THE AUTOCAR

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

EDITED BY H. WALTER STANER.

No. 357. Vol. IX.] SATURDAY, AUGUST 30TH, 1902. [Price 3d.

THE AUTOCAR.

EDITORIAL OFFICES:

COVENTRY.

PUBLISHING OFFICES:

3, ST. BRIDE STREET, LUDGATE CIRCUS, LONDON, E.C.

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COLONIAL AND FOREIGN EDITION.

In addition to the usual edition of "The Autocar," a special thin edition is published each week for circulation abroad. The English and Foreign Rates will be found on the last page. Orders with remittance should be addressed "The Autocar," Coventry.

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

Notes.

Agitation for Legislation.

Unfortunately, the sad fatal accident in France which was recorded last week, and the harmless sideslip to a well-known sporting baronet as he was driving into town from his place outside North London, have been made the texts of an agitation for further legislation for automobiles. It would appear that the two events we have referred to have been taken as favourable happenings for emphasising the desirability for pushing forward the claims of the Hon. Scott Montagu's bill. We have already given our views concerning this bill, and need not reiterate them now; but we must say we are exceedingly sorry that the *Daily Mail*, which has hitherto shown itself a good friend to automobilism, should have seen fit to commence an agitation on the subject, as it will undoubtedly be misunderstood by many of its readers. In fact, this is already apparent, as "the motor problem" is being followed up in a way which appears to us one-sided, and the issues seem to have been altogether mixed, as further legislation is being agitated for on the assumption that the numbering bill will prevent people who are not experienced drivers from using cars. As a matter of fact, it will do nothing of the sort; the numbering proposals are not dependent on the skill or want of skill of the driver. Moreover, unskilful drivers are in a very small minority indeed, and, of course, the only way they can be eradicated is by some sort of examination and permit to drive, as in France. Where the mistake is made is in regarding motor traffic separately from all other traffic. We have not a word to say against numbering, examinations as to capability for driving, or any other similar restrictions, if applied impartially all round. Every motorist is well aware that the number of careless drivers of horses and horse carts is much larger than is generally recognised, and that it is the exception rather than the rule to meet a thoroughly capable horse driver—one who is not only thorough master of his horse, but who drives it in a manner best calculated to cause the minimum of inconvenience to other road users. Why should automobilists be subjected to examination for competency while boys of tender years are permitted to go in charge of three or four horses, and hare-brained youths are allowed to recklessly drive tradesmen's carts in towns? When the matter is considered fairly, there is no denying the fact that, admitting a careless driver in both cases, the autocar is much less likely to do damage than the horse cart, inasmuch as there is no horse to become frightened and complicate matters by bolting or by kicking violently. As we have already shown, numbering will not make any difference to the very few reckless drivers, but it will put a new weapon in the hands of prejudiced authorities for the prosecution of law-abiding drivers. At the same time, the publicity which has been given in our contemporary to the subject is, as we have said, doing great harm, for it is spreading the all too prevalent idea that automobiles are abominably dangerous vehicles. We do not find a leading article devoted to the accident which occurred the other day to Lady Windsor and her friends, when, owing to one of her horses becoming unmanageable, she and the other occupants of the vehicle were thrown over a bridge into

a stream, and yet it would be just as reasonable to agitate for legislation to protect horse drivers and the public from such uncontrollable methods of locomotion.

The Numbering Clause.

We are convinced that the wisest plan is to leave well alone for the time being. In the course of two or three years, public opinion, as represented in Parliament, will be sufficiently advanced to deal with the matter in a manner which will be satisfactory to the vast majority of the population, and to automobilists as well. The numbering clause is a mistake, and we are afraid it would not be a workable plan if attempts were made to number only cars capable of exceeding a certain limit– say, twenty miles an hour--as there is nothing to prevent the substitution of different sprockets or gears which would enable any stipulated minimum to be exceeded after a license was obtained for a certain car. On the other hand, there is no valid excuse for ridiculously high-powered cars on the roads, and this should be stopped, if, indeed, the use of such vehicles does not automatically stop itself, as all who have tried are well aware that there is no pleasure in driving these over-powered monsters, except in races on properly guarded roads. The reason we are so thoroughly opposed to numbering is because the only numbers which will be legible will be those on cars moving at quite reasonable speeds, and, as we know from the action of the police, it is the drivers of such cars who are most usually prosecuted for the simplest of all reasons—that the others cannot be caught; nor will they be caught by numbering, though, if it is thought they will be, the reasonable plan is to number them—that is to say, all cars exceeding, say, 16 h.p., should be numbered, as well as all those smaller vehicles which have a power of more than 1 h.p. per cwt. of complete car. This would at least prevent the harmless voiturette and the quiet tourist on the medium-powered car from the objectionable labelling clause. It is also well to remember that the bulk of the public and automobilists are not anxious for any change; the agitation is not spontaneous, but forced, for reasons which we do not attempt to explain. It is also most harmful to the development of the movement in this country that the recklessness of foreign drivers in their own lands should be cited to prove the desirability of fresh legislation at home, for public opinion is not yet sufficiently educated to discriminate, as it is not generally known that the craving for excessive speed is so much more general abroad than it is in Great Britain.

Sport.

From the remarks which are from time to time made by non-automobilists, it is very evident that the general public have no conception whatever of the skill and nerve which are required for driving in motor races. We have several times come across people who were quite indignant at hearing motor racing referred to as a sport. They ask, how can engine driving be a sport? and with that they think they have settled the matter. It does not seem to strike them that motor racing is not engine-driving in the ordinary sense of the word. It is controlling a powerful machine that has more force than teams of horses, and more speed than the fleetest, and this on a track or road which may wind up hill and down dale. On such a road the racing automobilist attains railway speeds. Let the man who thinks the sport of automobile racing is but engine driving take a ride on the foot-plate of a main line express engine over a perfect track with its signals to warn the driver of possible danger, every precaution taken to make the surface as even and level as possible, and the signalling as free from error as human and mechanical checks and counter-checks can make it. Then let the sceptic try, if he can obtain an opportunity to get a seat on a racing machine, and he will soon discover that exceptional qualities of eye, nerve, mind, and body are required when it is sought to control a fast vehicle on a road on which there are no rails and no signals, plenty of hills which no railway locomotive could climb, and curves of radii which would spell instant disaster to the railway man. The man who refers to motor racing as engine driving simply shows that he does not know anything about the sporting side of automobilism, and in all probability he is equally ignorant of railway work.

Autocars for Rural England.

The necessity of transporting fruit, vegetables, poultry, and farm produce quickly from the places where they grow to the centres of population where they are consumed is more than ever forcing itself upon the attention of all parties concerned. It is a truism that railway companies and their methods do not at all times give satisfaction in this matter, so that an opportunity for the autocar to demonstrate its utility is now presenting itself. Experiments have been tried in several parts of the country, which have proved eminently satisfactory, but the movement is not being taken up with the alacrity that one would expect, considering the advantages offered. We suppose it is because of the English characteristic of conservatism and disinclination to change, even where change would undoubtedly mean vastly improved methods, convenience, and greater profits for all concerned. Several of the daily papers and some of the monthly magazines have devoted attention to this matter, and without exception have spoken favourably of the innovation from a commercial point of view. We should imagine that some of the promoters of public service autocars might find it to their advantage during the fruit season to tell off vehicles for this special work. In many districts we know that railway companies cannot even touch this kind of traffic, and as a consequence fruit and dairy produce are collected for market by horse-drawn vehicles and toilsome carriers' carts, which are necessarily slow moving and are not properly constructed for the prevention of vibration or jolting of the fruit. If in place of these antiquated vehicles some well-appointed, specially prepared, and speedy autocars could be employed to make circular tours for the collection of produce of this kind, there is no doubt that the public interest would be better served than by any sort of light railway, which before the autocar had asserted itself as adaptable for this service, it was thought would be the salvation of the rural districts. We would suggest that if Parliament is at all

anxious to legislate for autocarism, and at the same time to confer no inconsiderable boon upon hitherto neglected rural England, it might do worse than offer facilities for the promotion of autocar services in the manner suggested.

To Remove Prejudice.

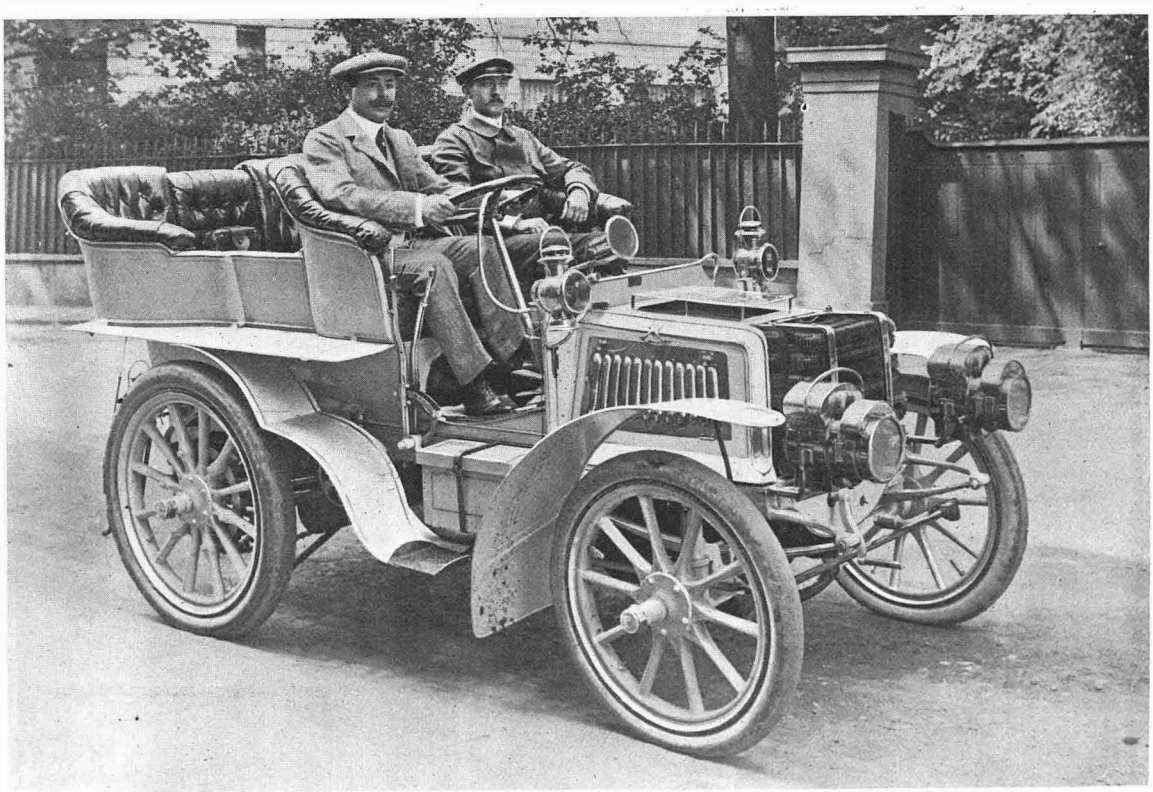
Judging by the terrified utterances of the local press, considerable feeling appears to have been excited in the Lake District against motor cars. An accident occurred to a *char-a-banc* owing to the horses taking fright at an autocar, and it is strange that no one ever supposed that the horses or their owners or drivers were in the least to blame. The *char-a-banc* was drawn by two horses, and on the approach of the motor car they backed the vehicle up a bank, and dashed off with the two front wheels (which had become detached) dangling behind them. The occupants of the *char-a-banc* suffered considerably, and the autocarists rendered whatever assistance they could until the arrival of medical aid. It does not seem to have occurred to the local wiseacres that this sad occurrence might have been entirely averted had the owners of the horses taken the trouble earlier in their career to have the animals educated to autocars, so as to know that there was no danger to be feared from them. The local press and district council see no other moral to be drawn from the occurrence than that motor cars should be prohibited from entering the district, and this moral is emphasised by the use of extra strong adjectives and invectives. The Cockermouth Rural District Council, one of the local bodies who discussed the matter, talked and talked, but eventually found that they had no power to drive automobiles off their roads. They spoke of limiting the speed in certain parts to five miles an hour, but eventually only referred the matter to the Works Committee. We hope they will soon learn that autocars are legalised on the highway, and that it is the duty of horsemen to get their animals accustomed thereto. In the meantime, automobilists of that neighbourhood will do well to take whatever pains they can to remove the existing prejudice, by initiating the members of public bodies and those in authority into the pleasures of autocaring, and by giving horse owners facilities for allowing their animals to become accustomed to the presence of autocars. This, we are glad to learn, is being done in some instances, and with perseverance we have no doubt that in due time a better feeling will soon be created.

The new Napier lately ordered by the Prime Minister—a 16 h.p.—embodies several new ideas suggested by Mr. Balfour himself.

* * *

Owing to the continued increase of business, C. A. Vandervell and Co., accumulator manufacturers, have acquired larger premises, viz., Chapter Works, Chapter Road, Willesden Green, N.W., where all communications should be addressed.

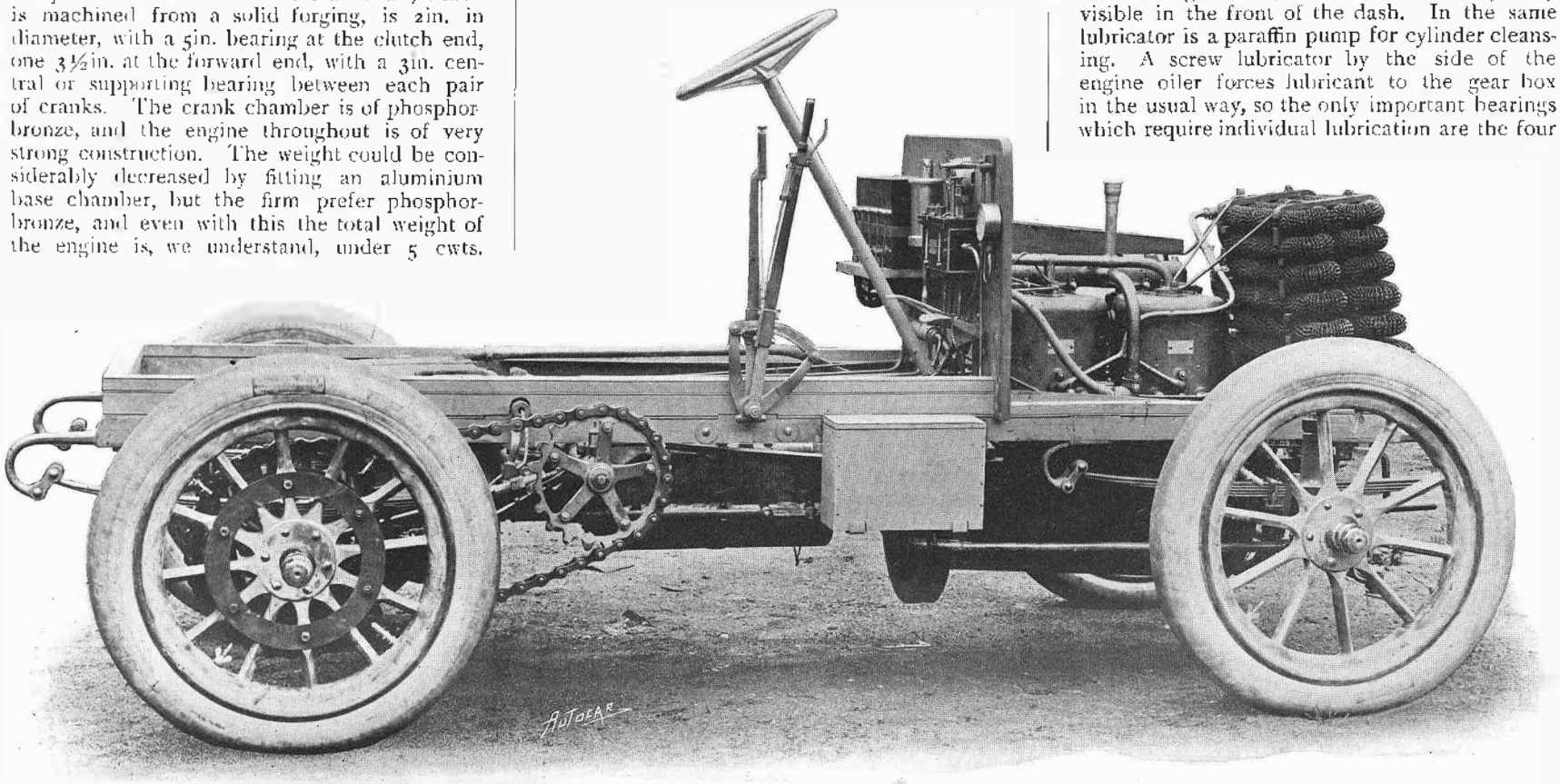
A HANDSOME CAR.



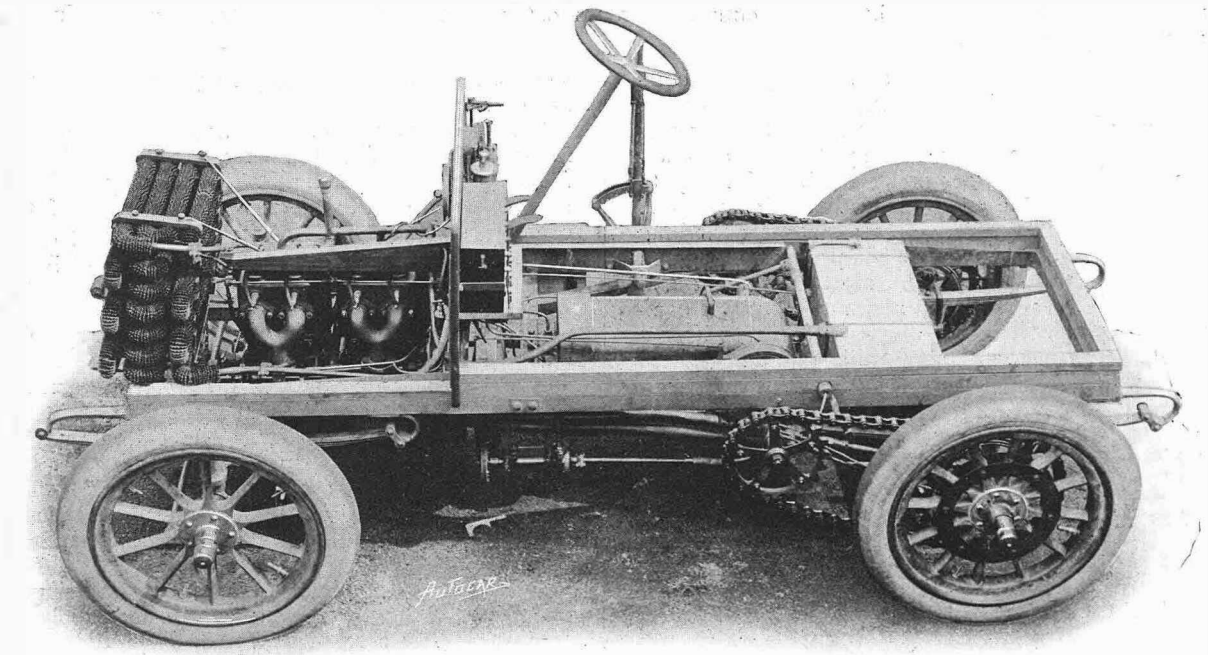
Mr. Herbert M. Beddington on his 16 h.p. Panhard—"The White Car" on the stand of the British Automobile Commercial Syndicate Ltd., at the Automobile Club Show. The body is one of Messrs. Rothschild's "Roi de Belge" type, and was painted, upholstered, and finished in their London shops.

THE NEW FOUR-CYLINDER 20 h.p. STAR CAR.

