challenge cup, provided that if there are not three starters, the kilometre is covered in not more than 40s.—fifty-five miles per hour.

- 1, Baron de Forest's 70 h.p. Paris-Madrid Mors; time, 26 3-5s.
- 2, Mons. Gabriel's 80 h.p. Mors; time, 26 4-5s.
- 3, Mons. Gobron's 100 h.p. Gobron-Brillié; time, 27 1-5s.
- 4, the Hon. C. S. Rolls's 80 h.p. Paris-Vienna Mors; time, 28s.
- 5, E. Campbell Muir's 60 h.p. Mercedes; time, 29 1-5s.
- 6, J. E. Hutton's 60 h.p. Mercedes; time, 30s.
- 7, S. F. Edge's 40 h.p. Napier; time, 30 4-5s.
- 8, Baron Turckheim's 45 h.p. De Dietrich; time, 31 3-5s.
- 9, G. Higginbotham's 60 h.p. Mercedes; time, 32 3-5s.
- 10, H.

Austin's 45 h.p. Wolseley; time, 35 4-5s. 11, C. Cordingley's 40 h.p. Mercedes; time, 38 4-5s. Lt. Mansfield Cumming's 50 h.p. Wolseley; time not taken.

The programme was brought to a close by two sporting matches over the full course between Mr. J. E. Hutton on his 60 h.p. Mercedes and the Hon. C. S. Rolls on his 80 h.p. (1902 type) Mors. Hutton got away with the lead, and led, gaining to the Phoenix, round which he came with a blood-curdling jump and swerve, which slowed him to such an extent that, together with the loss of his cap and goggles, although a length and a half to the good upon entering the kilom., Rolls there came by him, and won by thirty yards. Rolls's time for the flying kilom. was 28 4-5s. Hutton v. De Forest.—By jumping his clutch and slamming his speeds in so that the car leapt at each operation, Hutton got a three to four lengths lead from the Baron by the time the mile was covered, and although De Forest drove the kilom. at tremendous speed, and was picking up all along, Hutton was first over the tape in 29 4-5s. for the flying kilom.

The performances of the two new English cars in the tourist class were particularly notable, as both machines made what may practically be called their first public appearance. In Class E the 20 h.p. Humber came out victorious, and in Class F the 30 h.p. Wolseley was the winner. The Duryea three-wheeler also did well in its class, though the competitors in this division were very few. However, even allowing for this the machine equalled the times of many more powerful vehicles in the larger classes. Mr. Govan had very hard luck with his 16 h.p. Argyll in Class D. He won his heat easily, but was not advised of the arrangements with regard to the final, so that he was absent when it was run off, and on his return found that Mr. Warren Smith had driven his car without his sanction or authority. Now it appears Mr. Smith had never been on an Argyll car of this type before, and, consequently, he made no show whatever. This was particularly galling, as the motor won brilliantly in its heat, and it would appear that Mr. Govan was the victim of some serious error, as we understand that beyond receiving a receipt for his entry no particulars of any kind whatever were sent to him; in fact, it was only from the Dublin papers that he found out when the trials commenced. Of course, had programmes been available as they should have been in good time before the trials commenced there would not have been this misunderstanding.



Photo

Argent Archer.

Mr. A. Rawlson (135) on a 30 h.p. Darracq, and M. Barbareaux on a 60 h.p. Parsifal, first and second respectively in Class H in the Phoenix Park speed trials.

## HILL-CLIMBING TRIALS AT CASTLEWELLAN.

Castlewellan presented a busy scene on Tuesday previous to the commencement of the time trials and hill-climbing contest. Several cars journeyed from Dublin, taking in the beauty spots of Mourne district, and making Newcastle headquarters, others staying at Rostrevor in the immediate neighbourhood. The programme consisted of a hill-climbing trial for motor cycles over 1,200 yards of Ballybannon Hill, starting from rest on the flat one hundred yards from the beginning. The car sections ascend the same hill for the Edmunds trophy, under the same conditions. This event was open to any car, irrespective of weight, driven by spirit internal combustion engine, the car carrying two passengers, side by side. The speed trials for motor cycles, from Clough to Castlewellan, for Classes A and B, and the speed trials for cars under Classes

D, E, and G, *The Graphic* trophy, H racing cars, and J under 1,000 kilogrammes, over about four miles, finishing at Castlewellan, were robbed of considerable interest, owing to the management reducing the length and altering the site of the finish. This caused great disappointment to the spectators and considerable inconvenience to the press. Little assistance was to be had from officials, and no times were returned for several items. The change in the finishing point reduced the distance of the speed trials in all classes during the afternoon, from four miles to something about two and a half miles. Much surprise was evidenced when it was also stated that the hill supposed to be 1,200 yards was just about half, being only 600, which, in a measure, would explain the fast times returned. The weather was fine, but the attendance much below expectations.

**Class C.**—For the "Henry Edmunds" trophy. For cars costing not more than £300, and seating two side by side; distance, 1,200 yards.

1. Mr. H. Sturmy's 10 h.p. Duryea. Time, 1m. 2-2-5s.

**Class E.**—For cars costing over £650 and not exceeding £1,000.

1. Mr. E. M. C. Instone's 22 h.p. light Daimler. Time, 55 4-5s.
2. Mr. E. Manville's 22 h.p. light Daimler. Time, 56 1-5s.
3. Hon. J. Scott Montagu's 22 h.p. light Daimler. Time, 63s.

**Class F.**—For cars costing over £1,000.

1. Mr. J. Hargreaves's Napier. Time, 59 2-5s.

**Class H.**—For racing cars weighing less than 650 kilogs. (12 cwt. 3 qrs. 5 lbs.)

1. Mr. A. Rawlinson's 30 h.p. Darracq. Time, 56 2-5s.
2. Mr. E. Brun's 20 h.p. Prunel. Time, 58 1-5s.

**Class J.**—Racing cars weighing not more than 1,000 kilogs.

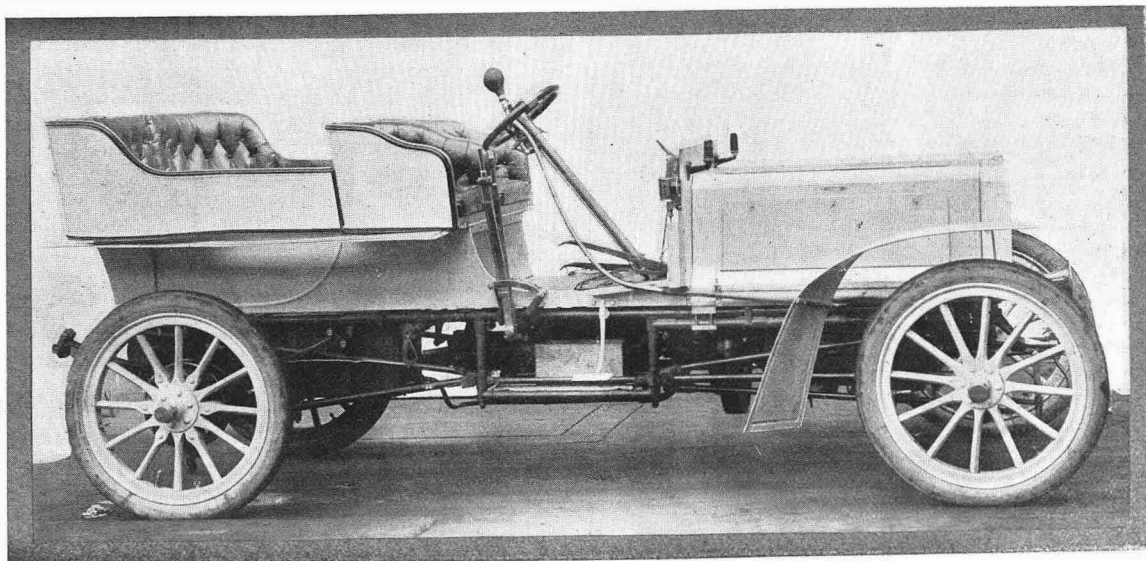
1. Mr. E. Campbell Muir's 60 h.p. Mercedes. Time, 32 2-5s.

2. Hon. C. S. Rolls's 70 h.p. Mors. Time, 33 4-5s.
3. Mr. C. Gray Dinsmore's 60 h.p. Mercedes. Time, 36s.
4. M. Gobron's 100 h.p. Gobron-Brillie. Time, 37 3-5s.
5. Mr. S. F. Edge's 40 h.p. Napier. Time, 37 3-5s.
6. Lieut. Mansfield Cumming's 50 h.p. Wolseley. Time, 39s.
7. Mr. G. Higginbotham's 60 h.p. Mercedes. Time, 46 4-5s.
8. Mr. H. Austin's 45 h.p. Wolseley. Time, 47 2-5s.

**"The Graphic" Trophy.**—Handicap for Classes D, E, and G. Tourist cars of any make, English or foreign, with seats for four passengers, including the driver, and over the value of £300 but under the value of £1,000.

1. Mr. J. W. Cross's 20 h.p. Humber (scratch). Time, 3m. 20s.
2. Hon. J. Scott Montagu's 22 h.p. light Daimler (1½s.) Time, 3m. 33 1-5s.
3. Mr. E. M. C. Instone's 22 h.p. light Daimler (10s.) Time, 3m. 41 2-5s.

There were no competitors from Classes D and G.



The 20 h.p. Humber, the winner in Class E at the Phoenix Park speed trials; also winner from scratch of the "Graphic" Trophy at Castlewellan.

## AN OUTLINE OF THE MOTOR CAR BILL.

On Tuesday evening in the House of Lords, Lord Balfour of Burleigh, the Secretary for Scotland, introduced the new Bill, which, it will be seen, takes the form of an amendment to the Light Locomotives Act of 1896. In the course of his introduction, Lord Balfour of Burleigh made it clear that he only gave the general outlines of the legislation which is proposed by the Bill. That is to say, he did not actually recite the Bill itself. Its main provisions are as follows:

1. Every car to be numbered and to carry a mark indicating the local authority (county or borough council) issuing the number.
2. Present speed limit of twelve miles an hour to be maintained in urban districts.
3. In rural districts the local authorities will apparently be at liberty to set up their own limitations as to speed at corners or dangerous places; but they will be unable to do this in any case without the sanction of the Local Government Board.
4. The maximum weight for a motor lorry unloaded will be increased from three to four tons, while a lorry and trailer unloaded may weigh five tons in future instead of four tons as now.
5. The penalty for a first offence shall not exceed a fine of £20 or three months' imprisonment, for a second offence £50 or six months' imprisonment. Magistrates may send offenders to prison without the option of a fine; but an appeal may be entered against their decision.

### Some Criticisms.

With regard to the first provision, it will certainly be difficult to have the local or district signs made distinctively, though it is probably easier to do this than to permit numbers going straight on from 1 upwards, as the figures would be so numerous that probably more errors would occur than in the case of a local identity sign and a lower number.

The regulations as to speed are certainly not encouraging. The speed limit is apparently removed in the open country; but it is difficult to know what will be regarded as the open country till the urban authorities have made their applications to the Local Government Board for restriction in certain places. This, of course, is on the assumption that the Bill passes in its present state, which is very unlikely. However, the Local Government Board is fortunately the final authority with regard to these local restrictions; but it appears to us it will have a very heavy task in hand, as it will be necessary for its officials to survey practically every corner and area if justice is to be done. It is proposed that in all places where special restrictions are to be made, some signal or sign shall be provided by the local authority. This, of course, is absolutely indispensable; otherwise, it might be impossible to drive anywhere out of one's own district without unintentionally infringing some local regulation.

The increase of the tare weight for motor lorries is a distinct step in advance, though it certainly does not err on the side of generosity; and with reasonable restrictions as to speed it might well be increased at least another ton.

As to the fines and penalties we can only regard

them as ridiculous and out of all proportion to the requirements of the case. They are based on the assumption that every owner of a motor car is a very rich person, and strenuous efforts should be made to modify them very considerably, particularly with regard to small and light vehicles such as voiturettes and motor cycles and moderately speeded cars generally, for, as we have pointed out before, it is not equitable that the man who furiously drives a second-hand motor bicycle of one hundredweight or so, and of less than one horse-power effective, which he has probably bought for less than £20, should be subject to the same pains and penalties as the man who drives a monster car which weighs a ton at least, besides having a very high maximum speed. The owner of the light machine is at the mercy of the other traffic, while the big powerful car is, to a large extent, master of the highway. We do not mean to say it can charge all and sundry with impunity, but its occupants are far less likely to be hurt if they are inconsiderate of other road users than are the persons in a little car or upon a cycle. That is to say, the smaller and lighter the vehicle the more careful the driver must necessarily be for his own sake. The fines should be regulated according to the selling price of the vehicle. It is not generally understood that the reason the present fines have been ignored by certain rich people is simply because the speed limit is ridiculous, and in districts where the police have made themselves obnoxious the rich owners have not attempted to conform to the law, but their attitude would have been vastly different had the speed limit been a reasonable one.

As to the licensing of professional drivers, no exception can be taken to this, except the general one which applies more or less to the whole bill, and that is, the bill, if it becomes law, will press very much more hardly upon those who are not well off than on those who have plenty of money. However, it is not likely to pass in its present form, and as we pointed out at the beginning, the hopes of the automobilist must be to a large extent centred on the enlightened action of the Local Government Board. They have immense powers under the Act, and taking a line through their past action, we do not think that the Board will use them in an unenlightened manner. Numbering or identification of any sort is absolutely unnecessary for the rational automobilist, and we have no doubt that the Local Government Board will do its best to see that the regulations, while stopping the reckless driver, shall interfere as little as possible with the careful considerate automobilist; in fact, if it were not for the prejudice of the authorities in certain districts, we should have very little anxiety in the matter. All who have the least influence with members of Parliament should make a point of discussing the matter with them, and putting the motorist's view to them in a fair light. There is nothing to fear except what may be done by ignorance or prejudice. Little can be effected with the second, but everyone interested should do his best personally to correct the first. Above and beyond all, the Automobile Club should, and doubtless will, use its influence to the utmost to see that justice is done.