Among the new machines which will take part in the 650 miles reliability trials will be the four-cylinder 20 h.p. Star car designed and made by the Star Engineering Co., of Wolverhampton. The two illustrations of the car stripped of its bonnet, body, and wings give an excellent idea of the main constructional features of the vehicle. The four cylinders are each 4¼in. bore by 5½in. stroke, and at eight hundred revolutions per minute 24 h.p. is developed on the brake. The crankshaft, which is machined from a solid forging, is 2in. in diameter, with a 5in. bearing at the clutch end, one 3½in. at the forward end, with a 3in. central or supporting bearing between each pair of cranks. The crank chamber is of phosphor-bronze, and the engine throughout is of very strong construction. The weight could be considerably decreased by fitting an aluminium base chamber, but the firm prefer phosphor-bronze, and even with this the total weight of the engine is, we understand, under 5 cwts. The governor operates on the inlet before it branches right and left to each pair of valves. Both inlet and exhaust valves are 2in. in diameter, and all four valves can be got at by the simple operation of unscrewing two nuts, and the four-branch induction pipe can be completely removed by loosening the two nuts which connect it to the induction pipe, as the flange of the latter is slotted. The valveshaft, to ensure easy accessibility, runs outside the crank-case, but in the latter a couple of cavities are cast, into which the cams on the shaft dip, and these cavities or drip chambers are kept supplied with oil so that they form an oil bath. In the view of the exhaust side of the engine the small glass lubricator which oils the whole of the valve gear will be noticed just in advance of the dash. The rest of the engine is lubricated by a mechanical feed, driven by a small pulley and belt connected to the engineshaft, and this is also plainly visible in the front of the dash. In the same lubricator is a paraffin pump for cylinder cleansing. A screw lubricator by the side of the engine oiler forces lubricant to the gear box in the usual way, so the only important bearings which require individual lubrication are the four



axles of the road wheels. Each pair of cylinders exhaust into a separate pipe to the silencer. The frame is of the inside girder type, supporting the exterior ash frame, and bolted together with steel angle plates. The under channel or girder frame on which the engine and forward part of the gear box are carried, is bolted to the main frame with the countershaft bearings, and runs forward to the front transverse member, being suitably strengthened by bridges. The gear box is supported by the countershaft in the approved style, and at the forward end. It contains four forward speeds from ten miles upwards, and a reverse, all worked by the single lever. The clutch is adjusted from the rear end of the countershaft, and is of the self-centring type. The wheelbase is 7ft. 6in., though it will probably be extended backwards 6in. further for the larger cars, and the gauge is 4ft. 8½in. All wheels are 34in. in diameter, and the tyres are 5in. in section; the total weight of the complete chassis is 18 cwts. The details of the car are fully up to date, and as an instance of this we may mention that the nozzle from the float feed can be inspected instantly, as is now usual on all the best designed vehicles, and a circulation indicator is fitted to the water system. The brakes consist of a band brake on the countershaft, operated by a pedal, and strong band brakes on the drums of the rear road wheels. Both brakes are effective, either backward or forward. The body is an exceedingly handsome one, entirely of aluminium, and provides most luxurious accommodation for four people, the tonneau seats being remarkably roomy and comfortable. After inspecting the new car in the Stewart Street factory we were able to examine its parts in the course of manufacture, and we saw more than enough to satisfy us as to the quality of material used and the care taken in manufacture. As the car was only put upon the road a day or two ago, it is almost too much to expect that it will do itself justice in the trials. However, whether it does so or not, there is no question that its makers have produced a very fine vehicle indeed, and one which does them great credit. The advance which they have made can be best appreciated by those who remember the little machine which Mr. Lisle, senior, drove so pluckily in the thousand miles trial only two years ago. The firm now have a series of cars, all broadly of the same type as the 20 h.p., and they include a two-cylinder 7 h.p., a two-cylinder 10 h.p., and a four-cylinder 15 h.p. and 20 h.p. All these four types are being standardised throughout, and arrangements are being completed to turn them out in series, which will naturally facilitate early deliveries.



Oblique view of the Star chassis from the exhaust side of the car.

Eight racing Napiers are being built for next year. One is for Count Zborowski, who, it will be remembered, was first into Vienna in the late Paris-Vienna race, but was not adjudged the victor; one is for Mr. Mark Mayhew, L.C.C.; another for Mr. J. R. Hargreaves, who, though a J.P. of his county, is known to be one of the most enthusiastic amateur automobilists in the kingdom; while Mr. Edge will also have one. The names of the gentlemen who have placed orders for the remaining quartette are not to be made public for the present. Earl Russell, Mr. Kenneth Balfour, Mr. Leveson Gower, Mr. J. B. Purchase (the well-known solicitor to the Dunlop Tyre Co.), and Mr. E. K. Purchase (the hon. architect to the Automobile Club), have each ordered a 10 h.p. Napier. The Right Hon. A. J. Balfour (Prime Minister) and Mr. Roger Wallace, K.C., have ordered 16 h.p. Napiers. The Collier Tyre Co. likewise have chosen a 9 h.p. Napier to run on their tyres in the tyre trials.

CYLINDER CHARGE FIRING.

THE extreme simplicity and directness of the cylinder-fired motor action must certainly bring that prime mover finally to the front, and keep it in advance of every other motor until the day we are in some simple way able to make use of the electric current everywhere present, ready to hand, but very hard to grasp and control, so far as we now know. The gas engine we do know something about, and can already use so well that we can make it turn back a larger percentage of work for fuel burned than we can obtain from any other motor, and we can do this with less weight and complexity of machine parts than are needed for steam engines of equal power.

Reduced to its simplest form, the gas engine must have a cylinder, a piston to slide in that cylinder, a cylinder head, a charge of something that will burn quickly between the piston and cylinder head, and some agent which will fire this combustible charge. These few simple things are the essentials of the gas engine. Fire the charge, and the piston is moved along in the cylinder with great force and rapidity, and this movement of the piston can turn a shaft part way round, and from this shaft we can transfer motion to other things which we wish to move. Naturally, the best gas engine is the one which can most certainly produce a combustible charge from some easily obtainable fuel mixed with air, compress this charge, fire it, and so move the piston and shaft, and then discharge the burned contents of the cylinder, and so be ready to take in a fresh charge of fuel. Up to now we have made rather a sad bungle of this brief sequence of simple operations, and have not yet succeeded in performing any one of them with mechanical agents which are free from all drawbacks, and therefore perfectly suitable for our purposes. We have made some fairly good approximations in some directions, however, and at this moment many active minds are given over wholly to the task of simplifying and perfecting gas engine elements, and it is perfectly certain that the gas engine will very soon become the accepted motor for small boats and road waggons. The machine parts of the gas engine are now made in fairly good forms, so that they do not give so very much trouble, except in the matters of oiling and cooling. The charge mixing and the charge lighting elements are now most various in form, and the least certain and satisfactory in action.

No one is quite sure as to the very best combustible for use in boat and waggon motors, or the best way to mix the fuel and air, and transfer this mixture to its place between the piston and cylinder-head, squeezed together pretty hard, and ready to light, and after the charge is ready for firing no one is certain as to the very best method for kindling a fire in it, although we are all pretty well agreed that an electric spark is the most convenient and suitable firing agent we can use to light this compressed cylinder charge, which is of necessity enclosed between strong metal walls and tightly held there with no opening at all in them through which access can be had from the open air. The first gas engines lighted the charge with flame, the conception being a flame-carrying thing of some sort which could be thrust into communication with the cylinder charge enclosed in iron walls, or in some other way bring the flame and the charge to touch each other. Next Daimler found the hot tube, and made a little closed extension of the compressed charge chamber, and kept this tube with a closed end red hot, so that the part of the compressed charge which was forced into the hot tube would take fire and fire the remainder.

The hot tube had two very serious faults: first, it had a flame to heat the tube, and, second, there was no certainty as to the time of firing the charge. If the cylinder charge is sufficiently compressed, it will fire itself, as in the Diesel motor and others; and a charge having access at all times to a red hot metal surface lights sooner or later in the course of compression, according to its constitution. The hot tube ignition is simple, but the hot-tube heating fire is inconvenient and dangerous; and the uncertain time of charge firing has caused the almost total abandonment of Daimler's invention, which was a great advance when made, and even now has some advocates, though very few, here in America at least.

The use of the electric spark for motor charge firing was suggested in the early days of the cylinder-fired motor, many years ago. Electricity could be conducted through the confining metal walls of the compressed charge, and could make a firing spark at the precise required instant, and these two possibilities have brought electric spark charge firing to the front, and, so far as can now be seen, make the spark the very best agent for motor-cylinder charge firing.

Electric firing demands, first, an electric current, and, next, an agent which will make a spark in the motor compression chamber. The current may be supplied by a primary battery, and this battery may be wet, or only moist, and so-called "dry." The current may come from a storage battery, and it may be generated mechanically by use of a dynamo or magneto.

While wet and dry batteries are cheap and simple, and pretty certain in action, they are not absolutely sure to deliver current, and they have the grand fault of a self-terminated period of effectiveness, and hence must be used in connection with a storage battery, so that current will surely be present when wanted, and must be recharged when worked out. These inherent faults prevent both wet and dry batteries from acceptance as ideal ignition agents. They are primary in action, and so independent, but this one solitary virtue is not enough.

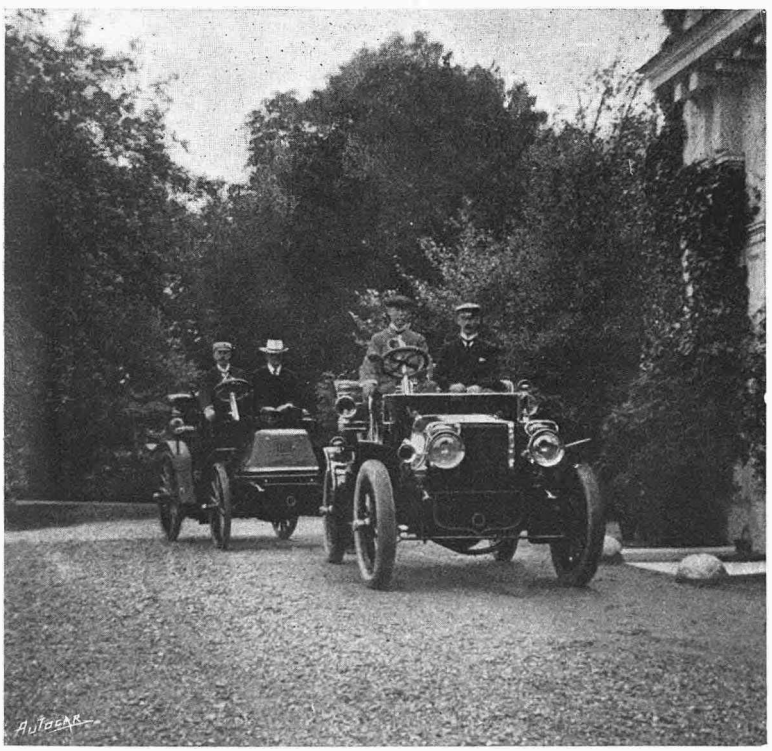
The dynamo and magneto are not primary agents for current producing, since they are inert when standing still. But if the magneto or dynamo armature is rapidly moved, then an electric current is certain to be produced so long as the armature revolution continues without injury to the armature. Large dynamos have certain operative limitations

which render them less certain in action than small ones, and the magneto differs from the dynamo in always having a self-excited "field," and so being positive of delivering a current as soon as driven up to working rate, and a very small magneto, if its armature journals are good, may safely turn at from 1,000 to 4,000 r.p.m., and will surely deliver current at these rates. The action of a small magneto is perhaps the most certain of all known machines, and this sureness of operation has already brought the magneto into large use for charge lighting, and bids fair to ensure the final exclusive use of the magneto for that purpose.

The first cost of the small Holzer-Cabot magneto, which I am using, was $14.50, say £3. Weight 13½ lbs. I am driving this little machine about 4,500 r.p.m., by 45° angle-toothed gearing, with a "bail" drive, such that turning effect only is applied to the armature shaft which has no side load, and is perfectly free to assume its best end position, and this small light, cheap, durable machine is giving me over 3,000 sparks per minute.

Assuming the presence of the electric current, the next step towards sure charge lighting is the selection of a spark-producing agent so managed that it shall deliver a spark in the body of the compressed charge inside the motor cylinder at the precise time when charge ignition should begin. To obtain the most power from the fuel burning, the charge must be lighted at some point in advance of the time the charge begins its shaft-turning work. In my own motor, from which this article is written, the pistons are $1\frac{13}{16}$in. diameter, and have 2¼in. stroke, use the Otto four-stroke cycle, and make the working stroke in a little less than one-fiftieth of one second, when running at maximum speed. These pistons make the compression stroke in the same always having a self-excited "field," and so being positive of delivering a current as soon as driven up to working rate, and a very small magneto, work of turning the motorshaft. This is the smallest motor piston diameter within my knowledge. It is not, however, the shortest charge-burning time known. I believe small gas engine shafts have made two thousand or more r.p.m., Otto cycle; this would give, say, one-sixty-seventh of a second for piston stroke time, which is certainly not a long time in which to light a fire, do work with that fire, and put the fire out, and when 3,000 of these little fires are to be kindled each minute at precisely the best fraction of a small part of a second's timing, it is very clear that the electric current must be had when wanted, and that the spark-producing elements must be good.

Suppose a current is carried by a wire of ample uniform diameter and resistance through a compressed charge of combustible mixture, no result is observable; if the wire is broken in the charge, and the wire ends are moved apart, then a spark will jump from one wire-end to the other. Suppose, again, that the wire is not continuous in the charge chamber, and that the wire ends are made to rub each other and then separate in the charge, this produces a "wipe" spark; if the wire ends are moved to touch, and then moved apart, a "hammer" spark results; and if the wire ends are held a little way apart in the charge, and a "high tension" current is delivered to one end of the wire, it will jump across the space between the wire ends, thus making the "jump" spark.



Sir Thomas Lipton, Bart., driving his 22 h.p. Daimler. On the second car is Mr. Oliver Stanton, who has been largely instrumental in interesting Sir Thomas Lipton in automobilism. The photograph was taken at Sir Thomas Lipton's place, near Southgate.

These three forms of spark—"wipe," "hammer," and "jump"—are the ones commonly used in motor-charge lighting, and they differ notably in action. The hammer spark is often spoken of as the "touch" spark.

The wipe spark and hammer spark can be produced from a "primary" or "low-tension" current, such as is delivered directly from a magneto. The wipe spark is the more certain of production, because the rubbing of the wire ends on each other cleans them, and makes the current sure to follow when the contact is broken. The hammer spark may fail of production from the presence of dirt or soot between the contacts. In one mysterious refusal of a waggon motor to start, a long search ended by finding the wing of a gnat between the hammer spark contacts.

In the open air the jump spark requires a much greater pressure of electric current to make a spark than either the wipe or hammer spark mechanisms. Air is a bad electrical conductor, and it requires a strong push to make the current jump through air from one conductor to another. Heated and compressed air is a worse conductor than cool

open air, and because of this a high-tension current is needed for a jump spark. If a good sure jump spark could be had from a low-tension current, charge lighting would be very easy, and the jump spark would be more certain than now. As it is, a "secondary," or "induced" current, made by aid of a "coil," which is slow in action and easily spoiled, must be used. The coil is very largely used, but because it is slow, and because the high-tension current is hard to insulate, it seems certain that the jump spark will give way to the wipe and hammer sparks.

The sole objection to the wipe and hammer sparks made from a low-tension magneto-produced current lies in the fact that the break must be made inside the hot combustion chamber of the motor, and hence that there must be a moving piece inside this hot chamber, where no lubrication is possible, and where injurious wear of contact surfaces is likely to occur.

The Hon. Architect of the Automobile Club (Mr. E. R. Purchase) on his 12 h.p. Gladiator, which he recently purchased from the Motor Power Co., Ltd. As the hon. architect of the club, Mr. Purchase did a great deal of work recently in connection with the new premises. Mrs. Purchase is seated on the car with him. It will be noticed that the vehicle is fitted at the back with a special dust hood.

The wipe spark is self-cleaning, but has more wear than the hammer spark-producing parts. Refractory contacts of materials offering great wear resistance, as iridium, have been used for wipe-spark contacts, and special metals are largely used for hammer contacts and for jump spark points.

My own conclusions at this time are in favour of the wipe spark, with one steel spring contact and one soft steel contact, the soft steel contact forming the inner end of a steel plunger positively moved in both directions, the length of this plunger travel being $\frac{1}{16}$in. back and forth. I am now using plungers $\frac{3}{16}$in. in diameter, sliding in plain holes in machine steel bodies, not oiled, with no trouble whatever, no perceptible wear, and no noise. I make this double stroke of the plunger in less than 10° of motorshaft revolution, 750 r.p.m., or about 1-36th of 1-12th of one second = 1-432nd part of a second. I have not given this plunger spark plug such extended use as to warrant assertions as to its durability, but nothing shows any signs of wear, and the action makes no noise. With such rapid actions it is the rule that they fail immediately or else very slowly indeed. As my wipe spark plugs have had some use and show no wear, I do not expect them to be troublesome.

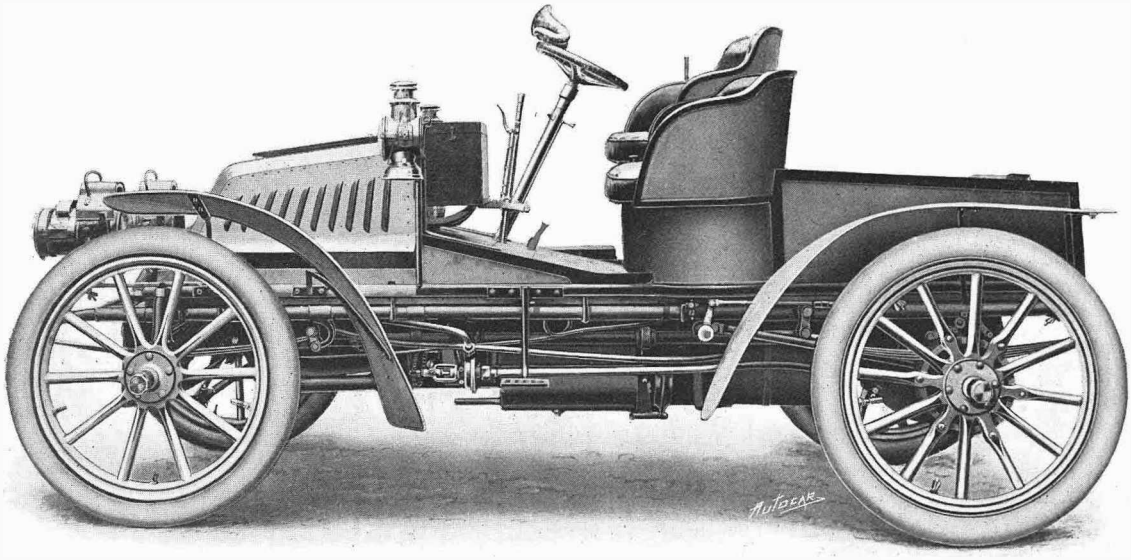
I believe it needful to use a positive action in both directions. I would not trust any form of spring for the plunger motion either way.

My entire moving machinery for 3,000 good sparks per minute includes one 13½ lbs. magneto, gear driven, two tool-steel rollers 15-32in. diameter by $\frac{3}{16}$in. face, four M. steel plungers ($\frac{3}{16}$in. diameter), and eight very short coils of small piano wire in the combustion chambers of the motor cylinders. So far as I know, Pennington was the first to use a piano wire spring in a motor combustion chamber to produce a wipe spark. A piano wire coiled spring, heated red hot after coiling, and then adjusted to its work inside of the combustion chamber, will not break, or "let down," either one; it can wear out, of course. I use a "wipe" travel of about 1-100th of an inch against a very light spring pressure; outside of the "spark marks," which are not very deep, as they are produced by a low-tension current, my wipe spark plugs are not showing any signs of wear. I have no batteries, no coil, and am giving each of my four revolving cylinders 750 wipe sparks per minute, as each piston makes the Otto cycle of four strokes for each revolution of the motorshaft; 3,000 sparks per minute in all. HUGH DOLNAR.

New York, Aug. 11th.

The fine and massive-looking 10 h.p. Locomobile intended for the Right Hon. the Marquis of Salisbury, K.G., is at present at the Locomobile Co.'s depot at Sussex Place, South Kensington, and is well worthy of examination. By its great wheelbase and gauge (7ft. 6in. and 4ft. 9in. respectively), and its generally solid appearance, it suggests itself as a fitting road machine for the safe carriage of the head of the house of Cecil. The car presents many fresh and interesting features, which we hope to refer to shortly. The vehicle has a body of the Surrey type, accommodating three passengers on each seat. Its boiler, of the usual Locomobile form, is 20in. in internal diameter, and 16in. in height, and furnished with six hundred $\frac{7}{16}$in. tubes. Roller bearings are provided to crankshaft and big ends. Two burners heat the boiler, the draught of air up the air tubes being encouraged by forward inclined draught plates set across the bottom of the burner. The force pump—one of them at least—is driven off the live axle through an eccentric. The car differs considerably in appearance from the Locomobile as generally known, but is nevertheless on Locomobile lines throughout.

THE NEW 16 H.P. ARIEL.



The Car which was wrecked at Edinburgh through collision with an open and unlighted manhole door

For some time past it has been known that the Ariel Motor Co., of Birmingham, had in building a 16 h.p. car of special construction, which was entered for the reliability trials commencing next week. Those who had been informed of the details of this vehicle, and were aware of the care and thought which had been expended on her construction, had every hope that by her performances in the forthcoming trials she would afford another proof that English engineers who had studied automobile construction could turn out a vehicle equal in soundness, reliability, and comfort to anything produced by our friends over the water. As a prelude to the appearance of this car in the club trials it was resolved to try her for a non-stop run between Edinburgh and London, and for this purpose she was taken by rail to the Scottish capital, whence she was to have been driven by road to London. Mr. Chas. Sangster, the managing director of the Components Company, Ltd., who is responsible for the design and construction of the Ariel automobiles, drove, and had asked Mr. Swindley, as representing *The Autocar*, and for the purpose of testifying to the incidents of the run, to accompany him. The car was given a short trial trip on Wednesday last week, and having been gone over carefully at the Velodrome in Edinburgh, took the road the next (Thursday) morning in the best possible condition.

The Edinburgh General Post Office was left at 3.30 a.m., just as the merest promise of dawn could be discerned in the East. The tram-lines of the Edinburgh United Tramways Co. were followed out on the road towards Musselburgh, but before the city was cleared that happened which put the possibility of a non-stop run to London, to be followed by success in the reliability trials, altogether out of the question. At frequent intervals between the rails of the cable trams occur man-holes, by which access to the tram-hauling cable is obtained, and these man-holes are closed by two heavy cast iron doors, opening upwards at right angles to the rails, after the manner of cellar flaps. On the morning in question workmen in the employ of the Tramway Co. had descended into the subway for the purpose of dealing with the cable, through a man-hole in Cadzow Place, Abbey Hill, at a point under two miles from the G.P.O., and had left these man-hole doors, which are about 2ft. 3in. by 2ft. 3in. by 3in., open and upright behind them. The roadway here runs somewhat north and south, so that what little dawn-light there was was entirely obscured by the high buildings on the left of the road. The electric lights in the street had been extinguished, and no guard lights of any kind were placed to warn road-users of the open doors. The car ran down the slope of Cadzow Place at from eleven to twelve miles an hour, the first intimation the occupants thereof receiving of the upright doors and the cavity in the centre of the road being a great shock and the lifting of the car to the left, which, for an instant, suggested that the vehicle was about to turn bodily over. This was followed instantly by another shock, rather less severe, another terror-striking lift, and the car righted again to run on to an accompaniment of metallic squeaks and groans for twenty-seven paces, when she stopped of her own accord. The impact against these heavy iron doors was very severe, but what undoubtedly saved the occupants of the vehicle from mutilation, or worse, was the fact that the hinge blocks of the farther door being very badly flawed, the door broke off bodily, and fell back into the road. Had the hinge blocks held, the car must have overturned. Mr. Swindley consulted his watch immediately upon getting down, to find the time was 3.40 a.m., so that ten minutes, more or less, had been occupied in running from the G.P.O. It was not until the occupants of the car walked back to discover the cause of so disconcerting an incident that the fact that the man-hole doors had been left open, and that it was with them that the car had collided, was evident. Pursuance of the journey was out of

the question, for upon examination it was found that the steering-wheel axles and the forward axle were badly bent, the radius rods broken and trailing, the propeller-shaft carried away, and the frame badly upset. The pneumatic tyre of the off-side steerer, too, was cut right through, but, praise be to the wheelmaker, whoever he was, the wheel itself had not collapsed. For a trial car to be so badly damaged by the gross carelessness and neglect of the servants of a tramway company when she had been particularly turned out for the forthcoming reliability trials will be admitted to be hard lines indeed, and the sympathy of all automobilists whose earnest desire it is to see British manufacture make headway will assuredly be extended to the Ariel Motor Co. and Mr. Chas. Sangster, to whom this untoward accident is a bitter disappointment. Two or three workmen who were on their way to, or returning from, their work and witnessed the accident said that they had on several occasions warned the Tramway Co.'s servants of the extreme danger of leaving these man-hole doors open, and a police sergeant who visited the scene later also spoke as to a similar warning given by himself. Mr. Sangster's arms and hands were badly strained, while his companion was severely bruised on the left thigh by being hurled against the side of the car, and has since suffered considerably from the shock.

As some description of the new car will be of interest, we may say that the 16 h.p. (nominal) four-cylinder engine gives 20 h.p. on the brake at 1,400 revolutions per minute. The cylinders ($3\frac{5}{16}$in. bore by 4in. stroke) are cast in pairs, with combustion chamber and water jacket complete. The carburetter is of the jet and float type, containing a valve worked by the governor cutting off the supply automatically. The water circulation is forced by a centrifugal pump driven off the engine. Cooling is effected through radiators placed in front of the car, the water tank being behind the front seat, with a capacity of ten gallons—sufficient for 175 miles. The ignition is, of course, electric. Four speeds forward and a reverse are provided, all actuated by a single lever placed on the footboard, and in a most accessible position to the left of the steering column. The connection between the speed gear and the balance geared live back axle is by universally-jointed transmission shaft and bevel gear, so that the whole of the transmission is weather proof. The speeds vary from four miles an hour up to a maximum far above usual requirements. Two powerful band brakes, worked by hand lever at the side, act upon drums on the rear wheels, and there is also a double-acting band brake on the countershaft, pedal applied. The petrol supply is carried under the front seat in a tank holding twenty-one gallons—sufficient for about 175 miles. The wheels are of artillery type, and mounted with Clipper-Michelin tyres, 870 mm. × 90 mm. The body, which is the one fitted to the car for its long run, is made entirely of aluminium, but there is an optional variety of the tonneau type also very lightly constructed. The leading dimensions are: Length over all, 11ft. 6in.; width, 5ft.; and height, 5ft. 2in.

Mr. A. Bonar Law, M.P., Parliamentary Secretary to the Board of Trade, has ordered one of the new two-cylinder 10 h.p. Argylls.

FAST KILOMETRES AT WELBECK.

His Grace the Duke of Portland, Master of the Horse, is an all-round sportsman. He not only lent his private road for speed trials in the thousand miles trip in 1900, but for brake trials in January last, and when he found that cars were beginning to travel too fast for the central bend in the course he mended the bend by abolishing it, so that even a 70 h.p. Panhard need not slacken for safety's sake when in full flight, and Jarrott was able to establish a British best, at the last club meet, of 35s. for the kilom. Since then the Duke has had the course constantly rolled, and gave permission to Mr. Jarrott for a further trial on Friday last week. Quite a remarkable change had occurred since the club races, for the track was dry, the atmospheric conditions warm and sunny, and the little breeze that stirred the air blew down the course. Everything pointed to the certainty of an improved time, but not even Jarrott himself was quite sanguine enough to expect the splendid results which were achieved. Taking a start from outside the gate, Jarrott's first effort was obviously faster than anything done at the club trials, and when the two timekeepers, Messrs. F. T. Bidlake and G. Pembroke Coleman, met to compare their readings the time taken for the kilom. was found to be $29\frac{4}{5}$s.—a great beating for the British record on the same course, but not quite up to the Vanderbilt score of $29\frac{2}{5}$s. The timekeepers then took up positions again, and, in the absence of a telephone, a 7 h.p. Panhard, driven by Mr. G. Du Cros, served to bring the two watch-holders together after each trip and reconvey them to the end-posts of the measured kilom. certified as correct by the surveyor of the Welbeck estates. Jarrott was confident of further success, but the second trip was a trifle slower, occupying $30\frac{1}{5}$s. Undaunted, the imperturbable Jarrott journeyed back to the start for a third trial, and swept down the course in 29s. exactly, and on this result being achieved there was an hour's interval, during which the tyres were changed. Record had already been broken, but an even faster tyre was fitted to secure even better results, and after a first canter in $29\frac{1}{5}$s. a last run was made in the astonishing time of $28\frac{1}{5}$s.—a truly magnificent performance. The demonstration of the speed capacity of the new Dunlop motor tyres was thus rendered complete and absolute.

Mr. Valentin, of Llanelly, Carmarthenshire, in company with his wife, last week, on a Milord Cabriolet De Dion, fitted with the new 6 h.p. engine, enjoyed a most delightful motor car tour in North Wales. They travelled *viâ* Lampeter, Aberystwyth, Machynlleth, Dolgelly, Barmouth, Portmadoc, Beddgelert, Llanberis for Snowdon, Carnarvon, Bangor, Conway, Llandudno, Bettws-y-coed, Bala, and home through mid-Wales. Over 500 miles were covered in the week—an average of seventy to eighty miles per day. No trouble with punctured tyres was experienced, and the car did splendid work. The tyres, which were Dunlops, used to give a fair amount of trouble, but since Mr. Valentin has covered them with Brown's compressed treads he states he has been free from punctures and cuts. Though carrying a considerable weight of petrol and luggage, every hill was easily climbed, and the runs were practically non-stop. The petrol consumption worked out at twenty-one miles per gallon.

Correspondence.

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

AN EXPLANATION.

[2587.]—Our advertisement which appeared in your issues of August 16th and 23rd described our Progress cars as 8 h.p. De Dion double phaetons and 9 h.p. De Dion tonneaus. This description, although appearing under the heading of "Progress Cars," is obviously a mistake, as they should have been described as Progress double phaetons fitted with 8 h.p. De Dion motors, and Progress tonneaus fitted with 9 h.p. De Dion motors. We shall esteem it a favour if you will kindly publish this explanation, as you are aware that we manufacture only, and do not deal either in De Dion or any other make of cars than our own, and the last thing we desire is to represent our Progress cars as De Dions, from which they vary in many essential details. PROGRESS CYCLE CO., LTD.

HALDON HILL.

[2588.]—Surely Mr. Pickles has overestimated the grade of Haldon Hill, between Exeter and Chudleigh, or his engine must have been pulling very badly at the time. Living, as I do, in the neighbourhood, I have crossed this hill many times. It is a run I am very fond of taking, as the road is wide and generally of a good surface, and there is a magnificent view from the top. The grades are very ordinary for South Devon. I drove a party of five over a few weeks ago in my 10 h.p. Wolseley, and never dropped below the second speed, though one or two cyclists were, I believe, hanging on behind a good part of the way up. A car that would not climb Haldon with full load would be of little service in South Devon. WM. CROSS.

THE DIRECT STROKE.

[2589.]—In your issue of July 19th, which the writer has just read, Captain Longridge states that, so far as he is aware, vehicle motors have not been built with the crankshaft to one side of the cylinder central line. We beg to call attention to the fact that our triple cylinder motors were designed this way in 1897, and have been built continuously so since, the shaft being one-third the crank length out of the cylinder central line. We call this a "direct stroke motor," because the piston rod makes a more nearly direct push on the working stroke.

In the same issue we notice a cut of the Duryea vehicle that won the London to Brighton run in 1896. Kindly note that this vehicle had angle iron frame, semi-elliptic springs, no reaches, ignition by dynamo, throttle control, and constant level spray mixing device. It had also artillery wheels, parcel room in the dash, and long wheelbase, low centre of gravity (the cushions being but little above the top of the wheels), and many other features, recognised as being the proper thing to-day. We doubt if similar evidences of progress exist elsewhere.

DURYEA POWER CO.,
C. E. DURYEA.

THE PLYMOUTH MOTOR RACES.

[2590.]—We can quite see that it might give the impression that the Clement-Garrard "touring motors" were under power when placed on the track beside "racers."

But when one looks into actual figures, one must agree that they were showing ample power. For these light touring motors were then making thirty miles per hour, viz., five miles in ten minutes (9m. 30s. was touched by Shakespeare at a previous meeting).

The Clement-Garrard racer holds the record for the Plymouth track, but that is not any use whatever for touring. Fancy touring at forty miles per hour!

Your correspondent says nothing of the weight. Those touring motor bicycles that were making thirty miles per hour weighed from 68 lbs. to 71 lbs., whereas the racers he cites weighed from 160 lbs. to 3 cwts.—veritable locomotives.

A bicycle is a single track non-suspended carriage intended to be of light and simple construction, and 1½ h.p., accomplishes thirty miles per hour, averages over twenty miles per hour on actual tour, and does all the one in ten hills without pedalling.

It seems, then, superfluous to carry with us on tour some 100 lbs. weight in addition, unless we want to do forty miles per hour and average thirty miles all the time.

An automobile is a two-track suspended carriage, and capable of carrying heavy weights and larger powers comprehensively, but this will be found most unwieldy on a two-track non-suspended carriage—to wit, a bicycle.

The expert racing man does not mind this a bit. He borrows the motor from the automobile, and uses it with remarkable skill, creates a sensation, dwarfs the tourists, but still does the industry at large lots of good directly and indirectly. THE GARRARD MFG. CO., LTD.,
C. R. GARRARD, M.C.E.I.

THE SHOW QUESTION.

[2591.]—A letter is being circulated amongst the press in which the president of the Society of Motor Manufacturers and Traders, Ltd., points out that it has been resolved that all members of that society should mention the Crystal Palace exhibition in their advertisements. He adds that "this rare proof of unanimity amongst the trade is worthy of editorial notice."

Although the Automobile Mutual Protection Association, Ltd., has no desire to enter into conflict with sectional interests represented by any other organisation, I would venture to point out, firstly, that the desired references to the exhibition in advertisements will show the numerical weakness of the position assumed by the society; secondly, that the fact that 150 firms have already booked space at the exhibition promoted by Mr. Charles Cordingley at the Agricultural Hall, under the official patronage of this association, sufficiently proves that the attitude of the trade is not one-sided, as is suggested by Mr. Simms.

The work already done by this association in connection with patent and other questions, and especially the overthrow of the Maybach patent and the splendid terms it has been able to secure to the firms who exhibit at the Agricultural Hall exhibition, is being more and more recognised by the trade.

It is interesting to know that several firms represented on the council of the society above referred to will exhibit at the exhibition supported by the Automobile Mutual Protection Association, Ltd. GEO. R. HELMORE,
Sec. and treasurer A.M.P.A.

ENGLISH COILS.

[2592.]—For three years I have experienced with and tested various coils, and I find for thorough reliability and perfect action under all conditions none beat the Blake coil, and few are equal to it. I think this cannot be too well known, as it not only maintains the correct i.h.p. of a motor, but saves the owner many pounds by reducing the chance of fracture in the machinery, as per Mr. Austin's experience of broken cranks in the Gordon-Bennett race.

FRANCIS COVE.

[2593.]—I have just seen Mr. Austin's letter *re* his troubles in the Paris-Vienna race, and though I am greatly interested in the Wolseley cars from an Englishman's and an engineer's point of view, I can hardly allow one remark of your correspondent's to go unnoticed.

Mr. Austin states that he found three coils "trembling" together, and seems to imply that this was a fault attributable to the coils. We have heard a great deal lately about the unsatisfactory behaviour of English spark coils, but a strange coil indeed must Mr. Austin's have been! Anyone with a moderate amount of electrical understanding must at once see that it is practically an impossibility for the three coils to be "buzzing" together unless there were short circuits in the exterior wiring or serious defects in the commutator, and, under the circumstances, the latter cause looks more like the real one. I presume Mr. Austin designed the Wolseley commutator. It is therefore much to be regretted that he did not give more particulars, as to some people "a little knowledge, etc., etc."

In regard to the matter of sparking coils, I have had Blake coils and many others of English make running absolutely perfectly on high speed engines of the cycle motor type up to 1,500 contacts per minute. To say a

coil is not "fast" enough is absurd, because the faster the engine runs the trembler has less chance of coming to rest, and will work with considerably less battery power. This is notable when a car engine slows down before changing speed with the battery weak, "misfires" often occurring; though at a good speed the engine may run well without missing at all. A.I.E.E.

LEGISLATION.

[2594.]—From the letter which appears in the club *Journal* of the 14th inst. and *The Autocar* of the 16th inst., it would seem that the A.C.G.B. and I. do not propose to have any further discussion, in the pages of its journal, of the question of the desirability of numbering motor cars. The club has, however, decided to set apart one evening in November, when the matter may be discussed in London, after which, I presume, unless there is an overwhelming majority against it, the bill will be proceeded with. I trust, however, that a question of such vital importance will not be shelved from now until November, but that, in your columns and those of the other periodicals devoted to automobilism, the subject will be thoroughly threshed out.

I quite believe that the framers of the bill and the executive committee of the A.C. have given many hours to the careful consideration of the question, and are anxious to do the best thing for their fellow members. But are there not many others who have given the matter just as careful consideration who have come to a different conclusion thereon? I, for one, do not think that the removal of the twelve miles an hour limit would do much to free motorists from persecution so long as those who instruct the police are full of prejudice against motors. The summons would simply be for furious driving, instead of exceeding the legal limit, of which the magistrates would be the sole judges. For what would be the use of appealing against their decisions in face of the judgment which now stands on record with regard to the question of what is furious driving.

Then, as regards identifying and punishing the roughs and blackguards. What I contend, and so do very many others, is that this class of driver would not suffer by it so much as the careful considerate driver. The police probably would make no improper use of the numbers, but what about every Dick, Tom, and Harry, who is "against" motors? They would take every opportunity to put drivers to all possible trouble and expense, even though they should be unsuccessful in getting a fine imposed or substantiating a claim for damages. And it is mostly under this latter category that the trouble would arise, for if anything goes wrong with a horse, in their minds, it must be the motor that is to blame. I have driven constantly during the last two years, and have never had any trouble with the police, but on several occasions I have been in situations where if any individual who cared to do so could have taken my number, I should probably have had to appear in the county court to defend some ridiculous claim for damages. True, I should have successfully done so, but at what cost of time and money! Let me give one instance. I was driving along a country road, when some 300 yds. or 400 yds. ahead I saw a horse and trap standing unattended outside a publichouse. I at once sounded my horn, and as I got nearer, finding that no one came out, I slowed up, still sounding my horn, and, finally, as the horse showed signs of nervousness, I stopped altogether, some 70 yds. or 80 yds. from the animal. He, however, had gradually become more and more frightened, until at last he started off up the road. And then, and not before, its owner rushed out of the house, and off up the road after his vanishing vehicle. With the owner, of course, I had no trouble, for I never saw him again, but the landlord and the other occupants of the publichouse bar were very much enraged at the motor, which had disturbed their drinking; and from the remarks made, as I slowly crawled up on the slow speed, there is not a doubt that had they been able to take down the number of my car, they were so certain that I was to blame for being on the road at all with a "—— noisy thing like that," that I should certainly have been put to considerable trouble and annoyance. But the roughs and blackguards have nothing to fear, let them rush away at thirty or forty miles an hour, and he will be a clever man who will read the number of the car through the following cloud of dust. And if a number is caught sight of, dimly, through the dust, most likely it will be misread, and then some innocent driver will be put to no end of trouble to prove that it was not his car. I know—we all know—that the present law is vexatious and stupid, but that is no reason why we should seek to get rid of one lot of fetters by taking on others still more irksome. For many years past there have been occasions on which rowdies, or gentlemanly blackguards in horse-drawn vehicles, have knocked down children, upset cyclists, or performed some act of wanton destruction, and driven off to escape detection, but I have not heard that the owners of other horse-drawn vehicles have combined to promote a bill requiring them one and all to number and register their carriages. Then, why should we put a weapon of annoyance in the hands of our acknowledged enemies?