## HIGH SPEED MOTOR LAUNCHES.

By Capt. C. C. Longridge, M.Inst. Mech. Eng.

Although critics are prudently waiting the issue of events, and few definite pronouncements on the build and equipment of an international cup lifter has been made, yet hints and suggestions are coming to the fore. On the questions raised in the article, "The Harmsworth International Launch Race," in the issue of the 25th April, Sir John Thornycroft writes: "I think I have before seen the idea of greatly extending the hull lines (Mr. Dartnall's sketch), so that the plan is a vertical wedge, while the vertical sections form roughly a wedge at right angles to the former. I do not know the result of this combination, but it seems to me to involve waste in the fact that the sections in the one dimension are growing, while at the same time, in the other dimension, they are becoming less."

Touching the hull and machinery, Mr. A. F. Yarrow communicates: "Of course, the hull should be made of the lightest possible material. My impression is that where durability is not an object, aluminium would be the most suitable. Certainly it

On the subject of lines, Mr. Linton Hope writes: "The question of whether or not the wave form of body is right or wrong in these launches is apparently an absolutely unknown quantity, just as the questions with regard to rake of midship section, etc. The extreme form, which you illustrate, has been tried several times, and, in some cases, has given good results, but equally good results have also been obtained by a more normal form of hull, so that at present nothing is proved either way."

Having given the remarks which the interest and courtesy of correspondents have prompted, the writer will touch on three additional points on which the forthcoming race should throw light. It is a matter of observation that in high speed vessels, when a certain speed is reached, the excessive growth of motive power for a given increment of speed suddenly begins to grow less, and eventually regains at the higher, the reasonable relation to the increase of speed, obtained at the lower rates of travel. The explanation lies in a certain re-estab-



Fig. 1.—Diagram showing the trim with a load of 3 tons in different positions. Total displacement 33 tons. A short table giving the results of the different displacements is given with the article.

Lines thus ——— show the effect of ballast forward.  
 Lines thus - - - - - show the effect of ballast amidships.  
 Lines thus - - - - - show the effect of ballast aft.

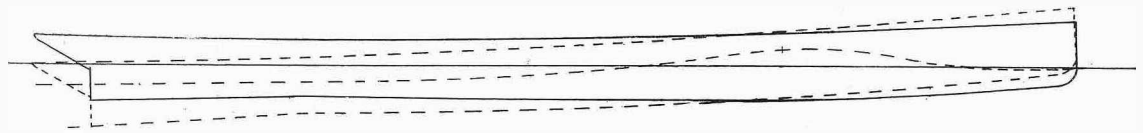


Fig. 2.—Diagram showing the alteration of trim and form of wave in contact with the boat's side. Boat dimensions, 85ft. x 10ft. 10in. Speed, 20 knots.

would be stronger than steel for a given weight, and I do not think any wooden structure would be quite so light. As regards the propeller and machinery, if durability is no object, the boiler can be made exceedingly light. Of course, a water tube boiler would be the thing, and forced draught. I should be disposed to think that triples, not quadruples, would give the power with the least weight. Certainly there ought to be piston valves, not slide valves, which take up a great deal of power. Nickel steel should be used everywhere that is possible." Pointing out a clerical error, Messrs. Denny Bros. state: "Experiments made by Mr. Froude showed that, using a 40ft. paraffin plane, the resistance per square foot was .264 lbs. at six knots, so that you evidently want a decimal before your 25 lbs. The figure we give you, however, is more accurate. Again, as to the difference between copper and smooth varnish, what Mr. Froude found was that any clean smooth surface had practically the same resistance; at any rate, the difference was so small as to be negligible. We have made numerous experiments ourselves in our tank, and these lead us to believe that Mr. Froude's experiments are accurate."

lished harmony of the wave system, which, in turn, is a function of the hull form. In 1881, Prof. Biles pointed out that when the form resistance varies as the sixth power of the speed, increased displacement, by proportionate enlargement of dimensions, does not increase the resistance for the same speed, and that when that resistance varies as a higher power than the sixth increased displacement will actually reduce the resistance. Here we have very curious phenomena that must enter largely into the design of high speed launches. The second point to be noticed is the influence of the weight distribution. In an article on "Fast Torpedo Boats," published in *Cassier's Magazine*, Mr. A. F. Yarrow dealt with this point somewhat as follows:

"With a view to obtain data on the best distribution of weights in these high speed vessels, the author would here refer to some interesting experiments which his firm made with one of them having the ballast placed in different positions, the indicated horse-power being maintained as nearly as possible the same in all cases. In one trial, a weight of three tons was placed near the bow, in another it was placed amidships, and in a third at the stern. There were also other positions, but as the results

obtained with these confirm these now referred to, they need not be further mentioned. These different positions of the ballast gave, in the one case, a draught of 3ft. 4in. forward and 2ft. 4in. aft; in the second case, the draught of 2ft. 10in. was uniform throughout; and in the third, the draught was 2ft. 4in. forward and 3ft. 4in. aft. These variations of trim, it will be seen, are very large for a vessel of only eighty-six feet in length. Fig. 1 should be referred to, showing outlines of the vessel, trimmed respectively as indicated. The practical result of these trials was to show that it mattered little where the ballast was placed. The moral to be drawn from this is that with fine lined vessels of this class a very large variation in the form is permissible without any appreciable difference in result—a fact which was quite contrary to the general opinion held at that time. In connection with these trials (see table), further experiments were made to ascertain the exact form of the water line in contact with the ship's skin when running at a high speed. To illustrate this reference should be made to fig. 2, the full lines showing the vessel at rest and the dotted lines when in motion. The remarkable alteration in trim caused by the speed will be seen, and, although what is termed 'sitting down aft' is very defined, it leads to a somewhat false impression, for though the vessel sinks at the stern and rises at the bow, its relation to the water line actually in contact with the hull is not such as is apparent when viewed from the shore. The vessel is run-

ning as it were up hill on its own wave. This alteration of trim is no doubt due to upward pressure of the water at the forward part of the boat, coupled with the reduction of pressure at the stern, owing to the water which is displaced not following up with sufficient rapidity. The effect on the forward position of the boat as regards alteration of trim is more apparent with vessels having a V-shaped bow than when a U shape is adopted.

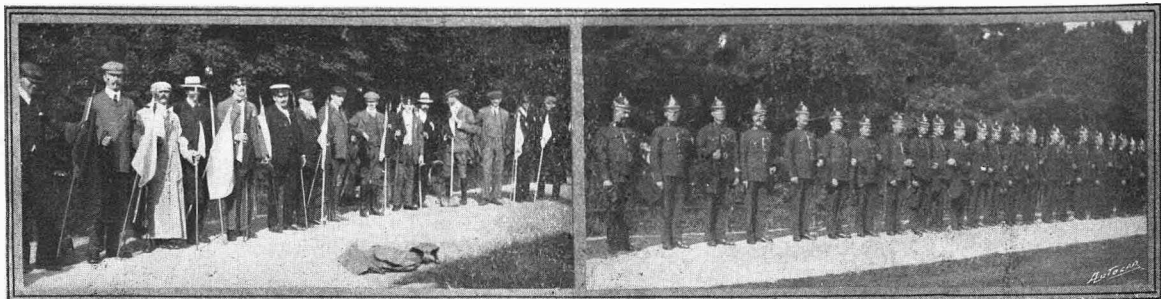
The last point to which the writer will refer is the calculation of the power required for a given speed. A formula in common use is:

$$(\text{Speed in knots})^3 \times (\text{displacement in tons})^{\frac{2}{3}} = C.$$

L.H.P.

Such makers as Messrs. Simpson and Strickland, with their unique experience in high speed launches, might, if they would, tell us the value to attach to the coefficient "C." Possibly it is 110 or thereabouts.

	Ballast forward.	Ballast amidship.	Ballast aft.
Speed ... ..	Knots. 18.640	Knots. 18.365	Knots. 18.408
Draught forward ... ..	Ft. In. 3 4	Ft. In. 2 10	Ft. In. 2 4
Draught aft ... ..	Ft. In. 2 4	Ft. In. 2 10	Ft. In. 3 4
One h.p. ....	417	405	395



A group of volunteer signallers and a posse of Dublin Metropolitan police, who officiated in Phoenix Park.

We are informed that Mr. A. C. Hills has resigned the managing directorship of the Goodyear Tyre Co., and has joined Mr. E. W. Hart as manager of his automobile business. At the same time, Mr. Hills will not entirely sever his connection with the Tyre Co., as he has been asked to retain a seat upon the board. This, incidentally, may serve to remove an erroneous impression which has got abroad to the effect that Mr. Hart, who has always had such a name for dealing in all sorts of cars from the largest racers down to the smallest voiturettes, is about to cease his connection with the automobile business. We are informed that this is very far from being the case, and that he is going to make a very great feature of his mixed car, which was shown at Messrs. Cordingley's last exhibition. It will be remembered that this machine has electrical transmission. In general appearance, it may be described as a smart looking vehicle of the

latest Darracq type, but the connection between the petrol engine and the road wheels is electrically effected, so that practically any gear from zero to the maximum can be obtained in almost imperceptible graduations. We were much interested in this car at the time of the exhibition, and described it briefly in our issue of April 4th. We shall look forward to its further appearance with considerable anticipation, as there is no doubt about the smooth running and flexibility of the gear, the point which remains to be settled being its behaviour in prolonged use, both so far as absence from derangement is concerned and durability, though it is only fair to say we are assured on both heads that Mr. Hart is perfectly satisfied after a lengthy series of trials, and as he has had great experience with electric as well as petrol cars, he should, to say the least of it, know his business. There is no doubt that there are great possibilities in his car.

## CONTINENTAL NOTES AND NEWS.

### THE INTERNATIONAL AUTOMOBILE CONGRESS.

**A**T the time of the first International Congress, held in Paris in 1900, the Technical Committee was instructed to draw up reports upon the various questions which seemed to require further elucidation, and also to make arrangements for the convening of a second gathering when these reports would come up for discussion. During the three years that have elapsed since then so many interesting developments have taken place in the automobile industry that the committee thought it was time to convene the foreign delegates to another meeting. The invitation was readily responded to, there being no fewer than three hundred adherents to the Congress, of whom about fifty were members of foreign clubs.

At the inaugural meeting which took place on the premises of the Automobile Club de France, delegates were present from all the different clubs, including Professor Hele-Shaw, representing the A.C.G.B. and I.; Baron Moliter, A.C. of Germany; Herr Pollak, of Vienna; Colonel du Bocage, Real Automobile Club of Portugal; M. Paolo Meda and M. C. Agrati, Automobile Club of Italy; M. J. Rahusen, of Holland; as well as others from Switzerland, Belgium, and Hungary.

#### The Object of the Congress.

The delegates were welcomed by the President of the A.C.F., Baron Zuylen de Nyevelt, who stated that the club had prepared a series of fêtes in honour of the visitors, but after the sad events of the Paris-Madrid race it was deemed necessary to postpone these festivities. M. Jeantaud, the vice-president of the organising commission, then introduced the work of the congress by alluding to what had been accomplished during the past three years; and he considered that if the industry had done so much it must be attributed in a large measure to the influence of racing, as this is the only fair means of classifying vehicles without suspicion of error and without the personal appreciation of judges. It was the opinion of makers that there could be no better test of speed, endurance, and reliability than the building of thousand kilogramme carriages, and running them at a hundred miles an hour for several hours at a time. Nevertheless racing on the public roads undoubtedly presents great danger, on account mainly of the imprudence of the public. It was estimated that during the late race there were no fewer than two million spectators along the road between Paris and Bordeaux. The other danger was the starting of from two to three hundred cars in the space of a couple of hours. The dust also was a serious factor, and it was evident that with all these drawbacks a speed of more than 100 kilometres an hour was highly dangerous. If they were to continue speed trials, they must be carried out on enclosed tracks, where the public would be kept at a distance. As the result of the Paris-Madrid race, the Government had appointed an "extra-Parliamentary" commission, who could be expected to deal with the matter with great fairness and impartiality. What French automobilists required was the suppression of the speed limit, except in populated centres. It was useless to attempt to bring down the speed of automobiles, because this would be contrary to the spirit of the times, for speed is being accelerated in every class of locomotion—on the railways, on the sea, and in the transmission of messages by telegraph—and it is clear that if the autocar is to fulfil its destiny and become a convenient and valuable means of transport it must be fast.

#### The Programme.

The programme of the congress was divided into five sections, under the general headings of motors, electric vehicles, transmissions and chassis, efforts of traction and equipment of cars, exploitation and working cost. All the different matters under these various heads were dealt with in sixty reports, which had to be read and discussed in five sittings, those in the morning lasting two hours, while the afternoon meetings were extended to four hours. As time was so limited, only a few reports were able to receive anything like fair attention, and the majority of them were briefly summarised, and passed on without discussion, to be included in the printed proceedings. In many cases the points raised were so interesting that the members were inclined to lengthen the debate, and only submitted to the closure when it was evident that if the discussion were prolonged unduly other questions of equal importance would have to be neglected. It soon became clear that if the congresses are to be of any real utility in elucidating debatable problems much more time will have to be devoted to the different sections. It has therefore been decided that in future a whole day will be given up to each section.