GEO. THOMPSON.

[2595.]—Will you permit a word from one of the humbler brethren of the craft? My pocket will not allow me to seek inclusion in the fold of the apparently omnipotent A.C.G.B. and I., and I do not quite see that it is for them to decide what I should submit to in order that they may enjoy what speed they like.

My view is that the law, whatever it is, should be obeyed, not evaded, and an alteration, if required, obtained by legitimate agitation, not that we should all be ticketed because certain ardent units, be they gentlemen or cads, persist in breaking it, otherwise, as a natural corollary, every biped amongst us should be labelled in order that criminals of all kinds may be detected by the police. Moreover, on the question of appeal, we could not all afford to go to the High Court for simple justice, and some effort should be made to save us from the—possibly innocent—exaggerations of rural police and the by no means innocent bias of certain magistrates.

RICHARD PARR.

[2596.]—I support the attitude of Mr. Norman D. Macdonald, chairman of the Scottish Automobile Club, in his objections to the proposed legislation for the numbering of private motor cars so well stated in his letter to the executive of the A.C.G.B.I., and supplemented in his letter in your journal last week. The reasons stated by Mr. Macdonald against numbering cannot be too often or too strongly urged on those who are rushing this Bill with the sole object of getting the "fourteen miles an hour" limit removed.

Mr. Macdonald says, and I agree with him:

(1.) The whole matter is being rushed at in needless haste.

(2.) The general body of autocarists have not asked for such things.

(3.) No time has been given for the public to educate itself.

(4.) After all, we are getting along well enough.

(5.) Except in certain districts the public mind seems all in favour of us now.

The executive of the A.C.G.B.I. may dispute the first statement above quoted, but they surely will not deny the other four. Yet in this position of matters, the executive lend themselves to and support the agitation in favour of numbering.

I fear I shall not be able to attend the meeting on 6th November at the Automobile Club when this matter comes up for discussion, hence this letter to you. With all respect to the executive of the A.C.G.B.I., it appears to me that their reasons for supporting the numbering of cars submitted in the secretary's letter to the press are extremely lame and weak. In that letter we are asked, in considering this question of numbering, "to bear in mind the fact that the authorities and the public are daily becoming more incensed and irritated by the reckless motorists who, after inconveniencing—nay, more, injuring—other users of the highway, drive on without stopping, in order to avoid identification." Is this really a fact? After five years' experience as a motorist, and during that time motoring repeatedly through more than a dozen of the busy central counties of Scotland, I most confidently affirm that the secretary's statement above quoted is the reverse of fact, as regards Scotland at all events. While I do not class myself in the secretary's category of reckless

motorists, I admit that in the 20,000 miles or so I have covered since I commenced motoring, I have many times incensed, irritated, and inconvenienced other users of the highway, but through no fault of mine, just as other users of the highway have inconvenienced me through no fault of theirs. The cause of the irritation, etc., against me was not because I drove on without stopping, but because horses, and more often their drivers, were frightened at my approach. I, in turn, was inconvenienced—though rarely incensed or irritated—in such cases, through being obliged to stop. My irritation was almost invariably at the innumerable times I had to stop, because of horses standing unattended on the highway at public-house doors. All this, however, was in my early motoring days. While, then, it was the rule to meet frightened horses and drivers, now in a day's travel it is the exception; and, as for unattended horses at public-house doors, while they are as numerous as ever, I now pass them without their even condescending to show any interest in me or my car.

The other fact we are asked in the secretary's letter to bear in mind is "Methods of identification would at once secure the punishment of offenders." This may or may not be a fact, but certainly the method of identification ought not to be by such numbering on the car as could be read by a policeman when the car is passing him at the rate of twenty, thirty, or forty miles an hour in a cloud of dust. The police are surely capable of identifying a car by its general description, which can be telegraphed or telephoned to the next village or town on the road taken by the reckless motorist, and, if necessary, the car can be followed up in this way to its destination for the day.

We have reasonable county councils and reasonable policemen, in Scotland at least, who do not raise prosecutions for travelling at speed beyond the legal limit, except when an accident has occurred, owing to the excessive speed, or in the rare case when a motorist has been warned by the authorities to in future moderate his speed in certain districts, and fails to obey the warning.

Another important point to be kept in view is the prejudicial effect numbering will have upon the motor car industry. The injury in this direction will, I fear, outweigh the benefits to be derived from the removal of the speed limit. At present, many gentlemen keep both a stud of horses with private carriages and also one or more motor cars, and the numbers doing so are rapidly increasing. If the motor carriages must by law have big numbers upon them in a prominent place, so as to be easily seen and read by everyone on the highway, then it will assuredly follow that many gentlemen who now own motor cars will cease to use them, and many others will refrain from buying motors. Mr. Macdonald correctly interprets the view that will be taken of numbering when he styles it the brand of Cain. The objection to numbering may be largely sentimental, but in this matter sentiment has got to be reckoned with. You cannot reason against sentiment.

The last two sentences in the secretary's letter give away the whole case in favour of the numbering of cars. He says: "Identification would bring about the punishment of roughs and blackguards. The existing attitude of most of the authorities gives reason for believing that the man who uses his automobile as a gentleman would have no reason to fear that he would be the victim of injustice." That is to say, because there are a few roughs and blackguards among motorists, "the man who uses his automobile as a gentleman" is to be subjected to this indignity and to be branded with the mark of a rough and blackguard. If there must be identification, then the executive ought to devise some less objectionable method.

If the speed limit cannot be removed, except upon condition of consenting to numbering, then the law ought meantime to be allowed to remain as it is until the public have been educated and are ripe for the removal of the speed limit without any such condition. Meanwhile, the members of the A.C.G.B.I. ought to have confidence in and believe the secretary's statement, made on behalf of the executive, that "the existing attitude of most of the authorities gives reason for believing that the man who uses his automobile as a gentleman would have no reason to fear that he would be the victim of injustice." In this sentence, the secretary correctly interprets the attitude of the authorities in Scotland to those who use their cars as gentlemen, and that with the law as to speed limit as it now stands.

In conclusion, I venture to affirm that there is not a motorist in Scotland who desires the speed limit removed if it is to be at the cost of the indignity and stigma of numbering, and if the A.C.G.B.I. are to persist in their Bill, then I suggest that the last clause thereof be as follows: "This Act shall not extend to Scotland."

JAMES BURNS.

[Several letters and other items are crowded out this week.—ED.]

LINCOLNSHIRE A.C.

The first run of the Lincolnshire A.C. to the Boston district was to Boston on Thursday last week, and a good many members turned up, although the picturesque old town is not the most convenient place for a meet. The Mayor of Boston, Alderman Simons, had invited the members, but the death of his sister that morning necessitated some alterations in the programme of reception. The cars were drawn up in the market place, and made a somewhat interesting, if not imposing, array. The police marshalled the cars, and they were drawn up in two rows, one on each side of the market place, spaces being left between for the public to walk round the vehicles. Mr. C. W. Pennell (Lincoln), the chairman of the club, had his 12 h.p. Durkopp; Mr. F. Dennis (Kirton), his 3½ h.p. Progress; Mr. S. G. Lovell (Stickney), 5 h.p. Stonebow; Mr. E. Cragg, M.D., the energetic and popular hon. secretary, his famous old 3½ h.p. Benz; Dr. Miller (Wrangle), 4½ h.p. De Dion; Mr. W. B. Jevons (Market Rasen), 6 h.p. De Dion; Mr. A. A. Padley (Market Rasen), 9 h.p. De Dion; Dr. Nicholl (Billinghay), 5 h.p. Wolseley; Mr. W. R. Pennell (Lincoln), 2¾ h.p. De Dion quad; Mr. H. T. Pilley (Boston), 4½ h.p. De Dion; Mr. F. Richardson (Sibsey), 5 h.p. Baby Peugeot; Mr. C. Holland (Boston), 5 h.p. Baby Peugeot; Mr. M. H. Brookes (Eye), 3½ h.p. Benz; Capt. J. A. Cole (Roxholme), 7 h.p. Daimler; Dr. Husband (Crowland), 7 h.p. New Orleans; Mr. G. J. Wilkinson (Lincoln), ex-secretary, 2¼ h.p. Progress tricycle; Mr. F. H. White (Lincoln), 12 h.p. Boyer; Mr. C. F. Brookes (Eye), 1¾ h.p. Werner bicycle; Mr. T. W. Swaby, 6 h.p. York Boyer; Mr. G. Godson (Aswarby), 6 h.p. M.M.C.; and Mr. C. H. Hole (Lincoln), 12 h.p. Panhard. The members took tea at the Peacock and Royal Hotel, Boston, and, as each car carried a fairly full complement of club members and passengers, in addition to the members' drivers, there was a very good attendance. It was decided that the next run of the club, or, rather, meet, should be to Bawtry on September 20th, the members of the Yorkshire Club being invited to join the Lincolnshire men.

AN IMPENDING ACTION.

On Wednesday last week, in the Vacation Court, Mr. Justice Swinfen Eady granted leave to the plaintiffs in the case of Werner v. Gamage to postpone the hearing of a motion for an injunction to restrain the alleged infringement of the plaintiffs' registered design for a week, Mr. Simmons representing the plaintiffs. Mr. Chitty, for the defendants, consented to the postponement which was asked for, owing to the evidence being incomplete.

THE MONARCH MOTOR CO.

In the Chancery Division of the High Court on Wednesday last week, Mr. Kenyon Parker mentioned a creditor's petition in the matter of the Monarch Motor Co., which he asked should be answered for September 3rd. Mr. Justice Swinfen Eady acquiesced.

A young man requiring a situation as a driver, described himself, or was described, in a contemporary as "experienced in several different *makes*." We are wondering how many owners fell over each other to engage him. Few car owners would care to have their vehicles regarded and treated as donkeys.

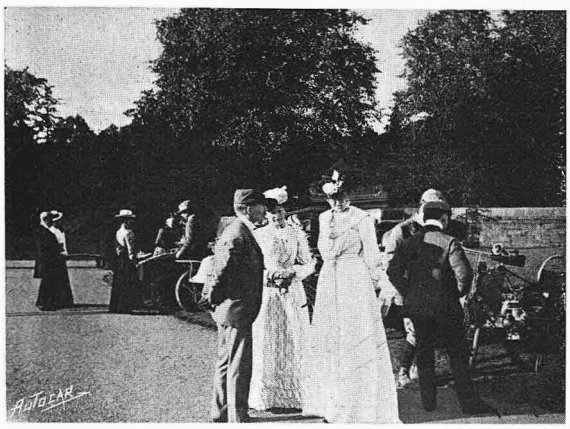
THE MANCHESTER AUTOMOBILE CLUB.

It would seem that Tarporley—that little market town on the high road between London and Chester and about ten miles south-east from the latter city—must offer some special attraction to the members of this flourishing club, as on Saturday, the 23rd inst., for the second time this season, the town was selected as the rendezvous of the run on that day, and it is remarkable that on both occasions exactly similar atmospheric conditions prevailed, the heavy rain at the outset causing much discomfort and delay. Through the kindness of Lieut.-colonel James Tomkinson, M.P., J.P., D.L., the club were invited to visit Willington Hall, and this was the first objective. At about 3.30 the cars began to arrive, Mr. Fred Hammond on his 9½ h.p. Clément being the first to appear. He was followed by others at intervals, until at about 4.30 cars to the number of twelve had come in, the inclemency of the weather accounting for those (twenty-one in number) who, although having notified their intention to attend, did not do so.

Willington Hall.

The members and their friends were most kindly received by Colonel and Mrs. Tomkinson, with whom they had tea. Afterwards the cars were arranged in the grounds, and numerous photographs were taken by Mr. R. Banks, the club photographer, Colonel Tomkinson being seated in Mr. J. Higginson's car, Mrs. Tomkinson in Mr. A. E. Jones's car, and Miss Tomkinson in that belonging to Mr. W. E. Rowcliffe.

The hall is a handsome mansion of red brick, which stands in a park of considerable extent, and those present were greatly pleased and interested in inspecting both the house and grounds under the direction of Miss Tomkinson. This done, a vote of thanks was proposed by Mr. Rowcliffe to the host and hostess for their kindness.



Lieut.-Col. Tomkinson, J.P., and Mrs. and Miss Tomkinson, the host and hostesses of the club.

An officer making enquiries as to the speed between Manchester and Tarporley.

During the time the members were at Willington a cricket match was in progress between a Chester team and a local eleven, and while the owners of the cars were at tea Mr. Banks persuaded the players to board the vehicles, and obtained photographs of them as souvenirs. All the photographs taken at runs are carefully preserved as club records, and will in the future no doubt prove interesting.

A start was then made for Tarporley—a distance of about two miles—where the cars caused considerable excitement among the population, and made the police feel their importance. The whole party proceeded to the Swan Inn, where an excellent repast was partaken of. After this the cars

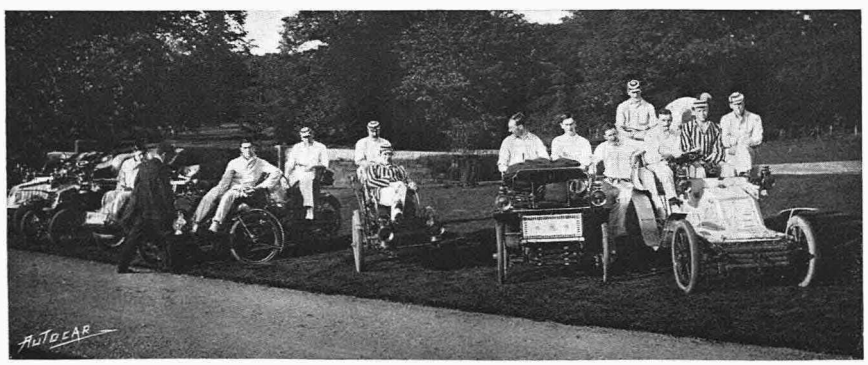


Photo by R. Banks, Manchester.

When the automobilists returned from tea, they found their cars were manned by some gentleman cricketers who had been playing in the park

dispersed. It had been hoped that Mr. Roger Bate, J.P., local member of the county council, would have been present at dinner, but he was prevented owing to a previous engagement.

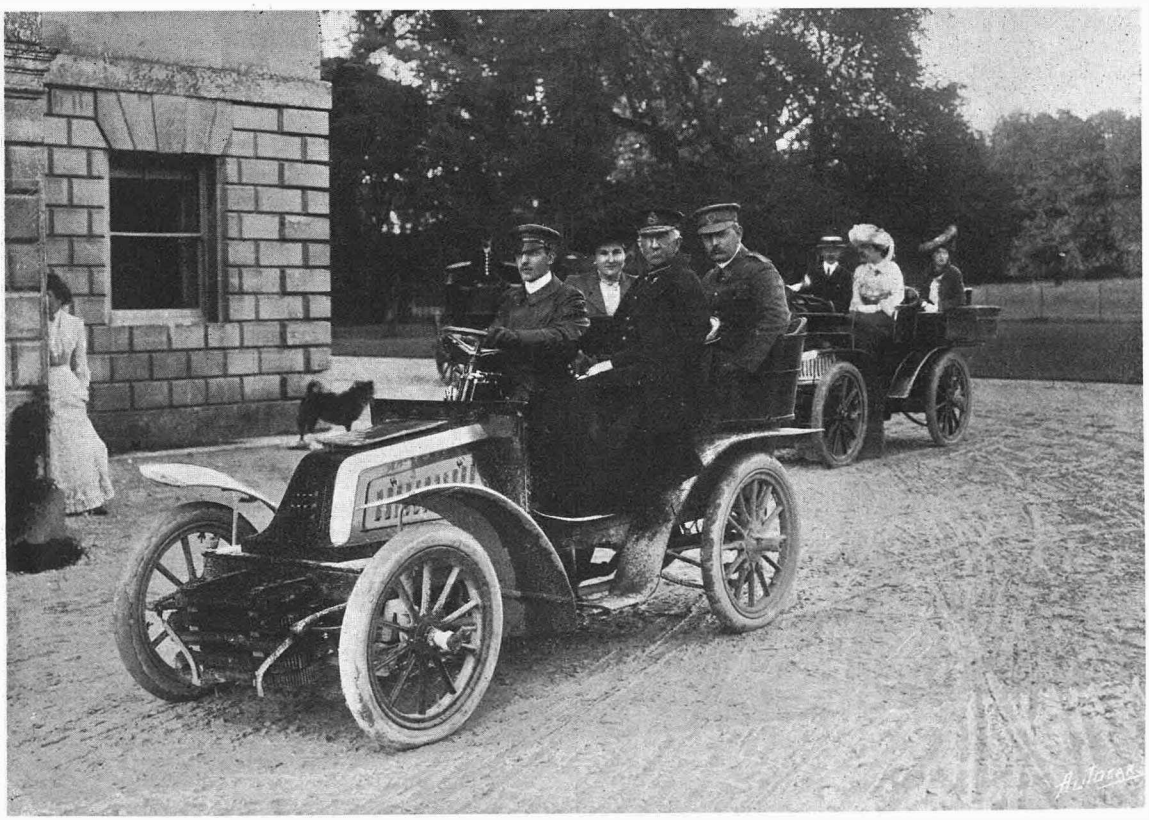
The only mishap *en route* at present recorded in connection with the run was the murder, wilful or otherwise, of a duck by Mr. Fred Hammond. It was one of a number which impeded his progress, and it was highly amusing to witness the owner holding the duck, which she said was the pet of the family, in front of her by the neck, when she afterwards appeared and demanded compensation. This was at once given in a novel way by an impromptu auction, at which the duck fetched 2s. 6d., to the evident satisfaction of the owner.

The police were active throughout the run, particularly at Sandyways, where both Mr. Hammond and Mr. Rowcliffe were stopped, and gave their names, though without reason, for alleged infringement of the speed limit.

The club may congratulate itself on having obtained as a vice-president Mr. Cuthbert Leicester-Warren, J.P., of the Manor Hall, Tabley. This gentleman, who is an enthusiast, was present at Willington Hall, and then and there agreed to associate himself with the club in the manner indicated, much to the satisfaction of the members.

The following is a list of the members and their friends who attended, together with descriptions of their cars: Mr. Victor O'Neill, 10 h.p. Cottereau; Mr. R. C. C. Yates, 2¾ h.p. Swift tricycle; Mr. W. E. Rowcliffe, with Miss Rosa McClinton, 5 h.p. Century voiturette; Mr. J. B. Bindloss, jun., with Dr. Wilson, 4½ h.p. Eagle tandem; Mr. Ralph Jackson, with Mrs. Jackson, 4½ h.p. Eagle tandem; Mr. Ralph Jackson, with Miss Jackson and Mr. Smith, 8 h.p. Eagle; Mr. Frank Gresham, with Mr. D. Simpson, 4½ h.p. De Dion voiturette; Mr. J. Higginson, with Mrs. Higginson, 4½ h.p. Empress; Mr. J. E. Hammond, with Mrs. Van der Lely, Mr. J. A. Bennett, and Mr. R. Banks (club photographer), 9½ h.p. Clément; Mr. F. A. Baume, 4½ h.p. Century; Mr. A. E. Jones, with Mrs. Jones and Mr. and Mrs. F. R. Jones, 8 h.p. Progress; Mr. Charles Frost, with Mr. Collett Frost, 4½ h.p. De Dion.

HOW THE MODERN GENERAL TRAVELS.



Argent Archer, Photo, *High Street, Kensington.*

General Sir Evelyn Wood's arrival at Sir Edmund Antrobus's fête and bazaar at the Abbey, Amesbury. The photograph was taken during the recent Volunteer Manœuvres on Salisbury Plain

"From Sun Land to Snow Land on a Motor," by J. Loxton Hunter—a descriptive and profusely illustrative narrative of a run through England and Scotland to John-o'-Groat's on an automobile—will be ready the first week in September. 1s. Iliffe and Sons Ltd., 3, St. Bride Street, Ludgate Circus, E.C.

THE 650 MILES RELIABILITY TRIALS.

On Monday next, September 1st, the 650 miles reliability trials organised by the Automobile Club will commence, and coincidentally the 3,000 miles trial of tyres. These trials are somewhat different from those which have preceded them, inasmuch as they are managed by a joint committee of nine members of the Automobile Club and nine members of the motor industry, as it was felt that by this combination the interests of the user and the maker would be better represented, and that altogether more practical results would be arrived at. The start each day will be from the Crystal Palace (Rockhills Entrance), and the hour of starting seven every morning, except on Friday, the date of the hill-climbing contests, when the start will not be made till nine o'clock, as on this day it will be necessary to measure the fuel and weigh the cars. The two hills up which the cars will be timed are River Hill and Westerham Hill, both of which we publish in section in the present issue. On the following pages we give maps of each day's route, and also sections of the roads, reproduced by the special permission of Messrs. Gall and Inglis, from their "Contour Road Book."

It should be clearly understood that the trials are for reliability alone, and that no marks will be awarded for any maixmum speed over twelve miles an hour, and if this speed is exceeded beyond a certain reasonable limit the competitor so offending will be disqualified.

The tyre trials will continue through September, and the vehicles to which they are fitted will be stored at the Palace.

THE ENTRIES.

Over ninety cars have been entered in the different classes, and we give below the names, powers, and official numbers by which the machines will be distinguished during the trials:

CLASS A.—Vehicles (cycles or cars) declared at a selling price of £150 or less.

Official No.	*Name.*
1.	3 h.p. chain-driven Humber bicycle
2.	2 h.p. chain-driven Humber bicycle
3.	5 h.p. Century tandem
4.	5 h.p. Century tandem
5.	6 h.p. Baby Peugeot
6.	1¾ h.p. Werner motocyclette
7.	1¾ h.p. Ormonde bicycle

CLASS B.—Cars declared at a selling price of more than £150, but not more than £200.

Official No.	*Name.*
8.	4 h.p. Oldsmobile
9.	5½ h.p. Locomobile
10.	5½ h.p. Locomobile
11.	4½ h.p. Swift

CLASS C.—Cars declared at a selling price of more than £200, and not more than £300.

Official No.	*Name.*
12.	8 h.p. Parr light car
13.	8 h.p. Parr light car
14.	8 h.p. Argyll
15.	10 h.p. Duryea three-wheeled phaeton
16.	7 h.p. Hallamshire voiturette
17.	10 h.p. Hallamshire light car
18.	8 h.p. Dennis
19.	7 h.p. Star
20.	5½ h.p. Locomobile
21.	5½ h.p. Locomobile
22.	4½ h.p. Renault
23.	8 h.p. M.M.C. voiturette
24.	6 h.p. De Dion-Bouton
25.	7 h.p. Benz
26.	6 h.p. White steam car
27.	9 h.p. Rex
28.	10 h.p. Georges-Richard
29.	6 h.p. White steam car

CLASS D.—Cars declared at a selling price of more than £300, and not more than £400.

Official No.	*Name.*
30.	10 h.p. Decauville.
31.	10 h.p. Georges-Richard
32.	9 h.p. James and Browne
33.	12 h.p. Gladiator
34.	14 h.p. Hallamshire touring car
35.	10 h.p. Brooke
36.	Light car fitted with Simms 8 h.p. motor
37.	8 h.p. Milnes
38.	10 h.p. Star
39.	10 h.p. Wolseley
40.	7½ h.p. Wolseley
41.	10 h.p. Wolseley
42.	12 h.p. Belsize
43.	12 h.p. New Orleans
44.	9 h.p. New Orleans
45.	8 h.p. Clarkson-Capel.
46.	8 h.p. Brush
47.	8 h.p. De Dion-Bouton
48.	8 h.p. Clement
49.	8 h.p. Argyll

CLASS E.—Cars declared at a selling price of more than £400, and not more than £500.

Official No.	*Name.*
50.	9 h.p. Daimler
51.	12 h.p. Gladiator
52.	10 h.p. Ariel
53.	14 h.p. New Orleans
54.	12 h.p. Century
55.	12 h.p. Century
56.	14 h.p. New Orleans
57.	10 h.p. M.M.C.
58.	10 h.p. Benz
59.	7½ h.p. Germain
60.	20 h.p. Georges-Richard

CLASS F.—Cars declared at a selling price of more than £500, and not more than £600.

Official No.	*Name.*
61.	18 h.p. Beaufort
62.	6 h.p. Gardner-Serpollet
63.	6 h.p. Gardner-Serpollet
64.	10 h.p. Peugeot
65.	12 h.p. Brush

CLASS G.—Cars declared at a selling price of more than £600, and not more than £700.

Official No.	*Name.*
65.	12 h.p. Humber
67.	12 h.p. Humber
68.	16 h.p. Ariel
69.	20 h.p. Wolseley
70.	10 h.p. Mors
71.	8 h.p. Wilson and Pilcher
72.	12 h.p. Benz
73.	16 h.p. Dietrich
74.	15 h.p. Germain
75.	16 h.p. Clément

CLASS H.—Cars declared at a selling price of more than £700, and not more than £800.

Official No.	*Name.*
76.	12 h.p. Daimler
77.	12 h.p. Daimler
78.	20 h.p. Star
79.	18 h.p. Newton Pearce car
80.	10 h.p. Panhard
81.	20 h.p. M.M.C.

CLASS J.—Cars declared at a selling price of more than £800, and not more than £1,000.

Official No.	*Name.*
82.	20 h.p. Maudslay
83.	20 h.p. Pascal
84.	20 h.p. Pascal
85.	24 h.p. Dietrich

CLASS K.—Cars declared at a selling price of more than £1,000, and not more than £1,200.

Official No.	*Name.*
86.	22 h.p. Daimler
87.	22 h.p. Daimler
88.	15 h.p. Panhard

Total number of vehicles classified, eighty-eight. Four unclassified, no particulars received; these are three Milnes cars and one entered by Mr. Siddeley.

Mr. Edge entered throttle governor and electric commutator on dashboard.

The Roadway Autocar Co. have entered dust screen.

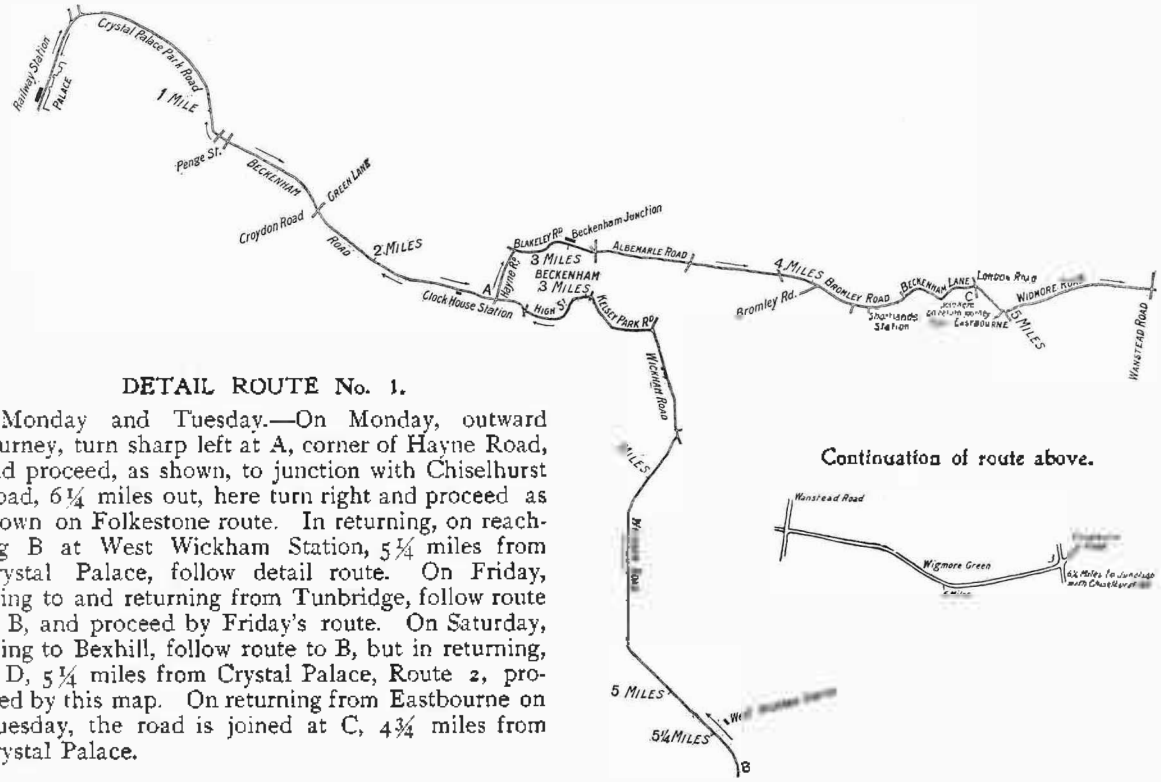
Messrs. Wilson and Pilcher have entered piston rings and tongue pieces and a commutator.

TYRE ENTRIES.

Goodyear Tyre Co. (no particulars)	2 sets
Martin Tyre Co. (no particulars)	2 sets
Collier Tyre Co. (34 × 4¾ × 4¾)	1 set
Maison-Talbot (870 mm. and 90 mm.)	2 sets
Dunlop tyre (90 mm. and 120 mm.)	2 sets
Dunlop tyre (90 mm. and 90 mm.)	2 sets
Midgeley armoured tyre	1 set (experimental)

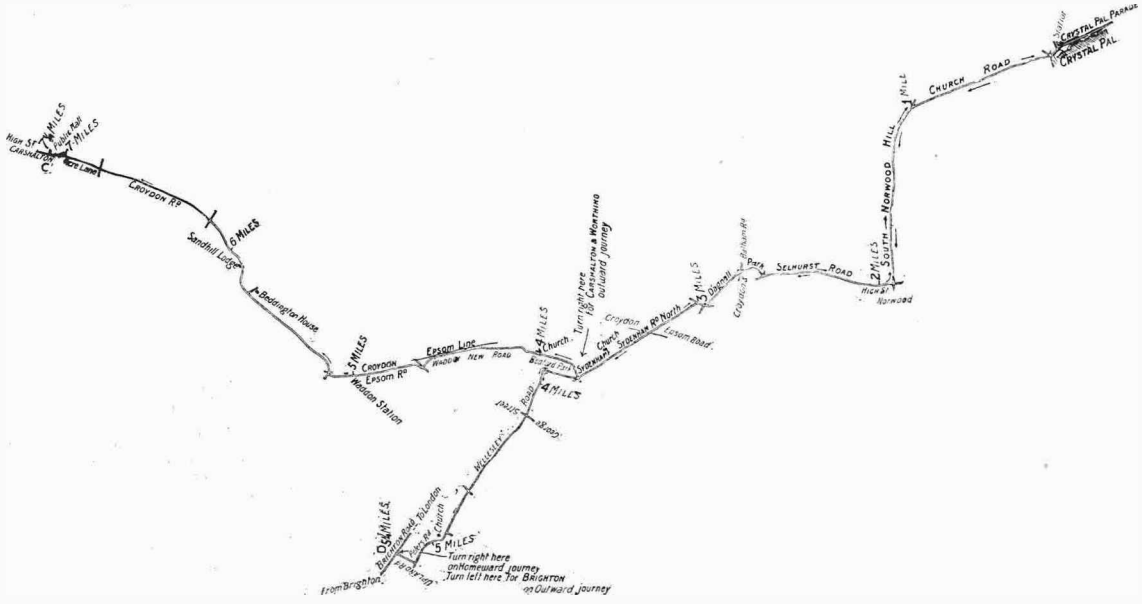
ROUTE MAPS FOR THE RELIABILITY TRIALS.

Detail routes from Crystal Palace, showing roads to be followed to join the main roads for each day's route at points A, B, C, and D.



DETAIL ROUTE No. 1.

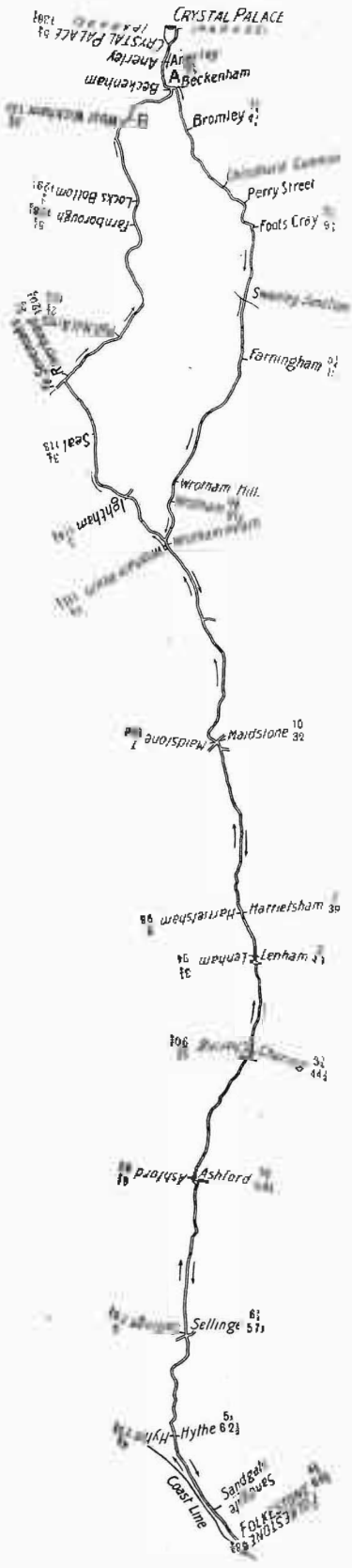
Monday and Tuesday.—On Monday, outward journey, turn sharp left at A, corner of Hayne Road, and proceed, as shown, to junction with Chiselhurst Road, 6¼ miles out, here turn right and proceed as shown on Folkestone route. In returning, on reaching B at West Wickham Station, 5¼ miles from Crystal Palace, follow detail route. On Friday, going to and returning from Tunbridge, follow route to B, and proceed by Friday's route. On Saturday, going to Bexhill, follow route to B, but in returning, at D, 5¼ miles from Crystal Palace, Route 2, proceed by this map. On returning from Eastbourne on Tuesday, the road is joined at C, 4¾ miles from Crystal Palace.



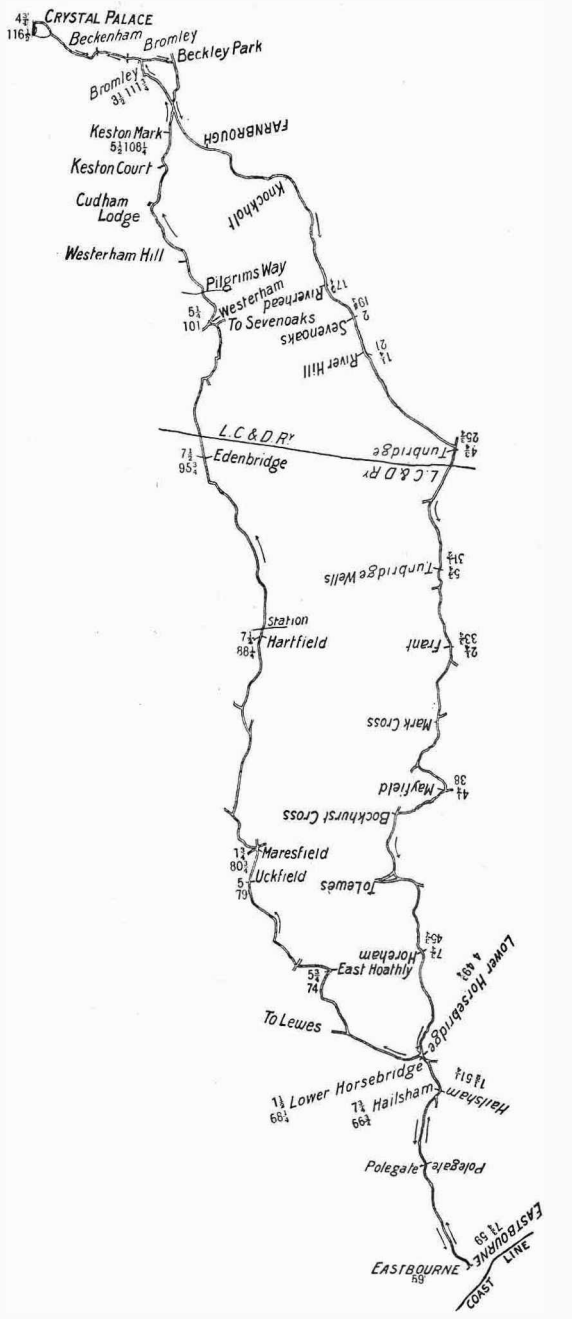
DETAIL ROUTE No. 2.

Wednesday and Thursday.—On Wednesday, going to Worthing, follow the road to Carshalton, C, 7¼ miles, and proceed by Wednesday's map. In returning, the road is rejoined at D, 5¼ miles from Crystal Palace. On Thursday, going to and returning from Brighton, proceed to D, and follow Thursday's map, returning same way.

FOLKESTONE, MONDAY, SEPT. 1st.



EASTBOURNE, TUESDAY, SEPT. 2nd.



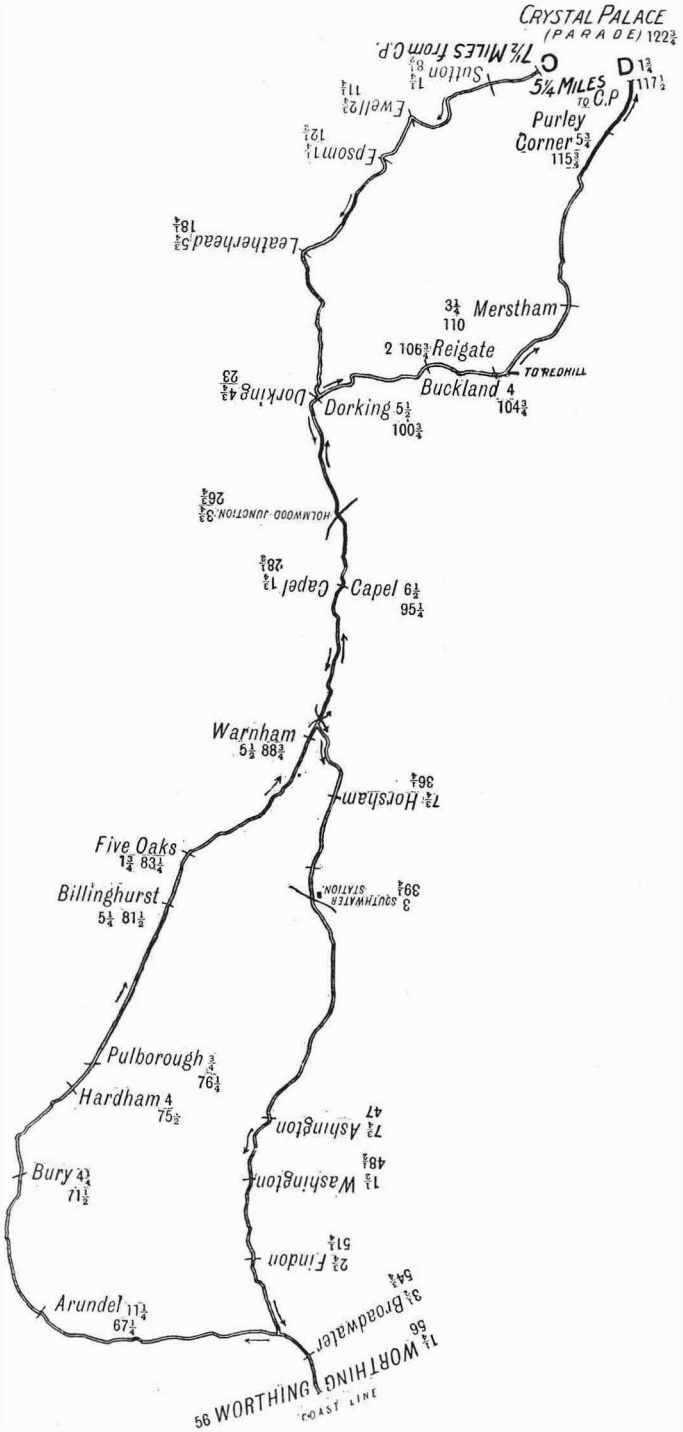
MONDAY.