#### Steam Generators and Engines.

The first day's meeting was held under the presidency of M. Jeantaud, in the absence of Commandant Krebs. M. Turgan opened the proceedings with a report upon the steam generator and engine, in which he passed in review the different types of boilers employed for automobiles, and also described the Turgan generator, which has been devised to overcome the objections usually raised against the multitubular boiler, especially in the way of providing an easy means of cleaning the fire bars and tubes. The weight of the Turgan water boiler is 17 kilogrammes per h.p. The success of M. Serpillet, he said, had induced a large number of inventors to construct flash generators. Some of them, like M. Le Blant and M. Jenatzy, had abandoned their experiments in this direction, but Messrs. Chaboche, Miesse, and others had obtained excellent results. M. Negre had also devised a flash boiler formed of two concentric tubes separated by a metallic wire wound spirally to constitute a helical channel between them. It is not easy to get reliable data about the efficiency of automobile boilers, owing to the way in which the power varies in actual work. On the level it is possible to get seven kilogrammes of steam per kilogramme of good coal with ordinary draught, but on up-grades with forced draught the production will fall to five kilogrammes, while M. Le Blant found that with the Niclausse boiler, which, nevertheless, is remarkably satisfactory for marine work, the production de-

scended occasionally to 3.4 kilogrammes. The great drawback to the boiler is the necessity of cleaning the fire bars and tubes. In principle, the automobile generator is good, and would give excellent results if only its efficiency could be maintained under all conditions of working. Unfortunately, the efficiency falls considerably when the bars and tubes become fouled, so that in this respect the use of coal is not to be recommended, unless the best quality is obtainable.

#### The Fuel Employed.

The use of coke obviates this inconvenience to a great extent, but it would be entirely overcome if it were possible satisfactorily to employ liquid fuel. For touring carriages, this is indispensable. In France, however, the excise makes little distinction between petrol and paraffin, with the result that there is really no advantage from the point of view of economy in employing the latter oil to raise steam instead of using petrol in an internal combustion engine. Apart from the high cost of paraffin, there is the question of adapting oil burners to the generators. A large number of suitable burners and injectors have been invented, but there are very few types of automobile boilers to which they can be fitted. M. Turgan dealt briefly with engines and valve gears, giving preference to the compound engine, and concluded by impressing upon the congress the necessity of paying more attention to the condenser. The only serious difficulty which stood in the way of a much larger adoption of the steam automobile was the trouble of frequently filling the water tanks. In the case of light pleasure cars, this objection has been entirely overcome by Serpollet, Chaboche, and other makers, whose vehicles are able to run two or three hundred miles without taking in water, but in industrial cars the displacement of air is not sufficient to condense the steam, with the result that a great deal of time is lost in replenishing the water supply. M. Turgan said that he knew of one French maker who was trying to solve the problem by applying the principle of ice-making to the condensation of steam. At his suggestion, the congress instructed the technical committee of the A.C.F. to carry out experiments with condensers, in order to see if a satisfactory way can be found out of the difficulty by condensing steam by chemical or other means, as well as to ascertain exactly what length of condenser is necessary for a given quantity of steam.

#### The Use of Turbines Suggested.

M. Jeantaud said that Colonel Renard had been carrying out experiments with air condensers at the military balloon station at Chalais-Meudon. M. Hospitalier remarked that the steam turbine was being employed for the production of electricity with so much success that he looked to the entire displacement of the piston engine by the turbine in five or six years' time. With the steam turbine they could reduce the weight to two and three kilogrammes per h.p. Perhaps it would be advisable to develop the steam automobile on these lines. M. Forestier: How can we regulate the speed? M. Hospitalier: We can store the energy in a battery and draw upon it as required. M. Turgan pointed out that, unfortunately, Mr. Parsons could not make steam turbines of less weight than the piston engine

below 1,000 h.p., and, indeed, would not undertake to supply them. He thought that they would have to wait a very long time before they could get turbines suitable for automobiles—that is to say, developing 60 h.p. and less. Herr Pollak, of Vienna, said that one of the advantages of the steam turbine was that it was not necessary to lubricate it. There would consequently be no trouble in condensing the steam, as was the case with the piston engine, where the presence of lubricating oil offered a serious difficulty. M. Arnaud believed that the use of the steam turbine in automobiles was not practicable, since, basing his theory upon the experience of the gyroscope, he concluded that any attempt to steer the vehicle out of the plan of the rapidly-revolving turbine would set up such a resistance as to cause the shaft to break. M. Hospitalier remarked that if this were so, it would be easy to overcome the difficulty by placing the axis of the turbine vertically.

#### The Petrol Motor an Explosion Engine.

M. F. Gaillardet presented a long report upon petrol motors, in which he returned to the question raised at the previous congress, as to whether the petrol motor is an explosion or rapid combustion engine—that is to say, whether the combustion results in a discharge of gas under pressure, or whether the heat arising from the combustion of the mixture causes a sudden dilation. In the one case it is merely a question of utilising the expansion; in the other, the shock on the piston only lasts during the time the mixture is burning. If this problem be solved, it is easy enough to design a form of culasse which will give the best results. M. Gaillardet has carried out a number of experiments with different forms of cylinder heads, and finds that the maximum utilisation of energy is obtained by concentrating the charge over the piston as much as possible, from which he concludes that the petrol motor is an explosion engine, and likens the effects of the charge to those produced by an infinity of small springs suddenly loosened, when they exert an effort upon the cylinder walls as well as upon the piston and the end of the culasse. The only part of the force directly utilised is that acting on the piston, assisted by the resistance offered by the culasse. Nevertheless, the shock on the cylinder walls is partly utilised by ricochet against the piston, though the effect is considerably diminished by the elastic character of the medium. Consequently there is every advantage in concentrating the charge as much as possible above the piston.

#### The Position of the Valves.

It is, however, always advisable to place the valves in a small side chamber to protect them from the lubricating oil and also from the heat generated in the mass of the charge. The valves should be of sufficiently large diameter, and the lift should not exceed three millimetres, so that it can be closed before the fresh charge seeks to escape on expanding by contact with the hot cylinder walls. M. Gaillardet gives some interesting details as to the manufacture of valves, cylinders, pistons, and crankshafts, and also goes at some length into the part played by the flywheel, which he says should be regarded as capable of "giving up a certain quantity of energy in a stated time." In other words, the flywheel should be calculated to allow of its over-



coming inertia at starting during, say, a quarter of a second, when the power required to start the car may exceed that developed by the engine. The principle of governing the engine is gone into fully, and then M. Gaillardet deals with the influence of compression, which, of course, ought to be as high as possible, but, owing to the difficulties attendant on these high compressions, there is very little advantage in going beyond five kilogrammes per square centimetre. The author of the paper also gives his reasons for concluding that it is preferable to employ a long piston stroke with high lineal speed.

In the discussion that followed, M. Forestier said that it was very desirable to settle the point whether the petrol motor was a combustion or explosion engine, so that inventors should know in what direction they should carry on their research. Since the introduction of the Diesel engine, some makers were inclined to study the motor as a purely combustion engine. M. Max Richard said that makers differed greatly in their ideas as to long and short piston strokes and slow and fast running; and M.

### Trials of Touring Cars.

The trials of touring cars carried out in France do not err on the side of leniency, and if a vehicle comes successfully out of these ordeals it may be regarded as more than fulfilling all the requirements of the average tourist. It is not often that an owner has any desire to drive his car for three consecutive days over the most difficult mountain roads he can find, rising in some cases to an altitude of 1,400 metres above the level of the sea. And when he undertakes such a tour he does not usually seek to maintain a minimum speed of thirty kilometres an hour. This, however, is what had to be done by the competitors in the trials which were organised a fortnight ago by the Automobile Club du Rhone at Aix-les-Bains. The excursions through the mountains of the Savoie would doubtless have been charming if only the competitors could have had an opportunity of enjoying the delights of its unrivalled scenery. But they saw nothing except the road immediately in front of them. They had to keep going to maintain the minimum speed, driving up the



The Ardennes Circuit. The English station for petrol, oil, etc., shared by the Star and Wolseley cars. Messrs. Austin and Lisle will be noted in the group.

Girardot at full speed leaving Bastogne. Both these snapshots were kindly placed at our disposal by Mr. Luff Smith.

Bocandé remarked that really little was known about the relation between the lineal piston speed and the power of the motor. M. Mors replied that this depended upon the ignition. M. Bollée said that he had made engines of all sizes and all speeds, and they had never agreed. Both he and M. Brillié agreed that the motor torque was constant up to 900 revolutions, and then fell; but M. Max Richard said that in the Renault motor it was constant up to 1,800 revolutions, wherefore he thought that there was an advantage in building high speed engines. M. Brillié was not of this opinion, and said that the maximum motor torque could not be obtained at very high speeds. (M. Forestier: The quality of the mixture has also some influence.) M. Bollée said that he had got different results with different mixtures, except when using mixtures of one and nine and one and sixteen, when the results were identical. He could only explain this on the assumption that one was an explosion and the other a combustion mixture. Moreover, the mixture differs largely with the method of ignition, since they could not use the same mixture with the magneto as with electrical ignition.

(To be continued.)

winding gradients and taking awkward corners with a due regard to the possibility of the motor heating and tyres giving way under the strain of swinging around bends; and on the miles of down-grade it was the turn of the brakes which needed careful attention. The cars have rarely been put to such a severe test, and it is creditable that so many of them should have got so close up to the maximum number of marks. A remarkably fine performance was accomplished by M. Paul Meyan, with his De Dietrich tonneau, which ran all three days without the slightest hitch. He secured the highest number of marks of 2,334, and, consequently, was awarded the first prize in his category, while the Mercedes of M. Willy Poge was second with 2,249 marks. Then came a Gobron-Brillié with 2,179, and two other De Dietrich cars with 2,048 and 1,294 respectively. In the second category, the Swiss Martini car driven by Max obtained the first prize with 2,222 marks, followed by two Rochet-Schneiders; and a Fiat, Mieuisset, De Dietrich, and Peugeot all got more than 2,000 marks. Among the lighter vehicles, the Rochet-Schneider of M. Ollion was first with 2,209 marks, and then came the Peugeot of M. Renaud with 2,080 marks, and the Rochet-Schneider of M.

de Saugny with 2,008 marks. Then followed a Georges-Richard-Brasier, a De Dion-Bouton, a Gladiator, a Gillet-Forest, a Renault, and a Peugeot. Among the voituresses, Peugeot headed the list with 2,080 marks, beating two Prosper Lambert cars and a Cottureau. In such a competition, the steam cars naturally labour under a disadvantage through the necessity of stopping to fill the water tanks, but nevertheless all four Serpollet cars went over the different courses, one of them getting 1,274 marks. Probably in no trials of this kind have the results been so uniformly good, and they prove conclusively the high efficiency of the touring car. With the suppression of racing, the trials of touring cars are becoming a feature of automobile meetings all over the country, and there is no doubt that they will have an excellent result in showing the public what the standard types of vehicles, built for everyday use, are really capable of doing.

### A Tour to Rome.

Following up the series of international races, it has been proposed that the great event in 1904 would have been a race from Paris to Rome; but after the late experience, it may be taken for granted that the series is now definitely closed. The Government has announced that no more racing will be sanctioned on the public highways. Consequently, there is not the slightest chance of the race from Paris to Rome being authorised, and the automobile clubs would, indeed, scarcely venture to suggest such a thing. If, however, racing is out of the question, we are not to be deprived of an automobile demonstration, which may be expected partially to fill the gap caused by the abandonment of the speed contest. M. Paul Meyan, of *La France Automobile*, who has for two years past organised trials of industrial vehicles from Paris to Nice, has decided to carry out a big programme next spring, when a trial of touring cars will take place from Paris to Rome. He has fixed March as the date of the trial, so that the competitors will reach Nice in time to participate in the events of the automobile week, and they will then continue on to the Italian capital. A sum of 20,000 francs has already been guaranteed as prizes, and it is certain that this amount will be considerably increased by donations from the French and Italian clubs, so that the prizes alone should be sufficient to induce a large number of tourists and manufacturers to participate in the trial; while from the point of view of the maker, the tour should be very profitable as a means of developing business.

### Interdictions in Italy.

The Government of Italy seems to be carrying its precautions against speed to an excess. Arrangements had been made to hold a hill-climbing meeting on Mont Cenis, when it could hardly be expected that the vehicles would offer any particular danger to the public; and the length of the mountain road and the steepness of the gradient would certainly not have permitted the cars to be driven at speeds perilous for the drivers and the spectators. Last year the meeting was a great success, and went off without the slightest accident, and it was fully expected that this success would have been eclipsed by the trials last week, when the entries promised to

make it one of the greatest meetings yet held in Italy. At the last moment, however, an order came from the Minister of the Interior to suppress the trial. The interdiction appeared to be so uncalled for that it has caused intense indignation among automobile circles in Italy, and the feeling has not been allayed by another order forbidding the meeting which was to have been held at Udine. From this it appears that the Italian authorities intend to put down speed tests in any shape or form with a firm hand, and this is not calculated to facilitate the development of the automobile movement, which, so far, has been making very satisfactory headway.

The Wolseley total time in the Ardennes Circuit was wrongly given last week. It should have been 8h. 47m., not 11h. odd, as stated. It will be remembered that, but for tyre troubles, the 50 h.p. would have done exceedingly well. As it was, it made the second fastest circuit of the race.

## Correspondence.

*The Editor is not responsible for the opinions of his correspondents.*

### PETROLEUM SPIRIT AND BENZOL.

[3039].—We shall be glad if you will warn your readers against the use of benzol instead of motor spirit in cars. Some firm, whose name we have not ascertained at present, have recently put benzol, which is a coal tar product, on the market as motor spirit in place of the petroleum product. There is considerable confusion in the public mind between the terms benzoline, benzine, and benzol, and we shall be glad if you will reprint the sub-joined note from page 45 of our descriptive manual, as this explains the situation. To put the matter quite clearly, there are two distinct products:

*Petroleum Spirit* (a product of the American oil wells), consisting of members of the  $C_n H_{2n+2}$  series of which  $C_7 H_{16}$  is perhaps the most prominent member, and

*Benzol* (a product of coal tar),  $C_6 H_6$ .