Outward journey: Crystal Palace to Folkestone, *via* detail route No. 1.—Bromley 4½, Foot's Cray 5¾—9¾; Farningham, 5½—15; Wrotham, 6½—21½; Maidstone, 10½—32; Harrietsham, 7—39; Lenham, 2—41; Charing, 3¾—44¾; Ashford, 5¼—50¼; Sellinge, 6¾—57¼; Hythe, 5—62¼; Folkestone, 4½—68¾. Return: Folkestone 68¼, Hythe 4½—73¼; Sellinge, 5—78¼; Ashford, 6¼—85; Charing, 5¼—90¾; Lenham, 3¾—94; Harrietsham, 2—96; Maidstone, 7—103; Wrotham Heath, 8½—111½; Ightham, 3—114½; Seal, 3½—118; Riverhead, 2½—120½; Poll Hill Arms, 2½—123; Farnborough 5¼—128½; Locks Bottom, ¾—129¼; West Wickham, 3¾—133; Crystal Palace, 5½—138½.

TUESDAY.

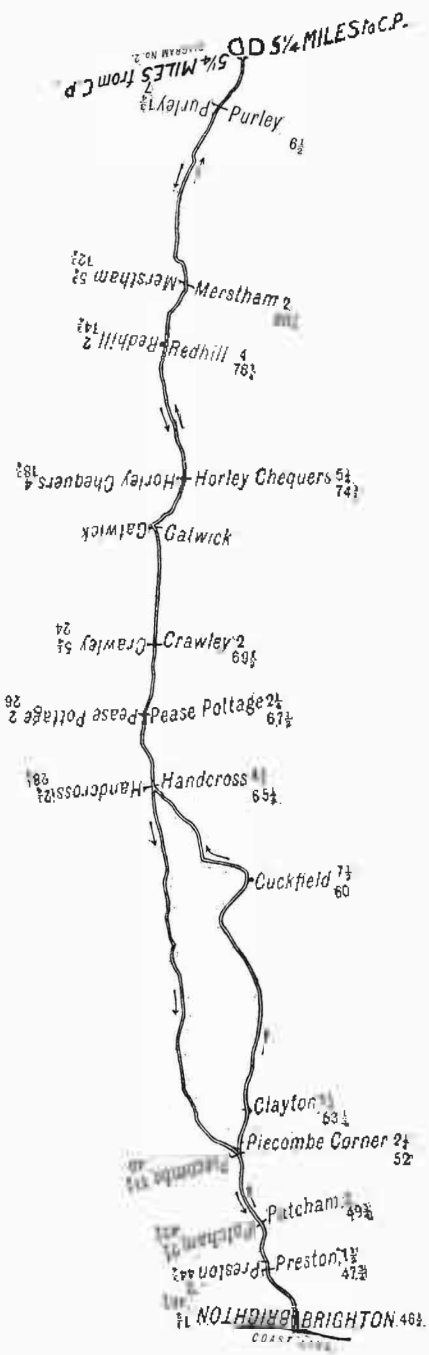
Outward journey: Crystal Palace to Eastbourne, *via* detail route No. 1 and Riverhead 17¾, Sevenoaks 2—19¾; River Hill (down), 1¼—21; Tunbridge, 4½—25¾; Tunbridge Wells, 5½—31¼; Frant, 2½—33¾; Mayfield, 4½—38; Cross-in-Hand, 4½—42½; Horeham Road Station, 3½—45¾; Lower Horsebridge, 4—49¾; Hailsham, 1½—51¼; Eastbourne, 7¾—59. Return: Eastbourne 59, Hailsham 7¾—66¾; Lower Horsebridge, 1½—68¼, East Hoathley, 5¾—74; Uckfield, 5—79; Mansfield, 1¾—80¾; Hartfield, 7½—88¼; Edenbridge, 7½—95¾; Crockham Hill, 3½—99; Westerham, 2—101; Westerham (hill summit), 1¾—102¾; Leaves Green, 3—105¾; Keston Mark, 2½—108¼; Bromley, 3¼—111¾; Crystal Palace, 4¾—116½.

WORTHING, WEDNESDAY, SEPT. 3rd.



Outward journey: Crystal Palace to point C on detail route No. 2, 7¼, thence *vid* Sutton 1½ - 8½; Ewell, 2¾—11¼; Epsom, 1½—12¾; Leatherhead, 5¾—18¼; Dorking, 4¾—23; Holmwood Junction, 3¾—26¾; Capel, 1¾—28½; Horsham, 7¾—36¼; Southwater Station, 3—39¼; Ashington, 7¾—47; Washington, 1½—48¼; Findon, 2¾—51¼; Broadwater, 3¼—54¼; Worthing, 1¾—56. Return: Worthing 56, Arundel 11¼—67¼; Bury, 4¼—71½; Hardham, 4—75½; Pulborough, ¾—76¼; Billinghurst, 5¼—81½; Five Oaks, 1¾—83¼; Warnham, 5½—88¾; Capel, 6½—95¼; Dorking, 5½—100¾; Buckland, 4—104¼; Reigate, 2—106¾; Merstham, 3¼—110; Purley Corner, 5¾—115¾; point D detail route No. 2, 1¾—117½; Crystal Palace, 5¼—122¾.

BRIGHTON, THURSDAY, SEPT. 4th.



Outward journey: Crystal Palace to Brighton *vid* detail route No. 2 to point D 5¼, Purley Corner 1¾—7; Merstham, 5¾—12¾; Redhill, 2—14¾; Horley Chequers, 4—18¾; Crawley, 5¾—24; Pease Pottage, 2—26; Handcross, 2¼—28¼; Piecombe, 11¾—40; Patcham, 2¾—42¾; Preston, 2—44¾; Brighton (Aquarium), 1½—46¼. Return: Brighton 46¼, Preston 1½—47¾; Patcham, 2—49¾; Piecombe Corner, 2½—53; Clayton, 1¼—54¼; Cuckfield, 7½—61¾; Handcross, 4¾—66½; Pease Pottage, 2¼—68¾; Crawley, 2—70¾; Horley Chequers, 5¼—75¾; Redhill, 4—79¾; Merstham, 2—81¾; Purley Corner, 5¾—87½; point D, 1¾—89¼; Crystal Palace, 5¼—94½.

TUNBRIDGE, FRIDAY, SEPT. 5th.

(Hill-climbing and Petrol Consumption.)

Tunbridge *via* Sevenoaks, returning *via* Westerham, Keston, and Bromley.

Outward journey: Crystal Palace to point B, *via* detail route No 1, 5¾; Lock's Bottom 3¾—9; Farnborough, ¾—9¾; Poll Hill Arms, 5½—15¼; Riverhead, 2¼—17½; Sevenoaks, 2—19½; Tunbridge, 6—25½. Return: Tunbridge 25½, Riverhill 4¾—30¼; Sevenoaks, 1¼—31½; Riverhead, 2—33¾; Poll Hill Arms, 2¼—36¼; turn left to Halstead, 1—37; Halstead, ¼—37¼; Knockholt, 2—39½; Sundridge, 2½—42; Brasted, 1—43; Westerham, 1—44½; Westerham Hill (summit), 1¾ 46¼; Leaves Green, 2¾—49; Keston, 2—51; West Wickham, 2½—53½; point B, ½—54; Crystal Palace, 5½—59½.

THE HILL CLIMBS.

Friday, September 5th. (See page 219 for sections).

On Friday, September 5th, the hill-climbing test run takes place, the route being to Tunbridge, as shown on the above map. River Hill and Westerham are the test gradients. The former is four and a half miles out of Tunbridge on the return journey. The gradients on this are not at all severe, the worst being 1 in 9.8, this occurring in a bend in the road about threequarters of the way up. Westerham is fourteen and threequarters miles nearer home. The gradients here are stiffer, the average being 1 in 13.44, and the steepest bit is 1 in 7.8. The marks awarded for the hill-climbing trials will be calculated as follows:

$$\frac{\text{H.P.} \times 100{,}000.}{\text{Price in £} \times 8 \text{ for every shillingsworth of fuel consumed.}}$$

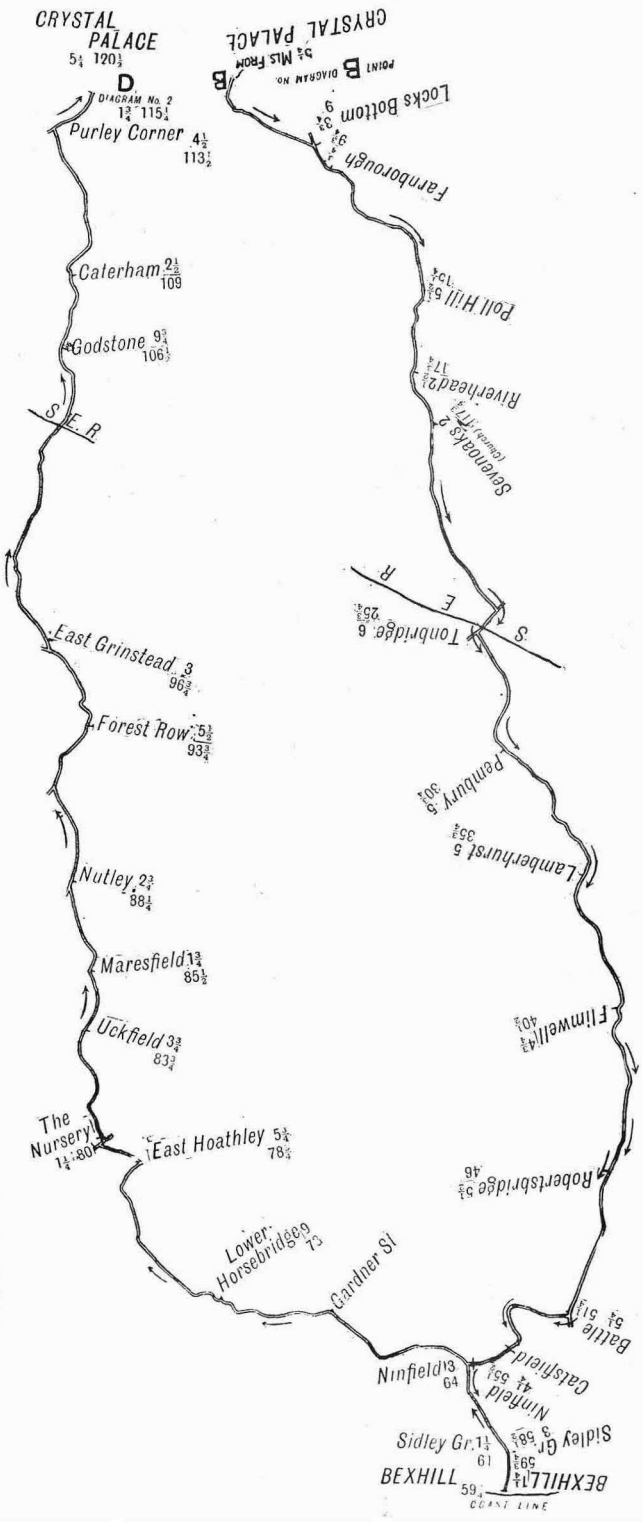
H.P. = horse-power as shown by performance, which, for the purpose of this formula, will be roughly calculated as follows:

$$\frac{\text{Vertical height of hill in feet.} \times \text{Weight of car and load in lbs.} + 40 \text{ lbs. for every ton of total weight.}}{\text{Time in minutes.} \times 33{,}000.}$$

The number of passengers carried during the hill-climbing must not exceed the number carried during the other portions of the run.

The fuel consumption for the purposes of the formula will be taken for the whole of Friday's run.

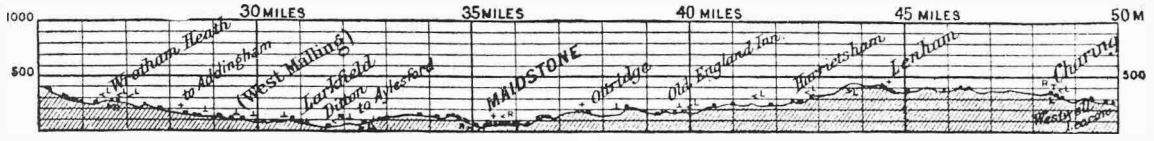
BEXHILL, SATURDAY, SEPT. 6th.

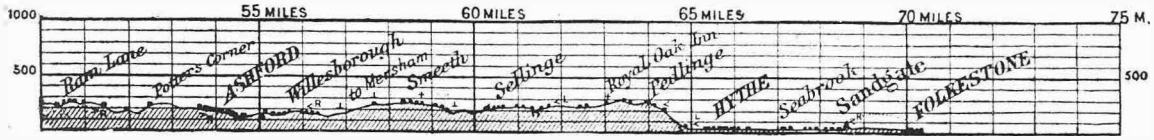


Outward journey: Crystal Palace to Bexhill *via* detail route No. 1 to point B 5¼. Locks Bottom 3¾—9; Farnborough, ¾—9¾; Poll Hill Arms, 5½—15¼; Riverhead, 2¼—17½; Sevenoaks (Church), 2—19½; Riverhill, 1¼—21; Tonbridge, 4¾—25¾; Pembury, 5—30¾; Lamberhurst, 5—35¾; Flimwell, 4¾—40⅝; Robertsbridge, 5¼—46; Battle, 5¼—51¼; Ninfield, 4¼—55½; Sidley Green, 3—58½; Bexhill, 1¼—59¾. Return: Bexhill, 59¾; Sidley Green, 1¼—61; Ninfield, 3—64; Lower Horsebridge, 9—73; East Hoathley, 5¾—78¾; The Nursery, 1¼—80; Uckfield, 3¾—83¾; Maresfield, 1¾—85½; Nutley, 2¾—88¼; Forest Row, 5⅛—93¾; East Grinstead, 3—96¾; Godstone, 9¾—106½; Caterham, 2¼—109; Purley Corner, 4½—113½; point D, detail route No. 2, 1¾—115¼; Crystal Palace, 5¼—120½.

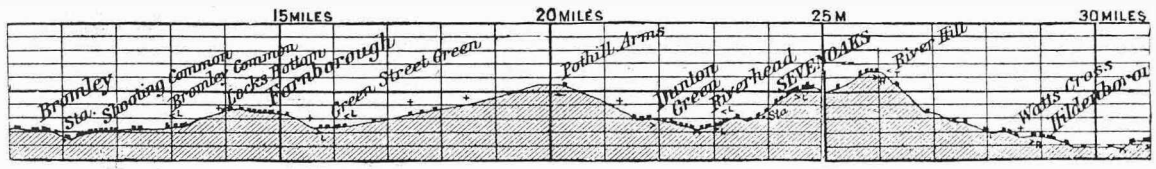
SECTIONS OF THE ROUTES.

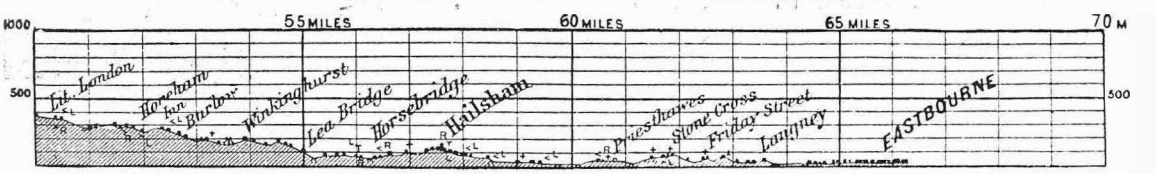
MONDAY, SEPTEMBER 1st. FOOT'S CRAY TO FOLKESTONE. OUTWARD JOURNEY.



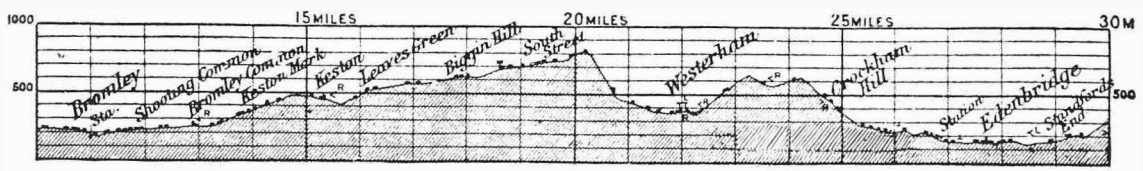


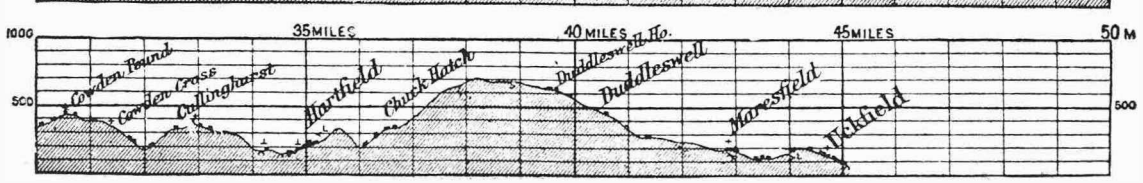
TUESDAY, SEPTEMBER 2nd. BROMLEY TO EASTBOURNE. OUTWARD JOURNEY.





TUESDAY, SEPTEMBER 2nd. UCKFIELD TO BROMLEY. RETURN JOURNEY.

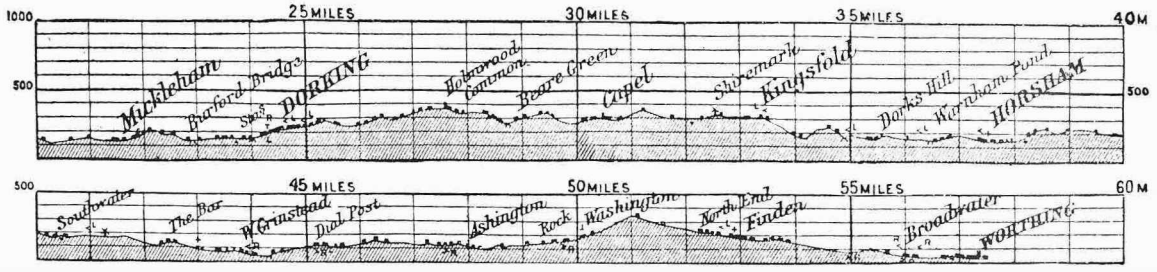




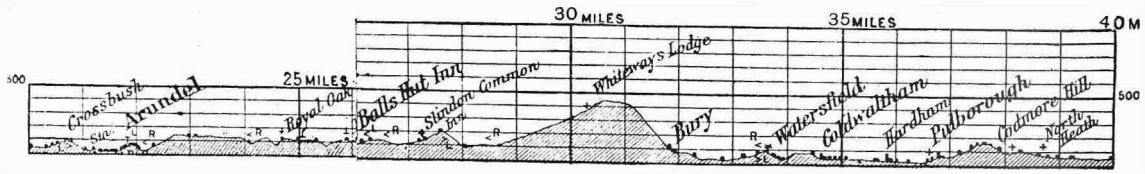
TUESDAY, SEPTEMBER 2nd. UCKFIELD TO BROMLEY. RETURN JOURNEY.

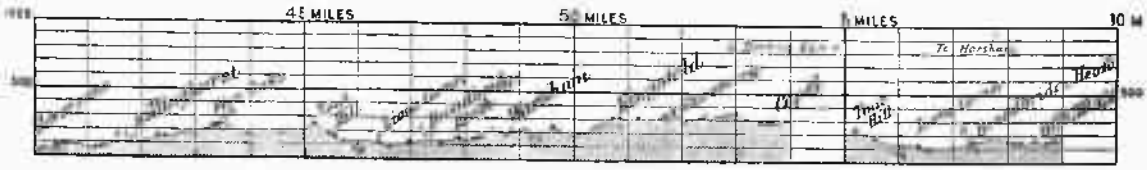
The total distances given on the above sections and on those on the next page are measured from London and not from the Crystal Palace.

WEDNESDAY, SEPTEMBER 3rd. EWELL TO WORTHING.
OUTWARD JOURNEY.

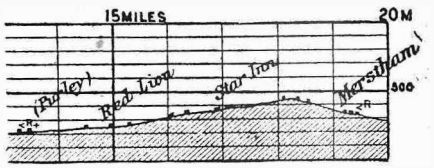


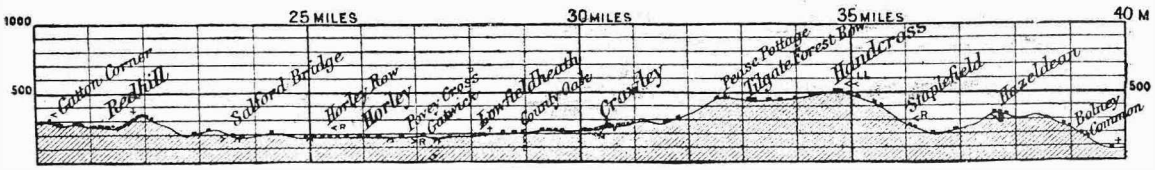
WEDNESDAY, SEPTEMBER 3rd. WORTHING TO CAPEL. RETURN JOURNEY.

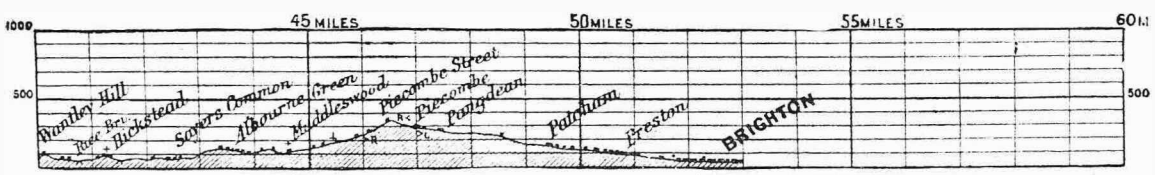




THURSDAY, SEPTEMBER 4th. PURLEY TO BRIGHTON.
OUTWARD JOURNEY.





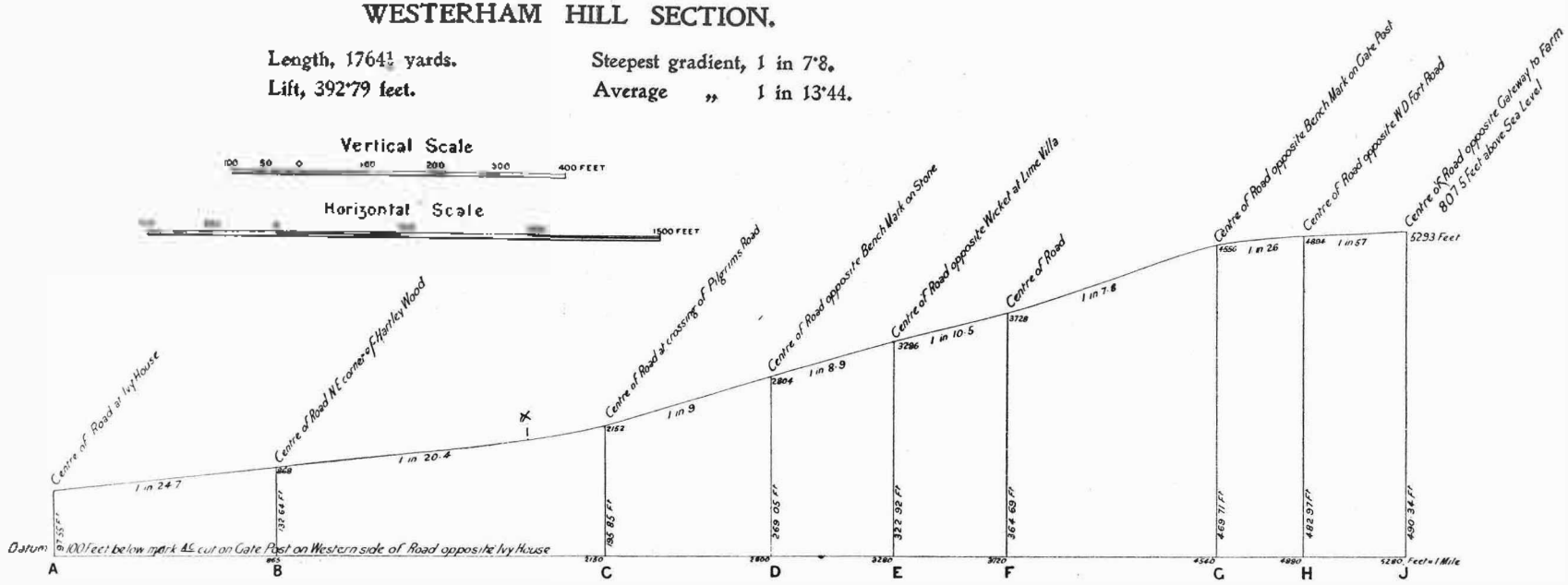


We have obtained the special consent of Messrs. Gall and Inglis, of Edinburgh and London, to reproduce from their "Contour Road Book" those sections which apply to the daily runs to be covered in the 650 miles trials. As these start from the Crystal Palace, sections of the route between the Palace and the nearest main road are not available, and each section is given at the point where the main road is joined from the Crystal Palace. It should be explained that, for the sake of clearness, the sections are exaggerated, as the vertical scale is, approximately speaking, thirteen times greater than the horizontal. It is only in this way that it is possible to appreciate the main gradients on a road in a compact form, as, of course, if the same scale were used both horizontally and vertically, the routes would either have to be thirteen times longer than we have them, or the hills only one-thirteenth as steep, and, consequently, the section would possess little graphic value, and it would require a magnifying glass to appreciate the features of the route, which in its present form it gives vividly.

SECTIONS OF THE TWO TEST HILLS.

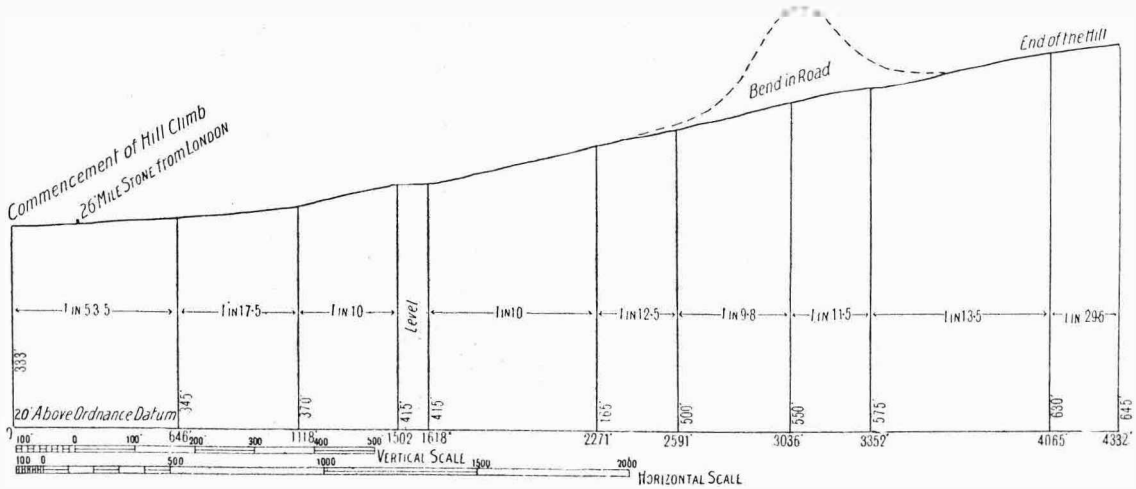
WESTERHAM HILL SECTION.

Length, 1764½ yards.
Lift, 392·79 feet.
Steepest gradient, 1 in 7·8.
Average „ 1 in 13·44.



RIVERHILL SECTION.

Length, 1444 yards.
Lift, 312 feet.
Steepest gradient, 1 in 9·8.
Average „ 1 in 18·26.



The motor cycles will be observed by officials stationed at various points, in addition to which the observers on the cars will be instructed to record the stoppage of any motor cycles they may come across.

* * * *

At the conclusion of each day's drive the cars will be stored at the Crystal Palace, under the supervision of the club officials. The vehicles will be stored in numerical order, according to the numbers allotted to each entry by the club. This is in accordance with a recent suggestion made by Mr. Sturmey in our columns, and from the time the cars are delivered into the judges' hands on Friday till the Monday after the trials they will be under judicial supervision, and the judges will commence their examination of the motors and mechanism soon after noon to-day (Friday). We are also glad to note that the vehicles, except in the case of breakdowns, will only be allowed to pass cars in front of them at certain specified points.

* * * *

We have before now referred to the enterprise of the Continental Tyre Co. in giving valuable prizes in connection with the great Continental motor races, and they inform us they have decided to offer some special awards for cars fitted with their tyres running in the 650 miles trials. In this respect they have adopted rather a novel method. That is to say, the winner in each class of the gold medal will be given a cash prize of £10 to £25, according to class, if his gold medal car is fitted with Clipper-Continental tyres. They also offer an additional £25 prize to the driver of the gold medal vehicle irrespective of class whose tyres at the end of the journey show the least signs of wear. This latter strikes us as rather a good idea, as it not only ensures that the car shall be fitted with tyres fully up to their work, but it further encourages the driver to consider his tyres, and not to take curves at undue speeds, or to use the brakes carelessly, for, as everyone should know, though so many seem to forget it, neglect of these two precautions results in more harm to the tyres than anything else.

* * * *

Although the Simms Mfg. Co., Ltd., are running a light voiturette in the trials fitted with a Simms 8 to 10 b.h.p. twin-cylinder motor, it is only as a demonstration of the capabilities of the engine, as they are not motor car builders, neither do they intend to take up this branch of the industry, and the car to which their engine is fitted is merely an up-to-date French vehicle which is being used to test and prove the Simms engine. They have also recently produced a 35 b.h.p. four-cylinder engine, which weighs about 300 lbs. The cylinder and head are cast in one piece. The inlet and exhaust are both mechanically lifted, and are interchangeable. They are worked by one camshaft, running in oil, and a sensitive governor throttles on the inlet. The Simms-Bosch magneto-ignition is, of course, a feature of the engine. The firm are building a four-cylinder engine, which is identical with the 35 b.h.p., but of 16 to 20 h.p., and they will exhibit their various-powered engines at the Palace during the Show, as there has not been time to fit the new four-cylinder into a car so that it could be tested publicly in the trials.

Among the cars entered which are new comers to a club "big event" are Oldsmobile, Swift, Baby Peugeot, Duryea, Hallamshire, White, Rex, Brooke, Brush, Clément, Ariel, Germain, James and Browne, Georges Richard, Beaufort, Dietrich, Newton Pierce, Maudslay, and Baron Henri de Rothschild's two Pascals.

* * * *

For the convenience of competitors in the trials, on Monday September 1st, on the run to Folkestone, Mr. H. Pavillet, of the Canterbury Motor Car Co., is placing at Charing, where the cars turn to the right, a car with a competent engineer in charge, able to undertake any repair, with a stock of spare parts, petrol, oils, grease, accumulators, etc. Telegrams, "Canterbury Motor Co., Charing," will bring aid to cars in distress at once.

* * * *

We have already announced that the United Motor Industries are opening a temporary depot at the Crystal Palace during the trials, so that participants and visiting automobilists will be able to obtain practically any spare parts or stores they require, and we are now advised by Mr. Robin Wood, of 75, Church Road, Norwood, S.E., that he has been appointed an official repairer to the Automobile Club, and also for De Dion-Bouton. He stocks spirit, oils, and sundries, and as he is on a level with the Palace his place is most conveniently situated.

* * * *

In Class A, which is open to both cycles and cars costing less than £150, a gold medal will be given to the best car, if the judges recommend it, in addition to the one for the winning cycle. The observers on this occasion are not nominated by the club, but by each entrant of a car, though the observer he nominates will not officiate on his own car. That is to say, while the competitors themselves nominate the observers, they will not in any way benefit by so doing, except that they will have the assurance that each observer is properly qualified, or, at any rate, if he is not so qualified, the onus will rest with the competitors themselves, and not with the promoters of the trials. The arrangement is to some extent an experimental one, and it will be interesting to see how it works. We believe it is the outcome of complaints made by certain competitors as to the incompetency of some of the observers on previous occasions.

A crowd of people looking on at a motor car with one of its wheels interlocked with the wheel of a miller's waggon naturally suggests a motor car accident, and the ordinary imaginative reporter would no doubt weave around the spectacle a circumstantial account of vagaries indulged in by the fractious automobile. Yet enquiries proved, in the instance we are about to mention, that the facts were altogether to the discredit of the horse-drawn vehicle, and, moreover, that the autocar was quite inoffensive. The latter vehicle was standing ouside an hotel at Coventry on Wednesday morning ready for the owner to proceed on tour when the miller's waggon, laden with flour, swerved into it on passing, with the result stated. The cause of the accident was that the double pair of shafts of the waggon became uncoupled, and caused the vehicle to turn out of its course just at the critical moment.

Flashes.

Mr. G. H. Bechtel, who has been nearly two months away from business owing to illness, is now resuming his duties as manager of the light car department of the Road Carrying Co., of Liverpool.

* * *

With reference to Mr. Hewetson's five thousand miles drive in fifty days, it should be understood that he did not drive on Sundays, and consequently did not complete his last hundred miles trip till the 5th of August. Mr. Hewetson also tells us that he believes a report has been spread that he charged his observers for their drives with him. This, we need hardly say, is quite untrue. He never charged any of his observers, though some of them would insist on paying for the lunch at the turning point.

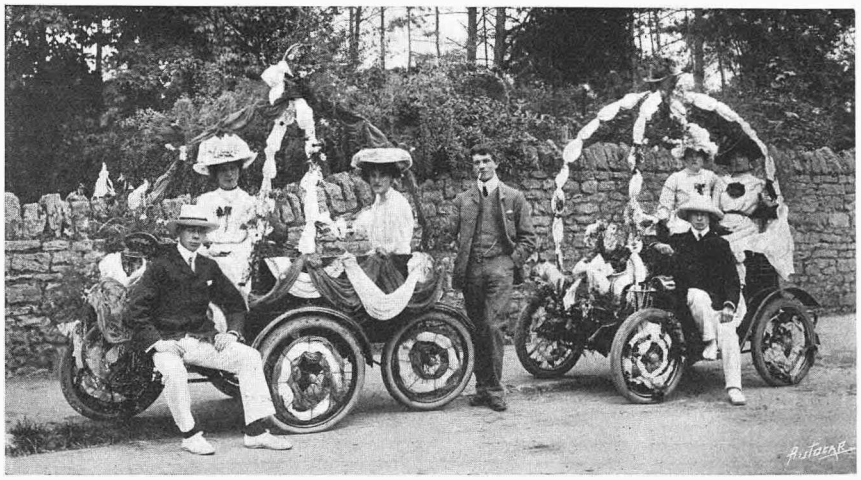
* * *

The Collier Twin Tyre Co. ask us to announce that their new address is King Edward Mansions, 210, Shaftesbury Avenue, W.C.

* * *

Mr. Llewellyn Morgan, of Llanfairpwll, in Anglesey, has for a long time been an enthusiastic automobilist. Five or six months ago he purchased his 9 h.p. Darracq from Mr. Archibald Ford, of Mr. William Lee's Motor Car Depot, and he has just persuaded his friend, the Marquis of Aylesbury, to purchase a similar car from the same firm.

We have been asked to contradict a report to the effect that the British Automobile Commercial Syndicate intend giving up dealing in Panhard and Levassor cars, and Mr. Weigel informs us that his firm have 106 Panhard cars of various powers on order for 1903.



Among the novelties in the Coronation procession at Abingdon-on-Thames were a couple of small decorated cars. The one on the left is a Maberley, and the other an Abingdon. We have to thank Mr. Bertram B. Coxeter for the photograph from which our illustration is reproduced.

Major-general Sir Charles Knox has just ordered a 9 h.p. Dennis car. This popular general has only been in England about a month, after having had over three years of active service in South Africa, and we hope the pleasure of driving in a good car will go towards repaying him for the hardships he has endured.

* * *

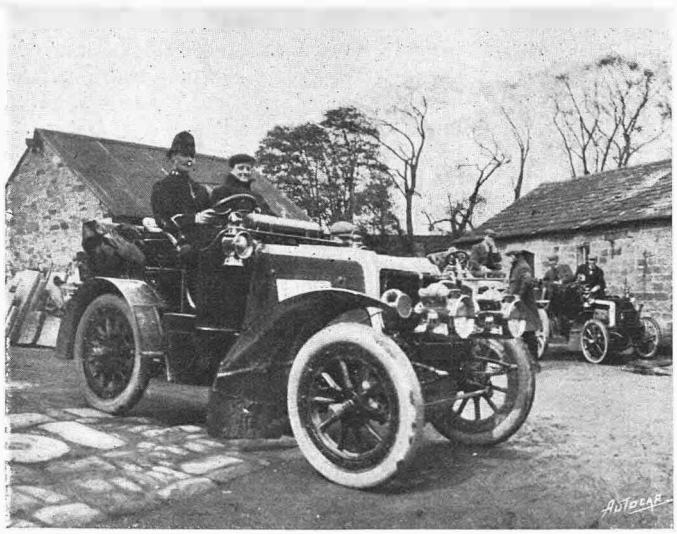
The decorated car which the Motor Manufacturing Co. ran in the Coronation procession at Coventry, and of which we have already given illustrations, was awarded first prize in the cycle and motor section of the procession, and the money has been handed by the directors to the local hospital.

* * *

Dr. Crossley, of Burnley, who uses a Singer motor tricycle professionally, took a tour into Scotland on it recently. He ran from Burnley to Edinburgh in the day, easily climbing Shap on the way, only having to pedal for a short distance near the summit. The day after he went to Longtown, and on the following day he put the tricycle to the severest test of all, as he rode it over ten hours in continuous rain, and without so much as a misfire. This is another excellent proof that a good motor cycle is reliable for the hard all-weather conditions of use by members of the medical profession.

* * *

Mr. Archibald Ford is doing good work in the cause of automobilism in Liverpool by placing, for an hour daily, an autocar at the disposal of any horse owners who may wish to avail themselves of the opportunity of familiarising their horses with the vehicle.



From a photograph kindly placed at our disposal by Mr. L. Williamson. This was a snap shot taken of the Rowsley constable as he sat on Mr. Williamson's 24 h.p. Daimler with the owner by his side.

The Dunlop Tyre Co. are now ready to supply their new vulcanised motor tyres suitable for cars up to 25 cwts. We lately examined a set of these tyres which had run under a hard driven 7 h.p. Panhard for over 1,000 miles, and found them in excellent condition. We have seen many tyres showing infinitely greater signs of wear after only two or three hundred miles. The Dunlop motor tyres appear now to be equal to the best.