The term "benzoline" is a term applied to a variety of petroleum spirit having a gravity of about .7 to .72, and only differs from petroleum motor spirit by being of rather a higher gravity distillate.

The term "benzine" has generally been used as a commercial name for benzol, but is sometimes used in error for the word "benzoline," hence the confusion.

In brief—use petroleum spirit for motor cars and coal tar spirit for rubber solution.

NOTE.—"Petroleum spirit, one of the grades of which is the well-known 'benzoline,' is quite a distinct product from the substance used principally as a rubber solvent, known as 'benzine.' The latter is the crude form of the substance known chemically as benzol, whose formula is  $C_6 H_6$ , and which is the product of coal tar, and not a petroleum product at all; hence 'benzoline,' or motor spirit, should never be used for mixing with rubber solution. This warning is given, as in many publications purporting to give useful information 'benzoline' is confounded with 'benzine,' and motor spirit is recommended to be employed for purposes to which it is quite unsuited."

THE LANCHESTER ENGINE CO., LTD.

### THE MOTOR PROBLEM.

[3040].—The controversy raging round the "Motor Problem" suggests to me the idea that a short account of Dublin during the week just gone by may interest your readers. Dublin before the invasion of motor cars was a town of wide streets for the most part, with cars all over the shop, and traffic conducted on the lines of do-as-you-please (except in the very crowded portions), large electric trams, and bicycles galore, going fairly fast, and

people crossing the streets in every direction. Into the midst of this came nearly 300 cars of all shapes and sizes, including the big racers, which were familiar sights about the streets, all going at well up to the legal limit and far beyond it, and as a result Dublin has been given up to them, and they have done pretty much as they liked. Now for the results, which from the above description should have been awful, but which on the contrary were nothing of the kind, for so far as I can learn from the papers and private sources, there has not been an accident, either through cars knocking people down, or by frightening the horses and thus causing accidents. We citizens have been congratulating ourselves on this happy result, and doubtless our visitors have found the absence of restrictions very pleasant. I leave my readers to draw the very obvious moral, and beg to remain,

EBLANA.

#### TOLLS ON PENWORTHAM BRIDGE (OVER RIBBLE)

[3041.]—I enclose advertisement of tolls proposed to be levied upon motor cars crossing the above bridge, which is on the main road leading from Liverpool and South-west Lancashire to the North of England. I believe the Act upon which the Commissioners rely is 30 George II., c. 55, a private or local entitled "an Act for rebuilding the bridge over the Ribble." This bridge is much used by motor cars and heavy steam waggons and traction engines, the two latter, no doubt, occasioning damage by reason of their enormous weights, sometimes amounting to as much as 30 tons.

It strikes me as absolutely outrageous that a light motor car should be charged as highly as these heavy vehicles, i.e., one shilling. I have not seen the Act of Parliament under which the Commissioners claim to make this charge, but in the interests of car owners I think it right to bring this matter before them through the medium of your paper, so that enquiry may be made as to the lawfulness of this charge, which the Commissioners claim not only to impose but actually to collect by distress.

R. A. McNAB.

#### A NATIONAL AUTOMOBILE UNION.

[3042.]—I was very pleased to see Mr. Wilkinson's letter in a recent issue of *The Autocar*, for I think it is a pity that the great advantage to be gained by the co-operation of all motorists should be hindered by the high tariff charged for affiliation by the A.C.G.B. and I. A few months ago the Oxford and District Automobile Club was formed, and one of the first things considered by the committee was the question of affiliation, every member being most desirous of uniting with other clubs to help forward the cause of automobilism, but when it was found that the A.C.G.B. and I. required no less than 10s. per head, the idea of affiliation had most regretfully and reluctantly to be given up. In order to include everybody in the district who was interested in motoring, we had to keep the club subscription down to £2 2s., so that affiliation would have meant the disbursement of practically a quarter of our whole income—an obvious impossibility if we intended to make both ends meet. For my own part I cannot understand why the A.C.G.B. and I. do not regulate the affiliation subscription by a percentage of a club's income, say five or, at the most, ten per cent., which should surely be ample for the purpose of bringing all motorists throughout the kingdom under one banner. I have purposely not referred to the other advantages offered by the premier club in return for the 10s. poll tax, for the sole object of our club in desiring affiliation was the joining with other motorists under one banner. I should, however, like to say that personally I quite agree with Mr. Wilkinson that "at present the actual benefits of joining are not very much" for the money, even when a club has sufficient funds to pay the subscription demanded.

CLAUDE RIPPON.

President O. and D.A.C.

#### A PLEA FOR THE LIGHT RACING CAR.

[3043.]—As one who has had considerable practical experience with motors for some years, and has followed with great keenness the evolution of the racing car and the performances of various makes, the fact that makers are still striving to build bigger cars with more powerful

engines fills me with surprise. People are continually saying to me, "Well, what is the use of building these enormous cars when the light and small cars are nearly as fast?" The triumphs of the 30 h.p. Renault in the Paris-Madrid race and the Darracqs in the Circuit des Ardennes justify this statement, and with other performances prove that the 30 or 40 h.p. light cars were nearly as fast, more reliable, and certainly less dangerous. A driver has greater control over a light car than a large one: this is proved by the fact that the fatal accidents which have occurred from time to time, both to tourist and racing cars, have, in the great majority of cases, been confined to cars of the heavy type. The late Paris-Madrid race is a good example of this.

Again, the heavy car costs the maker £2,000 or more to build, whereas the light car costs probably less than half.

It is interesting to note, taking the average pace of all the teams running in the Paris-Madrid race, that although the Mercedes with twelve heavy cars running comes first with an average time to Bordeaux of 7h. 28m. 58s., the Darracq with eight light cars comes a good second, the time being 7h. 44m. 25s. Only one Renault ran to Bordeaux, this car accomplishing the second fastest individual time, and, although of only 30 h.p., was but 15m. slower than Gabriel's 80 h.p. monster, probably the fastest car ever turned out by any firm.

H. H. BOWDEN.

#### A SMART PIECE OF WORK.

[3044.]—I think it might be of interest to the motoring public to hear of what I call a smart and successful piece of work. On 18th May, I decided to build a 30ft. petrol motor launch to compete in the Harmsworth Cup race in Ireland, which is to come off on the 11th inst. I thereupon wired Messrs. Wort and Beadle, of Cowes, to design a boat, and the Motor Manufacturing Co. of Coventry to build an eight-cylinder 50 h.p. motor. The boat was designed and built by the Saunders Patent Launch Syndicate, of Goring and Cowes, finished, and tried by myself over the measured half knot on Thursday, the 2nd inst. She attained a speed of twenty-one and a quarter miles per hour, and I am informed she is the fastest boat for her size in existence.

The design and construction of boat and motor are unique, and of the highest possible workmanship and finish. That she is British made throughout, designed and built in forty-five days, is worth recording.

The fascination of flying through the water in her is so great that I am convinced motor launches will become an extensive pastime with numbers of sportsmen. The possibilities, too, for motor launches as tenders to yachts and other vessels are very large, and I sincerely hope that in this branch of the motor industry England will take and keep the lead.

FRANK E. BEADER.

#### A DISCLAIMER.

[3045.]—On page 21 of your issue of the 4th inst. there is a paragraph alluding to an alleged record made by Mr. D. M. Weigel, in which you state that this was timed by two official timekeepers of the Nottingham Automobile Club. Further, on page 25, this statement is repeated. As this assertion is absolutely without foundation, I should be glad if you would give publicity to this disclaimer on behalf of the Nottingham Club.

As a matter of fact, nothing whatever was known officially to the club that a record breaking attempt was in contemplation. Neither, so far as I am aware, did any individual members know anything about it beyond the two who are mentioned in the article on page 25. Furthermore, the Nottingham Club is distinctly opposed to any such trial of speed taking place upon the highway, and had it been within its power, it would have prohibited any such performance. Our relationships with the authorities have hitherto been of such an agreeable nature that we should consider it the worst possible policy to countenance record breaking attempts upon the public highway. The matter will be fully discussed at the next meeting of my committee, when some further action will probably be taken. In the meantime, I thank you in anticipation for publishing this letter. A. R. ATKEY.

## Flashes.

Despite the plea that he was hurrying to an urgent case, a doctor was fined £2 and costs at Henley for motoring at an excessive speed.

\* \* \*

At Bangor recently the Hon. Horace Plunkett, Minister of Agriculture for Ireland, was fined £5 "for driving a motor car at the rate of between forty and fifty miles an hour!"

\* \* \*

At the latter end of last week, the Metropolitan police thought well to establish a trap in Rock Lane, Barnes, for the purpose of holding up many of the numerous cars that issue from London by this favourite route. They had measured off a length of some two hundred and twenty yards between the entrance to the Ranelagh Club and the Common, and had established themselves behind a tree at the last named point, whence they operated upon approaching cars with a stop watch. The watch was started as the cars appeared to pass the lamp post—the commencement of the measured police distance at the Ranelagh end—and as they passed the tree where the police concealed themselves a signal to an officer stationed at the cross roads beyond sufficed to have the cars held up. It is obvious to all who have the

most elementary knowledge of timing vehicles that a more inaccurate arrangement could hardly have been devised, and in order to test the margin of possible error, we in company with Dr. Musson on a Baby Peugeot car played the police game over the same course early in the morning. We timed the car from the seat, while our medical friend stood in the policeman's shoes, using another watch. Four fast trips were made and one slow one, and assuming that the policeman operated with equal accuracy to Dr. Musson, the error against the car over this short distance was in the first three seconds, in the second five four-fifths seconds, the third two seconds, the fourth three seconds, and in the slow trip when we endeavoured to approach at the legal limit, as nearly as the Baby Peugeot would allow, not less than six seconds. It will thus be seen that with these police arrangements, the cars that approach nearest to conformity with the law stand even a greater chance of being held up than those which are travelling faster. It hardly needed this experiment of ours to prove that police timing of automobiles is a farce, and that when officers in the witness box swear to speed rates by the result of such operations they are in a sense perjuring themselves. If this could only be clearly conveyed to the minds of the police force generally, we feel sure they would undertake such work with the greatest hesitation, for there is nothing a policeman abhors as much as a lie.

The new fire-station at Conway Road, Harringay, is now equipped with a powerful motor fire-engine.

\* \* \*

It is said that the racing car on which Renault came in first at Bordeaux in the Paris-Madrid race has been purchased by an American for £3,000.

\* \* \*

In connection with the contemplated 118 miles automobile track between Montauk and New York, to which we referred recently, it is said that for speed contests it would be an ideal course, as the spectators would be shut off from the road; there would also be no danger of collision through dust obscuring the way, and if control of a machine were lost, the stout hedges would greatly minimise the chance of any serious accident.

\* \* \*

As we mentioned some time since, the Lincolnshire Automobile Club has circularised the provincial clubs suggesting a conference of clubs affiliated to the Automobile Club of Great Britain and Ireland with a view to discussing the terms of affiliation. So far as we can gather, the majority of the replies are favourable, but some of the clubs are perfectly satisfied with the present terms, and do not see the advisability of further discussion. It seems to us, however, that it would be advisable for the conference to be held, as there is no denying the fact that some of the provincial clubs are dissatisfied, and it appears to us that a well attended meeting,

in which the whole subject could be thoroughly discussed, would result in good. We do not regard the movement as being made in opposition to the parent club, rather otherwise; but it seems to us the satisfied clubs would do well to meet those which are not content with the present arrangements, as the meeting would probably result in a generally satisfactory termination. As we have said before, there is no doubt whatever that all the clubs should be working in complete harmony with the parent body, and anything which can be done to bring about this desired end should not be omitted.

\* \* \*

We live and learn. A leaderette in the *Newcastle Daily Chronicle* states that the real objection to the motor car is not so much its speed and the dust it raises, but the horrible smell it leaves behind it. This is quite a novel objection, and one which has not been raised now for a long time. We quite thought people had begun to realise that the faint odour left by a motor was not harmful, and above all not likely to breed disease. Of course, there are people who are so peculiarly constituted that they regard the smell of animal filth as pleasing rather than otherwise, while as to the dissemination of microbes and disease from such a cause they are profoundly ignorant, but these same people are, or we should say pretend to be, dreadfully upset if they get the faintest whiff of smell from a somewhat overlubricated motor.

### "THE AUTOCAR" DIARY.

- July 11.—Cheltenham and Gloucester A.C. Drive to Clevedon.  
 " 11.—Motor Boat Race for the Alfred Harnsworth Cup.  
 " 11.—Yorkshire A.C. Drive to Pool Bridge.  
 " 11-18. Ostend Automobile Week.  
 " 13.—Irish Tour. Start for Tour through the South.  
 " 14.—Irish Tour. Arrival at Killarney.  
 " 15.—Hill-climbing Trial for the County of Kerry Cup.  
 " 15.—Competition of Fuels for Motors (A.C. de France).  
 " 18.—Lincolnshire A.C. Drive to Asgarby Hall.  
 " 19.—Circuit de l'Argonne.  
 " 22.—Cheltenham & Gloucester A.C. Drive to Stratford-on-Avon and Teddington.  
 " 23.—Lincolnshire A.C. Drive to Beachfield, Grimsby.  
 " 24.—A.C. G.B. & I. 100 Miles Quarterly Trial.  
 " 24-25. Southport Speed Trials.  
 " 25.—Winton-Fournier Match, New York.  
 " 25.—Midland A.C. Hill Climb.  
 Aug. 5. Winton-Fournier Match, Cleveland.  
 " 8.—Scottish A.C. (Western Section). Drive to Biggar.  
 " 16.—International Races, Switzerland.

In future the curriculum of Columbia University will include a new course of "traction engineering," dealing with self-propelled road engines, automobiles, etc.

\* \* \*

Unable to catch scorching motorists by ordinary methods, it is said that the New York police are having several express cars built. In the construction of the machines everything is to be sacrificed to speed. Some world's records are expected.

\* \* \*

Some eighteen months since, the Corporation of London bought one of the Thornycroft standard types of municipal combined tipping and watering motor waggons. This vehicle has given such satisfaction to the authorities that they have now ordered a second machine of the same pattern.

\* \* \*

One of the new pattern Stars made for this year is the four-cylinder 10 h.p. This is an extremely comfortable and smooth-running vehicle. The other day we heard of a very good run being made on it, and the purchaser in the South of England made a journey of over three hundred miles, and during the whole time did not have to use the spanner once. Not only so, but only three hills were encountered which the car could not take upon its third speed.

\* \* \*

"Golden Rules for Motorists" is the title of an interesting little booklet which has been issued by Thompson and Co., of Frome. It deals with their West Country cars, but incidentally gives a large number of practical and useful hints, which will be found most acceptable by the automobilist.

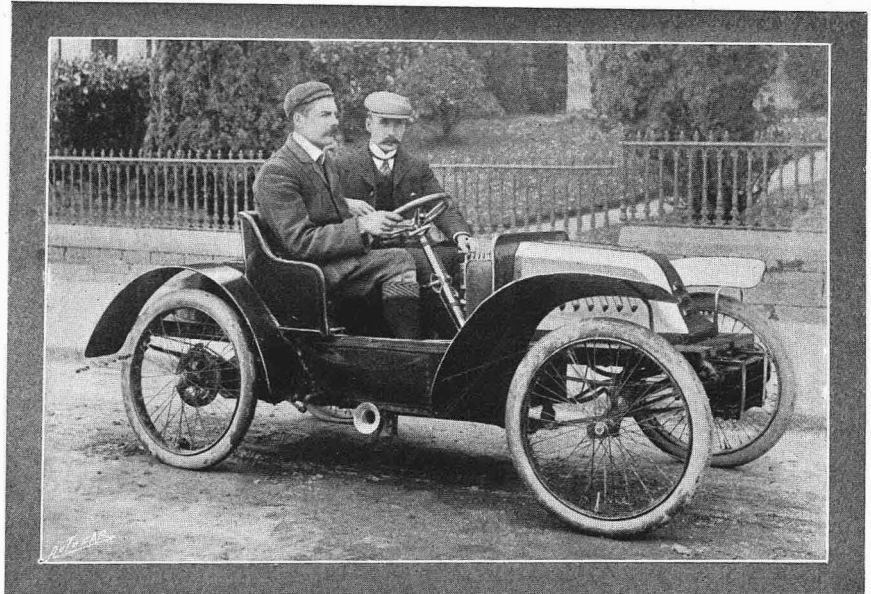
\* \* \*

Apparently the German policeman is no more intelligent in the way he sees the law is carried out with regard to motorists than his English *confrère*. Our contemporary the *Berliner Tagblatt* writes: "An elderly and law-abiding gentleman was driving home in his motor. Passing through a neighbouring town, he found the street perfectly empty, so drove peacefully on without sounding his horn. A fortnight later he was served with a summons for not having given notice of his approach with his horn when crossing a road, as the law demands. His excuse that he could see right down the street was of no avail; he had to pay. A little time later the same gentleman was passing down the same street at the same time in the evening. Mindful of his summons he made good use of his horn at the same crossing. After a fortnight came another summons, this time for disturbing the public peace."

With the formation of automobile clubs at Oxford and Cambridge, it is suggested that we may soon expect to hear of an annual inter-Varsity automobile race as an addition to the present sporting contests.

\* \* \*

The Rowe Cycle and Electric Company, Cowgate, Peterborough, recently established a garage which will accommodate about twenty cars. Repairs are executed by competent motor mechanics, and a good assortment of accessories and spares are kept in stock.



During a stop on the road on one of our week end trips a smart and racy-looking volitette passed us at a nice comfortable speed, but at the moment we had not got our camera fixed, and as we had not previously encountered this type of car we were somewhat disappointed. Later in the day, however, we put in at a hotel for rest and refreshment, and were pleased to find the car stabled in the hotel yard. We sought out the owner, who proved to be Mr. Lord of the firm of J. C. and W. Lord Ltd., 142, Great Charles Street, Birmingham, who are agents for the car. We secured a photograph from which the above illustration was made. It will be at once observed that the bonnet is more or less of a dummy, the only part of the mechanism which it contains being the water tank, the rest of the space being available for luggage, with which it was stowed at the time of our inspection. The engine used is a 4 h.p. Aster, water-cooled, circulation being maintained by a rotary pump, the radiators being placed in front of the car. It is provided with a Bozier two-speed gear, driving direct on to a spur wheel on the live back axle on the top speed similar to the drive on the old type quadricycle. Two scalloped seats are provided, and the footboard is dropped considerably below the level of the tubular frame, yet it is sufficiently high to clear any ordinary obstacle on the road. The sides of the body protect the legs from the wind and make very comfortable seating. As will be seen, the car is very racy in appearance, which is added to by the curved mudguards over the front wheel. The latter are shod with Clipper-Michelin tyres of sufficient strength to carry the vehicle, which, complete, weighs only 5 cwt., and is capable of maintaining an average speed of twenty miles per hour, twenty-five being about its limit on the top speed. The price of this very attractive little car is £130.

Those who look upon tubular steel wheels as a novelty introduced from America a year or so since may be interested to know that quite fifteen years ago we were shown a set of such wheels which were made by Mr. William Hillman for a light horse carriage, which is still in regular use to-day.

\* \* \*

The handbook, "Clipper Continental Motor Tyres: How to Repair Them," which has been issued by the Continental Tyre Co., of 64, Holborn Viaduct, is particularly serviceable. The instructions given are as plain as they could possibly be, and the illustrations are very clear. The book generally is interesting, and even old users of the tyres are likely to find some useful hints. The latest methods of repair, particularly the two descriptions of bands for making good a burst cover, are likely to prove extremely useful.

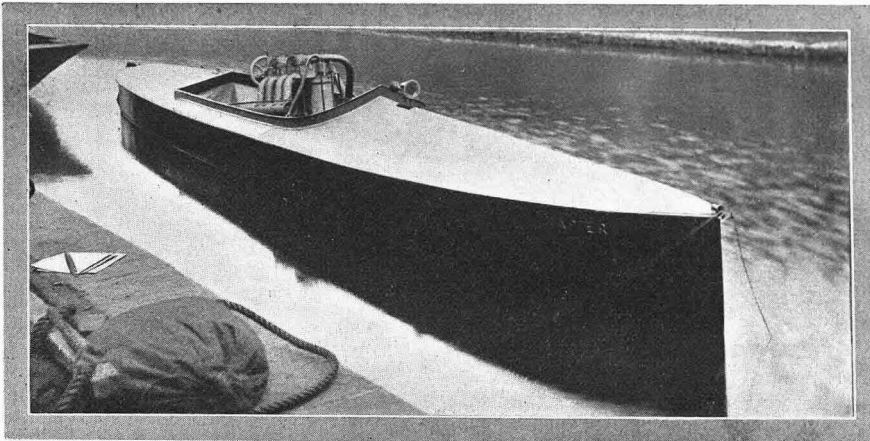
"It sparks as regularly as a love-sick beau" is a line occurring in an American's testimonial for the "Soot Proof" sparking plug.

\* \* \*

Unnatural history. "A lion which had escaped from a show at Pittsfield, Mass., made its way into an automobile garage, and proceeded to devour a pneumatic tyre. The explosion which followed so terrified the animal that he sneaked back to his cage without any further trouble."

\* \* \*

Good work was done by motor cars recently, write our correspondents Messrs. Phillips Ormonde and Co., of Melbourne, when the Victorian railway engine-drivers and stokers at five hours' notice went out on strike. There was absolutely no communication with the country, and but for the intervention of the motor cars no newspapers would have reached the interior. But various vehicles were called into play, and a De Dion 6 h.p. made a record for Australia, when between Bendigo and Melbourne it performed the 101 miles in 5h. 20m. So precious were newspapers that in some places as much as sixpence was paid for a read.



The Napier launch which will compete for the Alfred Harmsworth cup, in Queenstown Harbour, to-day (Saturday). The boat is steel built, and fitted with a four-cylinder Napier engine.

No. 2 of the series of "County Handbooks" edited by Mr. H. Roberts and published by Mr. John Lane is entitled "The Motor Book," and is from the pen of Mr. R. J. Mecredy. Mr. Mecredy is a practised hand at dealing with his subject, and this little volume will be found as complete in detail and as clear in instruction and description as any book which has proceeded from his pen on motors and motoring. The petrol motor with its functions is comprehensively described and illustrated, and the instruction and data on the subject of carburetters, silencers, commutators, radiators, etc., are given with great clearness. The various forms of chain gear and transmission are fully dealt with, and a most valuable chapter is that upon how to drive an automobile. If the owner follows the directions given in this chapter and that following it, which is devoted to the care of the car, he should have very little reason to consult the following section which deals with temporary derangement. The book is carefully indexed, and is a comprehensive and handy well-bound little volume.

The procession from Victoria to York House when President Loubet came to London on Monday had at least one automobile, as Mr. Oliver Stanton, in the uniform of the Motor Volunteer Corps, was to be seen driving his 22 h.p. Daimler, and acting as a sort of rear guard to the imposing pageant.

\* \* \*

The new "Aquatecta" motor coat made by Messrs. Hoare and Son, of Central House, High Holborn, is a garment which will specially recommend itself to automobilists. It is fashioned on the lines of the old original motor coat, which was first worn in the historic 1,000 miles of the A.C.G.B. and I., but is considerably lighter. It is built with the always necessary wind cuffs within the sleeves, but is fitted with a special turndown cuff which is a fine protection to the hands from wind and rain when driving. It also possesses a two buttoned tab sewn to the underside of the collar, which is thereby secured. The skirt of the coat is so skilfully cut that it does not gape over the lower part of the legs when seated, so that a rug, that bugbear of the automobile driver, is really not necessary. At £4 4s. it is a most reasonably-priced garment.

\* \* \*

Lord Onslow has just ordered a 15 h.p. C.G.V. from Ewart Hall and Co., of Long Acre, W.C., the London representatives of Charron, Girardot, et Voigt.

\* \* \*

The number of police traps has been added to this week by the following, amongst others: A measured quarter of a mile on the road to Brockenhurst, commencing two miles from Lymington; 220 yards between the entrance to Ranelagh Club and the Common, Barnes; a measured quarter just outside Burley, past the

Malt Shovel Hotel on the route to Bradford; about one mile from Ashford, Kent, on the Hythe Road.

\* \* \*

Messrs. Horace Marshall and Sons, the well-known wholesale newsagents, are contemplating the establishment of motor in lieu of horse transport in connection with their extensive business, and have consulted us upon the matter.

\* \* \*

We have before now referred to the trial track which completely encircles the immense Clément factory at Levallois. This trial road is now being covered with a glass roof, so that tuning-up can be carried on in all weathers. Mr. C. R. Garrard also tells us that the new Clément factory at St. Quinton's Park, W., has been commenced, and that provision is also being made there for covering the trial road. Some five and a half acres are included in the site, while interesting innovations in power generating, heating, transmission, and lighting have been set out. We are glad to note that the automobile work will all be to metric dimensions and standards.

Police traps abound more or less between Holyhead and Shrewsbury. \* \* \*

At Handcross, on the London-Brighton road (one mile on the London side), the police are also on the look-out for victims. \* \* \*

The Germain cars, which have performed so well in some of the great Continental events, are now to be seen at the Hanover Court, Hanover Street, W., where Captain Masui has opened extensive premises as headquarters for this make, so far as the British, Irish, and Colonial supply of the vehicles is concerned. \* \* \*

We have received from the Roots Oil Motor Car Co., Ltd., of Chichester Street, York Road, S.E., a descriptive pamphlet of their types of autocar which they are now turning out. These cars are now being built for the firm by Messrs. Sir W. G. Armstrong, Whitworth, and Co., Newcastle-on-Tyne. The name of this firm should be a sufficient guarantee of the class of work to be found in the vehicles. The pleasure cars are of two types—a little two or three-seated car with 4 h.p. motor, and a 12 h.p. larger car to carry four. In addition to these there are light lorries fitted with 12 h.p. engines capable of carrying about 25 cwts., and a 12 h.p. covered van carrying from 25 cwts. to 30 cwts. The larger engine is two cylinder vertical, giving between 12 h.p. and 13 h.p. on the brake, and runs at a normal speed of 750 revolutions per minute. This is capable of accelerating to 850 revolutions per minute, or throttling down to 450 revolutions per minute, as occasion requires. Both inlet and exhaust valves are mechanically operated. The chief feature about this engine is that it uses ordinary petroleum paraffin or kerosene as fuel. This item is particularly useful to Colonial users, who either experience great difficulty in obtaining petroleum spirit or have to go motorless because it is not procurable. Magneto and platinum tube ignition are used conjointly for the ignition of the cylinder charge, so that, in the event of the failure of the one ignition, the other can

always be relied upon to get the car home. It is claimed that the engine starts very easily, and, what is of great importance, the vaporiser never requires cleaning. The change-speed gear gives four speeds forward and a reverse, the speed on the top with the accelerator down being about thirty-two miles per hour. The framework of the car is of channel section hydraulically pressed steel, so that it will be seen that its construction is up to date in this respect. With regard to capacity, sufficient oil can be carried to enable the car to run about a hundred miles in England, or rather less in tropical climates. The over-all length of the car is 12ft. and over-all width 5ft. 7in. The weight complete is just under one ton. The general outline of the car has been greatly improved, giving the vehicle a very neat businesslike appearance. \* \* \*

The Army and Navy Stores, we understand, have taken up the West End agency for Baby Peugeot's from Friswells, and will have sample cars on exhibition. \* \* \*

A most curious accident to a car occurred in the busy little town of Renfrew. A car occupied by three Glasgow gentlemen drove down to Renfrew, intending to board the steam ferry which plies across the Clyde. The descent to the ferry boat is fairly steep, and needs to be negotiated with caution. The brake of the car not acting when applied, it ran down rapidly on to the boat, crashed through the heavy gate that protects the traffic from straying into the river, over the outer end of the boat, and fell plump into the deepest part of the channel. Naturally, the accident caused consternation to all who witnessed it. Two of the immersed car occupants could swim, but the third could not, and all were greatly encumbered with heavy clothing. Fortunately, friendly succour was at hand, and all were fished out with boat hooks before, as far as is yet known, much harm was done. After considerable trouble, not to be wondered at under the circumstances, the car was recovered from the river the following day.

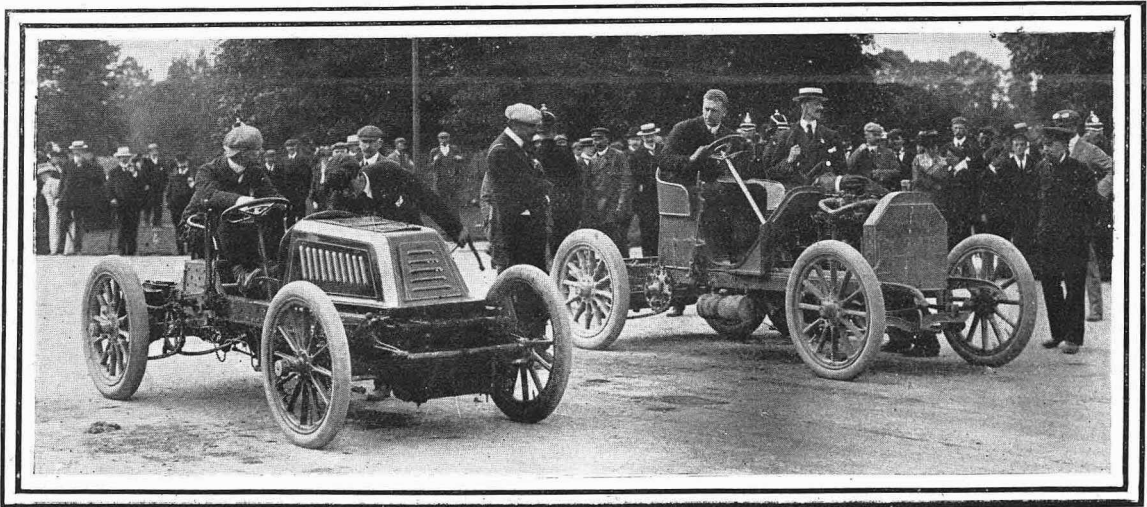


Photo.

Agent Archer.

The Hon. C. S. Rolls (1902 type of 80 h.p. Mors) and Mr. J. E. Hatton (60 h.p. Mercedes) about to start in a sporting match over the flying kilometre in Phoenix Park, which was won by Mr. Rolls in 28½ secs. (see page 70).

# GORDON-BENNETT ECHOES.

## The National Performances.

Although the race was won by Germany, the best national performance was that of France, as all three machines were brought through, and the slowest was not by any means disgraced. As the result stood, it will be seen that all the three French machines finished, while Germany had one, England one, and America none.

## The French Timekeeper.

At the Gordon-Bennett race we came for the first time in contact with Mons. Tampier, the official timekeeper to the Automobile Club of France, and we are bound to characterise that gentleman as the most skilful watch-holder we have ever met outside this country. He has had enormous experience in the timing of automobile events of all descriptions, and is a highly valued and trusted official of his club, who, when a big event is on the tapis, do not slight him after years of honorary work by putting other officials with a tenth of his experience over his head. His system of booking and computing the times of such an event as the Gordon-Bennett or Circuit des Ardennes is unique, simple, and particularly convenient; and we owe him a meed of thanks for having inducted us into it during the course of the great race last week. While the English officials were wallowing in calculations and handling cumbrous figures, Mons. Tampier was able to give almost instanter the moment at which any



Jenatzy overhauling Owen. Approaching the grandstand at Ballyshannon.

competitor might be expected, so long as he was not *en panne* during a circuit. Had Mons. Tampier had the deductions for controls, etc., handed to him after the race on Thursday, the press could have been put into possession of the actual result of the contest, less objections, of course, within a few minutes.

## The Fastest Time for a Mile.

It is to be regretted that Mr. R. E. Phillips's electrical timing apparatus was not ready for work when Edge passed under the grandstand for the first time, as he certainly was at that time travelling very fast, and, apparently, faster than anyone else.



Mr. J. W. Stocks's racer after the accident. The rim of the off front wheel is seen lying against the rear wheel.

In the second circuit, Foxhall-Keene with his Mercedes covered the mile at sixty-six miles per hour, as did De Caters in the third circuit, and Jenatzy in the fourth. The latter was not the only driver to achieve sixty-six per hour at this point. It was his consistent travelling that won him the race.

## The Broken Steering.

On the Sunday morning after the race Mr. Napier showed us a piece of the ball-ended steering arm which takes the one end of the connecting rod, linking up the steering of both wheels. This is broken close to the end of the arm of the steering stem, where it is bolted with four  $\frac{3}{4}$  in. bolts. The ball-headed portion has been separated from the portion to which it is bolted by quite a thirty-second, the two end bolts having been elongated to allow of this. The fracture of the ball-headed portion is flawless, and the section shows the material to be of the best. Mr. Napier, when asked to give his ideas as to the underlying causes of the defeat of the Napier cars, said tyres, and made very much the same references to the comparative times of the first circuit as we have done above. Until the narrowest possible examination is made of Jarrott's car, Mr. Napier holds that no conclusion can possibly be arrived at as to the real cause of the accident. He scouts the idea of the steering having gone wrong.

## Jarrott's Progress.

Everyone will be pleased to hear that Mr. Jarrott is recovering from his accident as rapidly as possible, and that his progress has been in every way satisfactory. He has had so many letters and telegrams expressing regret at his accident in the race that he has found it impossible to reply to each individual sender. He therefore begs us to express his sincere thanks to the many sympathisers, and to assure them that their thoughtfulness has been very fully appreciated by him.





Jenatzy, standing by his machine in the Market Place at Naas during the weighing in operations.

**Laying the Electric Timing Cables.**

A Lanchester car was used by the Automobile Club for laying the electric cables for Mr. Phillips's timing arrangements during the Gordon-Bennett week. The cable drums were mounted on the rear platform of the car, and this method of laying the cables proved to be a great saving of time to the club officials. Three cars of the same make were also placed at the disposal of the club by Messrs. Lanchester and Millership, who acted as road stewards for the Gordon-Bennett race. One of them was the new 16 h.p. vehicle, which may be roughly described as an enlarged *facsimile* of the well-known 10 h.p. This possesses all the charm of smooth and silent running for which the lower-powered machine is famed, with a fine reserve of power, which stands it in good stead when climbing. As to speed on the flat, the 10 h.p. has enough and to spare. The bad roads from Dublin to the course provided an excellent test of the Lanchester system of suspension, and we were delighted with the running of the vehicle.

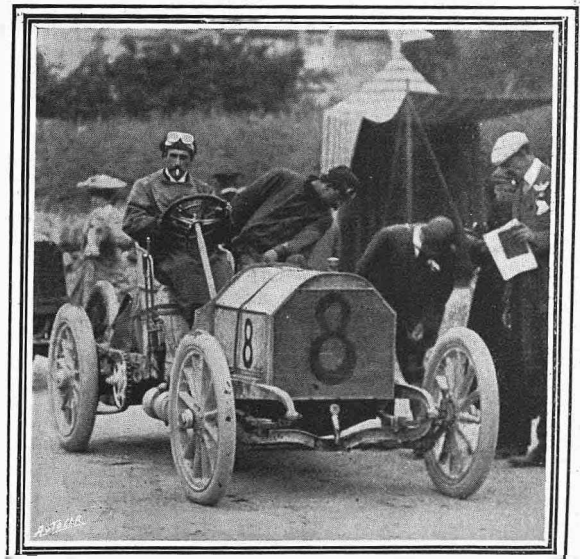
**Jarrott's and Stocks's Accidents.**

So many conflicting stories concerning the accidents which put two of the British representatives out of the Gordon-Bennett have been heard that it may not be uninteresting if we give the facts as we had them from the drivers of the cars.

So far as Stocks was concerned it was thus wise: Near the Athy control, there was a somewhat sharp curve which it had not been deemed sufficiently dangerous to "flag." At the commencement of the curve a by-road departed almost in a straight line. This, as were all other side roads, was fenced off with wire and guarded by police. When De Knyff came round, he dashed into this fence and carried it away, but met with no damage, backed out, and went away. The police then replaced the fence, and secured it more strongly. When Stocks came along, although he knew the corner he misjudged his pace, and perceiving he could not safely take

the curve at the pace he was going, promptly went for the outlet, and charged the wires, concluding that anyway it was better than a level crossing gate. When De Knyff went into it the wires left the posts, but the more secure fastening they after received prevented their doing so in Stocks's case, and they pulled down the posts, which got mixed up in the steering wheel, and sent the car into the ditch and the occupants into the hedge, neither being more than shaken up a bit. Stocks says the police at once commenced to put up the fence again on the argument that it would not be fair to the others not to do so!

Jarrott's mishap was much more serious, and the occupants of the car had one of the most marvellous escapes from death on record. The steering shaft broke when going "all out" on a straight road. The car instantly charged a steep bank at the side of the road, ran up it till it stood on its back wheels, and fell over backwards on the top of the passengers. The steering wheel held the car off Jarrott, though it pressed in his chest bone, and he received a cracked collarbone, and numerous cuts and bruises. He was able to crawl out from under, and then heard screams from his *mécanicien* Bianchi, who, held on to the car by a strap round the arm, had not been flung out as he would otherwise have been, and he had fallen under the car with the red hot exhaust pipe across his stomach just pinning him down. Jarrott says he does not know how he did it, but he held up the car six inches off the ground for some seconds until the police, who at once rushed up, relieved him, and he then with much difficulty crept under the car and cut the strap, enabling Bianchi to be pulled out. He then fainted and knew no more till he opened his eyes and could see nothing, and at first concluded he had been blinded by the accident. He then noticed something white, and putting up his hand found something over his face which he pulled away, and then found he was in a coach house on some straw with a sheet laid over him. Looking round he saw another sheet, and concluded it covered Bianchi,

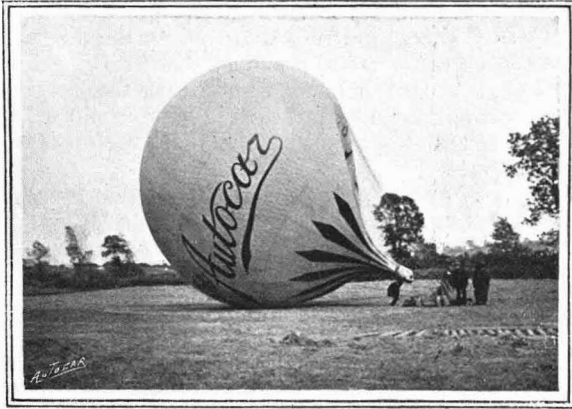


W. Lawrence.

Photo, Dublin.

Baron de Caters in the Athy control.

and feared he was dead, but he was much relieved when, enquiring, "Are you hurt, Bianchi?" a weak voice came from underneath the other sheet. "I don't think so." It was a most marvellous escape for both of them. The car was a perfect wreck.



As we mentioned last week "The Autocar" balloon was terribly buffeted about by the wind at Ballyshannon, and eventually badly torn by one of the gusts which dashed it to the ground. Our illustration shows it when blown down by one of these gusts. It was certainly a bad day for captive balloons, as on the same day Messrs. Spencers lost a balloon entirely in Staffordshire, which burst from its moorings and has not since been heard of.

#### The Railway Rates.

Some explanation is needed of the action of the London and North-Western Railway Co. towards those who were induced by their first-published rates to take their cars over to Ireland for the Irish Fort-night. Returning on the day after the race, Mr. Moffat Ford discovered that the rates for conveying cars from North Wall to Holyhead had been increased by 50s. owner's risk and £3 company's risk. We saw a copy of a letter signed by Mr. Turnbull giving these instructions. The news so greatly incensed car owners in Dublin that when we left the chartering of special boats for reconveyance of cars to England was under serious consideration.

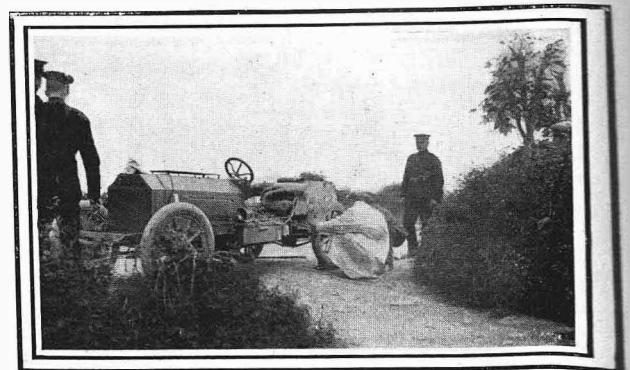
#### Some Details of the Races.

In addition to the particulars which have already been given of the competing machines, it may be interesting to say it is reported that the three Mercedes cars were of 75 h.p. Nominally they were of 60 h.p., and the cars themselves were of the 60 h.p. type, but it is said that the 60's have been fitted with slightly larger cylinders, so that the engines give 75 h.p. instead of 60 h.p. In other respects, the machines were unchanged from the 60 h.p. cars of Messrs. Harmsworth and Higginbotham's, which we illustrated and described in some detail in *The Autocar* of May 16th last. All three of the German machines were fitted with the Simms-Bosch magneto electric ignition. We have already dealt very fully with the American cars (see *The Autocar*, May 9th) and the two 35 h.p. English machines (see *The Autocar*, March 28th). The 45 h.p. Napier, with the exception of the size of the engine, was very similar to the 35 h.p., but the induction valves were either automatic or mechanical at will. They were worked with an overhead tappet or rocker somewhat in the Buchet style. A cellular radiator was fitted, and the tank above, provided with several large air tubes to assist in the cooling effect. We believe the cellular radiator, or some portion

of the water system, leaked badly during the race, and, further, that the fan, which was driven by a belt off the engineshaft, was a source of trouble, as the belt broke. The clutch was of the triple spring outward engaging variety, and the change-speed gear provided three speeds and reverse. The frame was also of the pressed steel variety, and, as we pointed out last week, the engine was considerably further back than usual. There seems no doubt that the English cars were under-tyred. Although, of course, there might be a small reduction in pace due to the use of 120 mm. back tyres, they would have been far less likely to cause trouble in the race than the 90 mm. tyres which were used. Any slight loss in pace would have been far more than compensated for by the avoidance of tyre delays. Both the Panhards had mechanically-operated inlet valves and three speeds, while the Mors had automatic inlet valves. The four cylinders of the Mors are entirely independent, and there was an arrangement for opening the silencer, so that the exhaust could be turned straight into the atmosphere when required. The pneumatic buffers, or dash pots, to save the springs from undue shock, which were fitted last year for the first time, were retained.

#### Jarrott's Account of his Accident.

Nearly all the reports which obtained credence in the English papers about Jarrott's accident, and were heavily headlined, were false. Every bone in the plucky driver's body is whole; he is only suffering from bruises. On Sunday night, crossing St. George's Channel on the good ship *Ulster*, which rolled somewhat, the writer held on by the arm that was reported dislocated on the side of the alleged broken collar-bone, and listened to the tale of the spill from Jarrott's own lips. "It has been said," said Jarrott, "that I failed to take the bend, but this was not the case, as my car ran up on the inside bend of the left bank, which does not strike you as failing to take the bend. In that case, I should have fouled the outer or right-hand bank. At the first indication of something wrong, I thought one of my tyres had gone, but when I found that the car did not respond to the wheel I knew we were in for trouble. Of course," said Jarrott, "the whole thing



Mr. S. F. Edge repairing a tyre.

happened like thought, but as I recall pulling my arms under the wheel to prevent myself being thrown out of the car there was time to think about something. I had had an arm strap fixed to the inside of the dashboard, for my boy to put his arm

through, for I quite recognised that the danger in a smash is the possibility of being hurled off the car. To the fact that he had his arm through this strap loop at the time of the accident he probably owes his life, as I do mine to sticking to the wheel. The car turned right over with us, and I went out on to the road, but got up immediately to look after the boy. He was under the car and was crying out. I found that, although pressed a bit, he was not crushed, and I reassured him as to danger from petrol. No one came near me for a few minutes, but later some fellows scrambled over the hedge, and some R.I.C. men came and helped to lift the car off poor little Bianchi. As soon as I realised that he was not seriously hurt, I fainted, and remember nothing more until I came to myself, lying on some straw with a sheet over me. I cannot tell you what was the cause of the accident; in fact, no one can until the bits have been examined. I and Bianchi

were driven back to Rheban Castle, and if we could stand that we could not be very much hurt." We just suggested for a moment that this experience might put an end to driving, whereupon the jovial Jarrott remarked: "Look here; the chances are that such a thing will never happen to me again, and I am crossing to-night in order to drive in the speed trials at Ostend next Saturday" (to-day). *Apropos* of the size of the tyres used on Edge's car, Jarrott considers that the 90 mm. should have been sufficient, and the choice was made for the best reasons.

**The Viceregal Garden Party.**

The garden party and reception by the Lord-lieutenant in the vice-regal grounds in Phoenix Park was a most successful and delightful function. The grounds were beautifully decorated, and the company was sumptuously entertained with good things and good music.

**NETT TIMES OF CIRCUITS AND TOTAL TIMES (EXCLUDING CONTROLS).**

Lengths of circuits (excluding controls), 1, 3, and 5, 40 miles; 2, 4, 6, and 7, 51½ miles

No. of Car.	Country.	Driver.	Make.	Circuit No. 1.		Circuit No. 2.		Circuit No. 3.		Circuit No. 4.		Circuit No. 5.		Circuit No. 6.		Circuit No. 7.		Total.	Average Miles per Hour.
				H. M. S.	H. M. S.	H. M. S.	H. M. S.	H. M. S.	H. M. S.	H. M. S.	H. M. S.	H. M. S.	H. M. S.	H. M. S.	H. M. S.				
4	Germany	Jenatzy	75 h.p. Mercedes	0 48 58	1 1 19	0 49 45	1 1 52	0 53 16	1 1 32	1 2 18	1 3 30	1 3 50	1 4 30	1 5 28	1 6 5	1 7 11	1 8 48	6 39 0	First ... 49:25
2	France	De Knyff	70 h.p. Panhard	0 49 47	1 2 51	0 50 57	1 8 16	0 51 40	1 3 39	1 3 50	1 4 30	1 5 28	1 6 5	1 7 11	1 8 48	1 9 18	1 10 48	6 50 40	Second ... 47:85
10	France	Farman	70 h.p. Panhard	0 47 31	1 10 27	0 49 35	1 5 55	0 50 31	1 2 17	1 5 28	1 6 5	1 7 11	1 8 48	1 9 18	1 10 48	1 11 33	1 12 28	6 51 44	Third ... 47:72
6	France	Gabriel	80 h.p. Mors	0 53 10	1 0 19	1 2 37	1 4 20	0 51 4	1 13 58	1 6 5	1 7 11	1 8 48	1 9 18	1 10 48	1 11 33	1 12 28	7 11 33	Fourth ... 45:33	
1	England	Edge	45 h.p. Napier	0 46 23	1 7 3	1 27 59	1 24 59	1 14 35	1 55 21	1 22 28	1 31 15	1 40 10	1 49 05	1 57 50	1 66 45	1 75 40	1 84 35	9 18 48	Fifth ... 35:16

Of all those who finished, the above table will show that Edge had the worst, while the winner, Jenatzy, had the best, of luck from start to finish. If the good fortune which smiled upon the Belgian driver of the German car had beamed equally upon our representative, the Gordon-Bennett Cup, on the showing of the speeds achieved in the first circuit of forty miles, would have remained in the keeping of the Automobile Club of Great Britain and Ireland to-day. It will be seen by reference to the figures that for the first forty miles of speed driving Edge gained 1m. 8s. on Farman, 2m. 35s. on Jenatzy, 3m. 24s. on De Knyff, and 6m. 47s. on the Mors. And these gains include a stop of 2m. at least to slow up, stop, and permit Cecil Edge to descend from the car and pick up the top of the radiator filler, which had blown off. So that this would put the circuit at

44m. 23s., which for the full forty miles works out at 54.07 miles per hour.

Then turning to the unfortunate, but yet fortunate, Jarrott, and presuming that his control deductions were about equal to Edge's, though they were in all probability greater, seeing that he started fifth, his running for the first circuit (forty miles) would appear to pan out at 47m. 14s.—a total which places him second to Edge, as it is certain he could not have consumed less time than the latter in the controls. Therefore, having regard to his known skill, dash, and courage, and the speed of his car—which might, by being lighter, have done better than Edge's heavier carriage on the 90 mm. tyres—we say again that the English team had the worst of luck, particularly when Stocks's extraordinary accident is borne in mind.

**DINING THE COMPETITORS.**

A dinner, very hastily arranged, was proffered to the winners and competitors in the Gordon-Bennett race on Saturday evening last at the Shelbourne Hotel, Dublin. The invitations, however, were so tardily extended that many of the foreigners had made arrangements to leave and could not receive them. If the function had been arranged for Friday evening we should not have had the post-Gordon-Bennett dinner of 1903 without Jenatzy. However, we were honoured by the presence of the Chevalier René de Knyff, Messrs. Winton, Mooers, and Owen (the American team), and Edge, Jarrott, and Stocks. The chair was taken by Mr. Roger Wallace, who was supported by Baron de Sierpstorff, Messrs. Grey Dinmore, De Knyff, Mors, Hullier, and Quimones de Leon on his left while on his right were the Marquis de Vogue, Colonel Chamberlain (commanding the R.I.C.), and M. Menard Doreau. The vice-chairs were filled by Mr. Henry Edmunds and Major Lloyd. About a hundred sat down. The usual loyal toasts, which, of course, included that of the "President of the Republic," following "The

King" and "The Services," to which Colonel Chamberlain responded in a felicitous speech, the Hon. Jno. Scott Montagu gave the "Automobile Club of France," coupled with the name of the Chevalier René de Knyff. Mr. Montagu said that we always regarded France as the motherland of motoring, who had taught the world how to organise races. In this country the Chevalier was looked upon as the most skilled racing man of his time, and this skill he had displayed in countless races as well as in that of Thursday last. The health was drunk with acclamation and musical honours.

**The Organisation of the Race.**

The Chevalier returned thanks in French, both on his own account and that of the Marquis de Vogue. He regretted the absence of the Baron de Zuylen, who had been obliged to return to the Continent. Although they had failed to win the cup, yet they were proud to have won and to take back with them to France the trophy presented by the Hon. Jno. Scott Montagu, M.P., for the best team

in the race. He desired specially to compliment the British club upon the organisation of the race, and particularly upon the perfect manner in which the course was kept, and for which they had to thank that magnificent body of men, the Royal Irish Constabulary. The Chevalier resumed his seat amidst rounds of cheers.

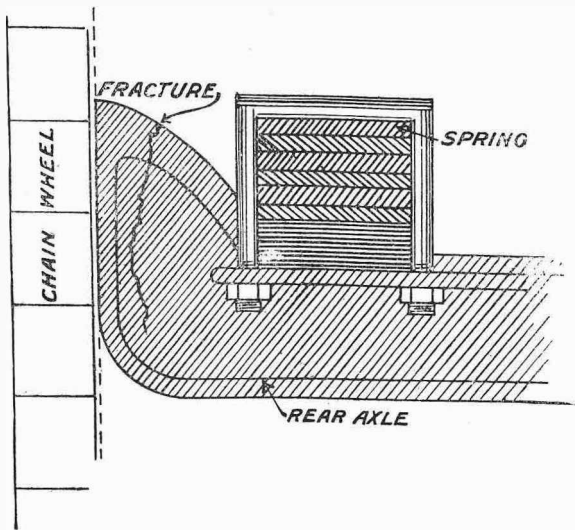
#### The German Sportsmen.

The toast of the "German Automobile Club" was happily proposed by the Chairman, who coupled with it the



M. Jenatzy, the winner of the 1903 Gordon-Bennett race.

name of Count Sierpstorff, who, as a member of the International Commission, had worked hard for the success of the race. Mr. Wallace then read a telegram from Jenatzy, and another from that sound sportsman, the Baron de Caters, regretting their inability to be present, and expressing their thanks for their reception and the organisation of the race. Mr. Wallace referred in feeling terms to the sportsmanlike action of the Baron de Caters in stopping to look after Jarrott, and subsequently at points on the course to allay the anxiety produced by the wild rumours that had got abroad. The Baron had thereby won a victory in English hearts which was better than the cup. The cup was not in Ireland, so they must imagine him presenting it to the Count, which he did with the feeling that it had been most worthily and most pluckily won.



Sketch showing the position of the fracture in the rear axle of the Mercedes which Foxhall Keene drove in the Gordon-Bennett race.

Count Sierpstorff, who was warmly cheered, returned thanks in excellent English, and testified to the pleasure all his party had experienced in visiting Ireland for the great race. He hoped that when the members of the British Club came to Germany to try to regain the trophy they would be as delighted at their reception as the German party were at theirs. The Count concluded an excellently rendered speech by also complimenting the organisation.

The "American Automobile Club" was given by Colonel Crompton, who said that all present had felt the bad luck of our cousins as much as our own. He coupled the toast with the name of Mr. Grey Dinsmore, the representative of the A.A.C., and the owner of the winning car. His sympathy went out to Mr. Winton, whose daring designs had excited his admiration. There had been too much copying in the Old World, and he thought in the Winton he could see the germs of great progress.

Mr. Grey Dinsmore suitably replied, as also did Messrs. Winton, Mooers, and Owen. Mr. Winton ascribed his failure to the bad petrol, and said he was taking back to the States a sample of the stuff with which they were supplying this country.

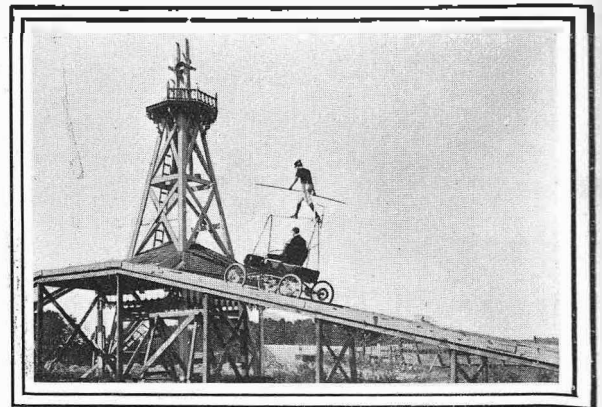
The health of "The English Team" was also drunk, Messrs. Edge, Jarrott, and Stocks all replying.

"The Officials" was given by Mr. Henry Edmunds, and replied to by Mr. Julian Ord. M. Geo. Prade, of *L'Auto*, replied for "The Press."

#### Fair Play.

Sir,—I was greatly surprised to read the sentiments expressed in some of the daily papers with reference to the Gordon-Bennett Cup Race. One or two expressed satisfaction at England's loss, and another actually congratulated England on losing the cup, and getting the race well out of the country. The papers I refer to then went on to compare bull-fighting with motor racing, and to talk about the great mistake made by allowing such uncivilised and barbarous sport to be indulged in. May I ask those who feel so keenly upon this point how they look upon fox and stag hunting in this country? It is beyond question that motor racing does point out the weak places in cars, but is this the case with hunting? The primary reason for motor racing is improvement of the industry, whereas the primary reason for hunting is to kill the fox. This being so, why not take a gun and shoot the brute? But, alas! he who goes fox shooting is considered to commit a crime, and a crime that is worse than murder almost—as it cannot be restrained or punished by law. What good is derived from stag hunting? A wretched stag is boxed up in a dark van, and jolted along for miles, then suddenly exposed to bright light, and left to make the best of its way from the hounds. This is sport! Yet people encourage this, who also do their level best to stop motor racing, saying it is almost as bad as bull fighting! Let them first put down a cruel and profitless sport of some centuries' standing before they try to cripple one of the most promising advances made in modern science.

STEPHEN MCKENNA.



One of the ideas to-day of public entertainment is apparently to put something to a use for which it was never intended. The autocar has not escaped this striving after the inappropriate, and the latest misuse of a car comes from America, and is shown above.

## SOME REPLIES TO QUERIES.

We are always pleased to reply to queries, even if they be of an elementary and untechnical description, under this heading. Only a selection of those which are of general interest will be published, though all will be answered direct through the post, for which purpose a stamped and addressed envelope should be enclosed.

When advice concerning different makes of cars is sought, each vehicle should be given an identifying number.

Letters should be addressed The Editor, "The Autocar," Coventry.

### THE USE OF THE ACCELERATOR.

Would you kindly inform me the correct time and method of using the accelerator? (1) On the level; (2) going down-hill; (3) hill-climbing. I have successfully driven a single cylinder car for the last three years, and have now purchased a double cylinder car, so that the accelerator is a novelty to me, and I am afraid of damaging the motor by improper use of same.—H. H.

(1) The accelerator, whose mission it is to increase the speed of the engine by cutting out the governor, should only be used on the level for short bursts of speed. (2) In going down-hill the accelerator should be put right down so that the governor is cutting out, only permitting the engine to run at its normal rate of revolution. (3) On approaching a hill the accelerator should be pulled up so as to cut the governor out of action and rush the hill, and it should be held out until the gradient is surmounted. In changing the gears, if the foot accelerator is fitted it would be better to release the pedal at the moment of changing. This prevents the engine over-racing itself. It is not absolutely necessary, however, to do so. The only thing to fear in connection with the accelerator is its too frequent use on the level, thus running the engine above its normal speed. This results in a greater consumption of fuel, and has a tendency to cause overheating.

### UPKEEP AND DRIVING.

As a subscriber living in the country and with few cars in the immediate district, I should be glad of your valuable assistance in the following points with regard to an Argyll car with an 8 h.p. M.M.C. engine: (1.) What is the best method of keeping presentable (a) the exhaust pipe, (b) the radiators, and (c) the aluminium tanks? (2.) Is it better for the engine and car in running down hill (a) to withdraw the clutch and stop or slow the engine, (b) place speed lever in free notch and stop or slow the engine, (c) run down with minimum of gas and spark advanced, or (d) have exhaust lifter fitted and raise it so as to draw in cold air? My engine has no governor, and is throttled on the inlet. (3.) My car is supposed to be geared to twenty-two and a half miles in the third, and eleven in the second. Should I change uphill to second when the speed on the third drops to eleven miles per hour, or can I without risk wait till it drops to eight miles or lower? It does not seem to me to thump ominously till the pace is reduced to four or five miles. (4.) Is there any objection to fitting an exhaust valve lifter to an 8 h.p. engine? It seems to me that I should get increased power of control in traffic and better cooling downhill.—H.F.F.K.

(1.) The best method of keeping presentable and at the same time preserving the parts are (a) by using ordinary household blacklead mixed with water and applied with a brush, (b) by simply washing, and (c) wiping with a clean oily rag. (2.) Withdraw the clutch and keep the engine running at its slowest speed, accelerating before letting the clutch in again, or by fitting the exhaust valve lifter, keeping this up with the current cut off. (3.) Do not wait until the engine labours and the speed of the car is considerably reduced. Change when the speed of the car drops down to that equal to the car running on its next slowest speed. If it drops beneath this before the next lower gear is put in it is apt to strain the gearing, as the engine has to increase the speed of the car up to that given by the ratio of the gearing. (4.) There is no objection to fitting on an exhaust valve lifter to an 8 h.p. single cylinder engine. You will do better when driving in traffic to run at low speed, using the throttle rather than an exhaust valve lifter, though there is no reason why you should not use this method of driving.

### TWO-CYCLE ENGINES.

First: Can you tell me the objections, if any, to the two cycle petrol motor for autocars? Second: If the two cycle engine is superior to the four-cycle motor, kindly state in what respects, and why they are not more generally used?—A.H.S.

The only objection to a two-cycle petrol engine for motor vehicles is that up to the present a satisfactory one has not been produced, although the Lozier Company of America, are running a single-cylinder two-cycle engine with a certain amount of success in their motor launches, where the conditions under which they work are very different from those of a road vehicle. Second: The successful two-cycle engine would certainly be superior to the four-cycle motor, but the former absorbs a great deal of its power in its own operations, because while it is firing one charge it has to compress a second charge; and, further, there is some difficulty in getting the exhaust clean away. This is the chief reason why they are not more generally used.

### OVERHEATING.

I have lately been through nearly all the troubles mentioned by your correspondent on page 764 of June 27th, but having got over them, my experience may be useful to them.

(1) I altered the fan so that the blades are now as close as possible to the back of the radiator. Naturally the suction is much increased.

(2) Apron under the engine is hooked at the front end to front board.

(3) Pump being friction driven, I put another spring to make better contact with flywheel. This spring is fixed by strap and buckle to opposite frame so as to be adjustable.

(4) Being much troubled by water spurting up and blowing back in my face, I stopped up the vent in filling cap, made a hole in side of same, and carried a small copper pipe through a notch in the bonnet round inside of radiator, so that any escape of water must go to the ground.

I have not much trouble now, though, of course, the water boils when driving through traffic on low speeds. I would suggest to your correspondent S. F. that he should disconnect one or two cylinders when driving through traffic. If he has high tension ignition, he could have a switch fixed on the low tension circuit to cut off one or two cylinders.

I find "Gripolene" very excellent for preventing belt slipping, also for clutch. EXPERIENTIA DOCET.

### AN IGNITION EXPERIMENT.

A correspondent writes stating that when out for a run he found both accumulators run down; and in spite of the repeated warnings he had noticed in the columns of *The Autocar* about coupling up accumulators, he decided to risk it, and found that when coupled up in series a total pressure of six volts was given. The result was that he found a great increase of power in the engine, and now enquires why makers do not construct coils to work at a pressure of six volts instead of at present. Our correspondent really did not risk a great deal when the total current was not more than six volts, as nearly every coil is constructed to carry a maximum amount of six volts. Fortunately, he was lucky enough to have a coil to carry this with safety, though without a doubt there was internal heating of the coil, but not of a sufficient extent to do serious damage. The increase of power, of course, would be particularly noticeable after running for some time with a weak spark, as he must have done, but the immense increase of power was not due solely to the extra two volts used. The same thing would have

happened with a newly-charged accumulator, though it is possible that the extra voltage did give a still hotter spark and more rapid combustion. Coils could be constructed for any pressure one desires, but for all practical purposes four volts have been found to give very good results and to use up the least quantity of current possible for the amount of work required, and thus to increase the length of life of the accumulator. With a coil of higher intensity more current would be used, and, therefore, larger capacity accumulators or more frequent recharging would be necessitated.

## CLUB DOINGS.

### The Leicestershire Automobile Club.

The Leicestershire A.C., which has now a strong following both in town and county, had a most successful run from Leicester to Belvoir Castle on the 27th ult. The weather was all that could be wished for motoring, and nearly a dozen cars took part in the trip. Starting from the Bell Hotel, the party included Colonel Powell, Mr. R. E. Parker, Mr. and Miss Bennett, Mr. and Mrs. Waite, Messrs. S. W. and T. C. Clarke, Mr. W. Dalrymple, Mr. R. Canning, and Mr. A. McAlpin (honorary secretary). The route selected for the run afforded a glimpse of some of the prettiest scenery in the Midlands. Mr. H. R. Harding, the treasurer of the club and an enthusiastic motorist, joined the party near Syston. The roads here are among the best in the district for motoring, and taking advantage of this fact the cars sped along at an increased speed, and the passengers were able to enjoy the delight of motoring to the full. A capital view was obtained of the Wreake Valley and the surrounding scenery, the country appearing at its best after the freshening influence of the recent rains. After passing Melton the scenery changed somewhat, and became more picturesque as the wooded Vale of Belvoir with its stately castle towering above the trees was approached. After a splendid run of about two and a half hours the party reached their destination, and tea was served in a marquee adjoining the Peacock Hotel. The return journey was begun about seven o'clock, and in the cool of the day proved even more enjoyable than the outward trip. A halt was made at Melton about 8.30, where the hospitality of Colonel Powell, a vice-president of the club, proved not unwelcome. Leicester was reached about ten o'clock, the total distance covered being nearly sixty miles. The run was considered the most successful of the season.

## New Patents.

This department is conducted by Mr. G. Douglas Leechman, consulting engineer and registered patent agent, 18, Hertford Street, Coventry, 32, York Street, Dublin; and 9, Exchange Chambers, New Street, Birmingham; from whom any further information respecting patents, designs, and trade marks may be obtained.

The following specifications were printed and published on the 2nd of July, 1903. All notices of opposition to the grant of patents on the several applications should be filed not later than the 17th of August, 1903.

1902.

13,540.—G. Durieu, H. Trépeau, and C. Lagarde. Two-speed bevel gearing.

16,052.—Société F. Charron, Girardot, and Voigt. Cams normally out of contact are caused to act on the exhaust valves by the governor at excessive speeds.

16,053.—Société F. Charron, Girardot, and Voigt. The carburettor is warmed by the water of the cylinder jacket.

16,056.—Société F. Charron, Girardot, and Voigt. The branches of the exhaust valves are jointed so that they may be raised in pairs.

16,059.—Société F. Charron, Girardot, and Voigt. The section of the air passage around the nozzle of the carburettor is made adjustable.

16,831.—J. Delrez. Centrifugal speed indicator with superposed weights.

17,305.—The Albany Manufacturing Company, Ltd., and F. Lamplough. Burner with primary burner and vaporiser for heating steam generators.

18,091.—A. E. Spooner (Werner Frères). Float feed carburettor with anti-vibratory supply valve.

18,753.—A. J. Boulton (E. L. N. Denis). Steering gear in which the deflection of the wheels increases relatively to the angle of movement of the handle.

22,569.—J. N. Howard. Motor bicycle with horizontal motor built into the frame.

1903.

3,368.—H. C. Sheppard and F. Milburn. Variable speed and reversing gear with frictionally rotated or retarded gear box.

3,626.—F. de Mare. This refers to a combustible liquid consisting of seventy per cent. alcohol and fifty per cent. nitro-benzine.

3,850.—A. von Martini. Construction of motors with inclined cylinders.

5,006.—F. H. Green. The tubes of motor cycle frames are employed as reservoirs for oil or spirit.

5,882.—J. Hickling. Cushion tyre with deep hole and lateral grooves.

6,187.—H. H. Lake (A. E. Martinsen). Cushioned vehicle wheel with two, relatively moving, sets of spokes.

9,228.—G. Abati. Pneumatic tyre covers are provided on the inside with a strip of steel to prevent puncturing.

9,823.—F. H. Schweitzer. The inlet pipe as well as other parts of the motor are cooled by a fan.

9,893.—H. H. Lake (Auto-Igniter Exporting Company). High tension magneto ignition with induction coil.

9,913.—E. Edwards (Wagenbaustalt und Waggonfabrik für Elektrische Bahnen (vormals W. C. F. Busch) Aktien Gesellschaft). Lifting jack with forward pivoting release.

## NOTICES.

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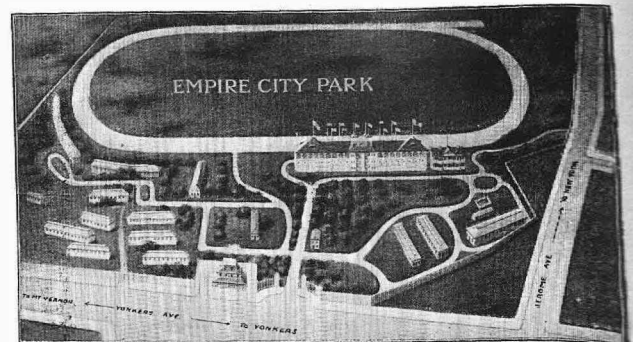
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View of the Empire City track, the premier racecourse of America, and the scene of many notable motor events. Situated on the road between Yonkers and Mount Vernon, a few miles north of New York City, and at an elevation of 425 feet above sea level, the Yonkers track, which is a mile in length and one hundred feet wide for the whole distance, affords moderate facilities for motor races. The track is always kept with an even surface of one quality, and drivers, in consequence, do not strike a soft spot in one place and a hard one in another. Its primary object was to afford a training and racing ground for horses, but the automobile is rapidly claiming first place in its enclosure.