* * *

A large canopied autocar loaded with policemen is a novel sight. Yet this is what could be seen on Wednesday morning on the road between Coventry and Birmingham, as the cricket team representing the Coventry police force were making their way to the Midland metropolis to play a return match with the Birmingham force.

* * *

Several local residents have written to the Cockermouth Rural District Council suggesting that motor cars should be forbidden to travel over certain roads in Lakeland, but, of course, this would be a step beyond the council's powers. The observations made by members of the council, however, showed that they were more in sympathy with the writers of the letters than with drivers of cars. Canon Pollock, for instance, said autocars ought not to be allowed to travel beyond a speed of five miles an hour. The Canon should be taken for a nice drive in a good car at once.

* * *

Messrs. Thos. Haigh and Co., 52, West Street, Sheffield, have been appointed official repairers to the Automobile Club.

* * *

One of our Lancashire readers informs us that he has driven the 6 h.p. Daimler which he bought last winter over 5,000 miles, and that the only stop he has ever had was due to the petrol pipe breaking off near the tank.

During his 3,820 miles Continental tour, on his 16 h.p. Napier, Mr. Chas. J. Glidden obtained the consent of the Mayor of Verona for his car to be photographed in the arena of the Coliseum. In the front Mr. and Mrs. Chas. J. Glidden, of Lowell, Mass., are seated, while at the back are Mr. and Mrs. Dudley E. Waters, of Grand Rapids, Mich. Both Mr. and Mrs Glidden are enthusiastic automobilists, and since Mr. Glidden resigned the presidency of the Erie Telephone System more than a year ago, he has devoted much of his time to driving both in the States and in Europe. It may be interesting in this connection to know that Mr. Glidden, while president of one of the largest telephone systems in the world, made the record for long distance conversation, as he spoke from Boston to Little Rock, in Arkansas – a distance of over two thousand miles, in a straight line. Altogether it will be seen that big distances are believed in by the Gliddens, and it is significant to know that Mrs. Glidden is as interested in automobilism as she formerly was in her husband's business projects before he retired. The whole of the route of the tour has been carefully planned out and all necessary arrangements made. The tourists only carry part of their baggage on their car, their heavy trunks being sent by train to convenient points on the route. The total distance of the tour will be 3,820 miles starting and finishing in London.

A petrol generator of special type for steam vehicles has been introduced by Messrs. F. Wilkinson and Co., Cornbrook Road, Manchester. They claim that it gives the driver absolute control of his fire, and enables him to leave his carriage standing for hours if necessary without having the steam pressure increased from the desired point. It also gives it a permanent pilot light, and can be attached to prevailing styles of regulators and torch devices without detaching them from the carriage.

* * *

The services of cars plying between Eastbourne and some of the places of interest in the neighbourhood during the summer months have proved a great attraction to visitors to that town. On almost every trip the cars carry the full complement of passengers, and as seats are frequently booked in advance it shows how eager the public are to see what autocaring is like. Short runs at sixpence per passenger have proved a capital draw, while cars have been hired for private parties. Londoners frequently get better facilities for seeing what autocaring is really like at holiday resorts than in London itself. We have spoken to many who have made a maiden trip, and in every case the person has been delighted with the experience.

* * *

Automobilists taking part in the forthcoming trials from the Crystal Palace will be glad to learn that Mr. C. J. Paffard, 112, Oakfield Road, Anerley, S.E., has a fully-equipped workshop, complete with a good staff of mechanics, inspection pit, and light, at his works, 12b, Southey Street, Penge, and that he also carries a good stock of spare parts, petrol, lubricating oils, greases, etc., and has storage accommodation for a large number of cars, together with a good washdown hose. He holds agencies for Locomobile and Clément cars, and for Princeps voiturettes and bicycles.

Two motor bicycles were used the other day for conveying batches of copy from the coroner's court at Baddesley Ensor, where a horrible triple murder had been committed, to the office of the *Midland Counties Tribune* at Nuneaton.

* * *

The Chairman of the Kingston Bench saw an autocarist driving to the court to be fined, and subsequently told defendant that, even then, "I myself would have been knocked down if I had not stepped sharply on to the kerb." We would gently suggest that the footpath is sufficiently wide for ordinary mortals.

* * *

Mr. T. Gordon Harvey sends us an interesting account of a drive which he recently had on Mr. S. F. Hallow's new 12 h.p. Belsize car, by Messrs. Marshall, of Manchester. The car arrived at Ashford, Kent, only three days before a start was made for Edinburgh. The weather was bad, and the roads worse, and between York and Durham many newly-laid patches of stones, quite unrolled, had to be negotiated. The car ran the whole way without a hitch, and except at starting the low speed was only put in once. No stop was made to touch the motor throughout the whole journey of about 450 miles, and the actual running time, after deducting all stoppages for rest and refreshment, was twenty-two and a half hours. This is one more proof of what can be done on a well-made British car.

* * *

The *San Francisco News Letter*, of July 12th, in giving an illustration of an automobile locomotive carrying a train of cars laden with provisions across the South African veldt, says: "This machine was regularly employed by the British army in their late war, and its tests were universally successful. Who of the scoffers who jeered the automobile some five years ago would lampoon the horseless carriage today in the face of such an achievement? The horseless carriage is no longer a wonder, and no longer a fad. It is an accepted fact in the progress of civilisation. Already the sturdy little 'tuf-tuf' is rolling smoothly through the Yosemite Valley, climbing the Sierras, and scaling the even more difficult heights of San Francisco. Our city, in fact, has been the supreme test of the automobile's endurance, and the machine has won out most gloriously. The automobile business in this city is in a sound and lucrative financial position; the supply is enormous, but the demand is far in excess. As a pleasure vehicle, the automobile is already firmly established. Its next move is to invade the realm of commerce. As trucks, express, and delivery waggons, automobiles have been tried with uniform success here, as elsewhere. Their superior speed, their endurance, their easy management, have made them especially handy for business purposes, and their use as such is becoming daily more general. The automobile is a civiliser. With its increasing use must come many public reforms. The litter of horses will no longer disfigure our streets. City Governments will yield to public opinion, and paving will be improved. Good roads will be the rule in city and country. The puff of the motor is in the air. Farewell, old family horse! Our milk, our groceries, our laundry, our relatives, will soon be delivered by automobile."

Over fifty entries have been received for the Automobile Club cycle races, which take place on the track in the Crystal Palace grounds to-day, Friday.

* * *

We hear that Earl Russell has recently ordered a 10 h.p. Napier. Mr. Kenneth Balfour and Mr. Leveson Gower have also gone in for machines of the same maker and power, while Mr. Roger Wallace, president of the Automobile Club, is getting a 16 h.p. Napier. The makers of these cars, in addition to their new works now in course of erection, are extending their present Lambeth premises.

* * *

Lord Shrewsbury for the first time experienced a run on a racing car last week. Mr. Weigel drove him on his 20 h.p. Clément which ran through the Paris-Vienna race, and Lord Shrewsbury occupied the little seat affected by the racing chauffeur. The run was from London to Ingestre, and, owing to the heavy local storms, the full distance was not covered at great speed, but we have the times, and it will suffice to say that they were well up to the legal limit, and that Lord Shrewsbury greatly enjoyed the sensation of speed travelling when now and then a deserted stretch could be found. In fact, so much did he enjoy it that he ignored the discomfort of the small seat. Near Stonebridge, the road was flooded with nearly a foot of water, so that the two occupants of the wingless car must have presented a decidedly muddy appearance before they reached their destination. The car was provided with three Talbot tyres and one of another make. The three Talbots went through the journey all right, but when passing through a village dead slow Mr. Weigel noticed that the odd tyre had disappeared from the driving wheel. They had a spare tyre, and put it on, but while doing so a man drove up with the lost cover, with the air tube intact inside it, except where the valve had torn out.

* * *

According to the *Cheltenham Echo*, a very destructive accident was witnessed in High Street, Cheltenham, last week. A horse attached to a lorry belonging to the Co-operative Society was standing quietly feeding outside the society's premises, when the animal took fright at something—*probably a passing motor car* (suggests the inspired organ referred to)—and turning suddenly round dashed into a large plate-glass window. Of course, the window was completely smashed, and the goods inside were disarranged and considerably damaged. In the impact the horse sustained an injury to its nose, but prompt assistance prevented any further damage. A correspondent, in drawing our attention to this matter, writes: "A horse happened to take fright through its own evil imagination—probably shied at its own shadow, at all events at 'something'; the suggestion in the newspaper is that the 'something' was 'probably a passing motor car.' Why a motor car should be singled out as the cause of the accident, unless one really did pass at the time, goodness only knows. Perhaps a policeman might be found who could swear that it was a passing car. It seems quite unnecessary to make a suggestion such as that stated, unless it is clear that a car did pass at the time of the accident. Possibly the horse was rehearsing what it would do should a car happen to pass while he was unattended."

YORKSHIRE HILL-CLIMBING TEST.

The Yorkshire Automobile Club carried out a hill-climbing test at Harewood, near Leeds, on Saturday last. Harewood Bank, the hill selected for the purpose, of itself affords a good test, but it is situate on the high road between Leeds and Harrogate, and competitors had to be warned not to travel at a speed of more than twelve miles an hour.

There was a good muster of cars, and but for the presence in plain clothes of a number of constables over thirty cars would have undergone the time trial. Several declined to take the risk which they felt would attend an involuntary contravention of the law by a fraction of a mile per hour, and fifteen cars and three motor bicycles were left to compete. Roughly, the distance traversed was about two-thirds of a mile. The list, however, is no guide to what the cars can do. Some could have come up the hill at a greatly accelerated speed, and the test is only of practical use, inasmuch as it proves the cars are equal to anything required of them in Yorkshire. The roads were in a bad state, and many of the cars suffered from sideslip.

Mr. Whittaker's motor cycle made the fastest time of the day, and of the cars Mr. Wilson's Locomobile would have come first on the list, had not the driver mistaken the finishing point and pulled up too short. He consequently lost time in starting again. The times are as follow:

			Time.	
13 Owner.	Car.	H.P.	M.	S.
Mr. P. Waud, Bradford	Pieper	12	2	22⅗
Mr. Wilson, Huddersfield	Locomobile	5	2	22⅘
Mr. Kirk, Leeds	Panhard	16	2	26⅗
Mr. R. Winn, Leeds	Gladiator	12	2	36⅗
Mr. Whittaker, Bradford	Lanchester	10	2	49⅘
Mr. E. Broadbent, Bradford	Clément	9½	2	[illegible]
Mr. J. H. Clark	De Dietrich	12	2	56⅖
Mr. H. House, Bradford	Clément	7	3	40⅘
Mr. A. W. Roslington	De Dion	9	3	48⅘
Mr. P. Newstead, Bradford	Pieper	4	4	2
Mr. F. J. Borland, Leeds	De Dion	4½	4	29⅘
Mr. A. W. Dougill, Leeds	Loldis	8	5	2⅘
Dr. Veale, Bridlington	Pieper	4½	5	[illegible]
Mr. Wharam, Leeds	Renault	4½	5	5⅘
Mr. E. M. Milne	Renault	4	5	5⅘
Mr. H. A. Jones, Bradford	Pieper	4½	5	8⅘
MOTOR CYCLES.				
Mr. H. Whittaker, Newlay	Humber	2	2	5⅘
Sir Coleridge Kennard, London	—	—	2	30
Mr. E. Dougill, Leeds	—	2¼	2	48⅘

RECORDS ON THE WERNER BICYCLE.

On Tuesday afternoon, Mr. E. H. Arnott, riding his 2¼ h.p. Werner motor bicycle at the Crystal Palace track, covered 212 miles in six hours, including all stoppages. His first run, before refilling with petrol, lasted eighty-six miles, and, unfortunately, during the refilling one of the battery wires parted, and some twenty-seven minutes were lost in locating the trouble. Just over 103 miles were covered without a stop before the next refilling took place, and the intermediate century, from the eighty-seventh to the one hundred and eighty-seventh mile occupied 2h. 34m. 50⅘s. In this run, 40 miles 300 yards were covered in the hour, and the best fifty miles time was 1h. 14m. 49s. In all, the rider was dismounted for about forty minutes during the six hours. His hour distances and times were as follow:

Hours.	Mls.	Yds.		Miles.	H.	M.	S.
1	59	580		50	1	15	41⅘
2	78	585		100	3	0	30⅘
3	99	1170		150	4	20	[illegible]
4	136	985		200	5	41	41⅘
5	176	760		Fastest 50	1	14	49
6	212	550		100	2	34	50⅘

Messrs. F. T. Bidlake and G. Pembroke Coleman took the times.

BURNLEY AND DISTRICT AUTOMOBILE CLUB.

The inaugural run of the newly-formed Burnley and District Automobile Club took place last Saturday, August 23rd. Sir John O. S. Thursby, Bart., is president. The vice-presidents include Lord Shuttleworth, Mr. Mitchell, M.P., and the mayors of Burnley, Nelson, and Colne; whilst the hon. secretary and treasurer are Messrs. P. Altham and J. Butterworth. There are already over a score of members.

The first car contained Alderman Thornber and Mrs. Thornber (mayor and mayoress), Mrs. J. L. Altham, and Mr. Altham (driving). Another car accommodated Mr. Sheldon (the town clerk) and Mr. Rawle (chief constable). These vehicles took the lead in the Nelson direction, the rest following in procession. The weather was perfect.

The motor cars of the following gentlemen took part in the run: Mr. Jesse L. Altham, Mr. P. H. Altham, the Altham spare car, Mr. Clements, Dr. Mackenzie, Messrs. Parkinson, Mr. H. Clegg, Mr. J. Watts, Messrs. Bellingham, Mr. T. W. Hargreaves (Burnley), Mr. Harold Smith (Colne), Mr. Atkinson (two, Barrowford), Mr. Horsfall (Brierfield), Mr. Smallpage (Colne), and Mr. J. Landless (Clowbridge). Dr. Crossley and Mr. Smith Lawson travelled on their tricycles. Two other motorists were present, Messrs. J. Butterworth and H. P. Cooper, but not their cars, which were under repair. Messrs. Clements and Clegg were the marshals.

Forward from Barrowford the motorists were permitted to go as they pleased. Blacko Hill was negotiated without trouble. At Gisburn a departure was made from the usual route to Bolton-by-Bowland, the motorists turning round into the Settle Road. About a mile from Gisburn the mayoral party was stranded through the breaking of a driving belt, which, however, was soon put right. Beyond Paythorne Bridge was a bit of bad road, but this was succeeded by Hellifield, and a spin down one of the loveliest lanes in the district. The pretty little village was entered by crossing a ford, and the cars, as they arrived, were placed on the green within the triangle of the roads.

After tea and before the party left the table the Mayor of Burnley, in some appreciative remarks, proposed success to the club. Mr. Jackson seconded, and thanked the club for inviting the guests to accompany them. Mr. John Watts responded.

The 12 h.p. Clément which won the event for racing voiturettes at Welbeck is driven by a four-cylinder engine. As stripped for racing, it only weighs about 7½ cwts., and develops nearly 20 h.p. on the brake. At the same time, it is very strongly built, and has been put to some very severe tests. The British Automobile Commercial Syndicate are, of course, placing it upon the market in this country, and Mr. D. M. Weigel has just been giving one of these machines a full test in France, and his rides included one of 250 miles from the Belgian frontier to Paris. The roads were very bad, owing to the heavy rains, and were very difficult to drive on, but notwithstanding this the distance was covered at an average of over thirty miles an hour, and without a single stop, the tanks being filled by the mechanician while the car was running.

Answers to Correspondents.

QUERIES OF GENERAL INTEREST.

BACK EXPLOSIONS.

Q.—We have a 7 h.p. Star car—two cylinders, float feed, spray carburetter, and electric ignition—and have often noticed, when the mixture is not quite properly adjusted, that small explosions take place at the air-inlet holes. These holes are controlled by a hit and miss slide for mixture adjustment. The carburetter is about three feet from the inlet valves, and has pieces of gauze in the induction pipe. Is this caused by a slack inlet valve spring? Also cannot exhaust-box explosions be prevented by gauze in the exhaust pipe.—E. W. W.

A.—Back explosions of the nature indicated are sometimes caused by a too-weak induction valve spring, and can be remedied by fitting a slightly stronger spring well tempered. The original springs may, owing to the heat and vibration, have lost some of their elasticity, and require opening out or renewing. It will most often be noticed that the firing as described only takes place when a weak mixture, that is, one with too much air, is used. Slow burning of the vaporous mixture is caused when the mixture is ignited, and burning has not entirely ceased in the combustion chamber and ports when the inlet valve begins to open, hence the result is an ignition of the incoming mixture, and quick forcing back of the inlet valve on its seating. This is commonly known as "popping" in the carburetter. Gauze in the exhaust box is likely to be misplaced by the heat and rushing of the exhaust gases, and does not sensibly prevent explosions owing to the gauze becoming heated.

WIRING.

Q.—1. Which is the better system of wiring in the case of a coil having the trembler, with make and break at engine, and the + wire from accumulator to coil in each case: A, the — wire from accumulator to make and break, and other terminal on coil connected to earth; or B, the — wire from accumulator to earth, and the coil connected direct to make and break? The high tension wire from coil to plug is direct, of course. 2. Can you explain why my accumulators, although registering 4.5 volts, misfire, unless I couple up another half-cell with them? Also does it do any harm to run on 6 volts, or slightly over, as I find it gives considerably more power?—T. E.

A.—1. The better way is to connect the negative wire from the accumulator to earth, also the remaining pole of the coil to the make and break screw, and the trembler terminal also to earth. By thus connecting, the condenser is brought into action, and a better and more efficient spark is produced, with less burning of the platinum points. 2. This misfiring would be produced by having dirty or acid-eaten terminals at the accumulator or other connections, or by loose wires at any part of the circuit. Extra resistance is thus introduced into the circuit, and a higher pressure or voltage is required to force sufficient current through the circuit. No harm would be done by using the higher pressure in such a case, as the current could not rise to an excessive amount, owing to the increased resistance.

WICK CARBURETTERS.

Q.—I shall be much obliged if you will give me your opinion about the dimensions of a wick carburetter, Werner pattern. The motor is a 2½ h.p. vertical one on a bicycle, and I am thinking of placing the carburetter just behind the engine, so that the heat given off may warm the petrol. I have already tried with a couple of tins, with fairly satisfactory results, but when the machine has run for about a quarter of a mile misfiring commences, and engine finally stops, although there is plenty of petrol in tins, which rather looks as if the petrol does not rise up the wick rapidly enough to vaporise and feed the engine. The size of outside tin is 5½ × 3½ × 2¼, and inner one 4½ × 3 × 1¾, the petrol is kept at a height of 1¾in., and the wick is 3in. high.—CYRIL H. SMITH.

A.—There does not appear to be enough vaporising surface. About half as large again would give better results, but some experimental work will be required to determine exactly the best proportions. The misfiring and stoppage would be due to variation of the mixture; the cold produced by vaporisation does not allow so much petrol to vaporise, and the mixture becomes poor, so that less air would have to be used. Heat might be used from the exhaust gases to keep the carburetter at a uniform temperature whilst working.

TO CORRESPONDENTS.

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

Robert Noblett.
L. C.
J. W. (Tenby).
E. England.
J. M. B. (London).
J. S. V. B.
A. H. Gregson.
B. W. Valentin.
Supplant.
W. Moxwell.
F. W. Cartland.
A. F. Shakespear.
A. B. W. Kee.
Cambria.
J. G. Brown.
W. Lambshead.
G. Spicer.
J. McIntyre.
H. E. Bush.
B. A. C. (Bromley).
N. Tailby.
F. W. L. Day.
Cyril H. Smith.
E. W. Walford.
T. A. A. (Sheffield).
T. G. Munyard.
L. R. W.
H. H. P. Deasy
(Switzerland).
Dr. Thomas.
L. M. Bell.
A. E. Johnson.
H. D. (Woolwich).
C. H. L. (London, W.)
T. K. T.
H. W. Wallace.
W. Grey.
F. R. Watson.
E. W. Webster.

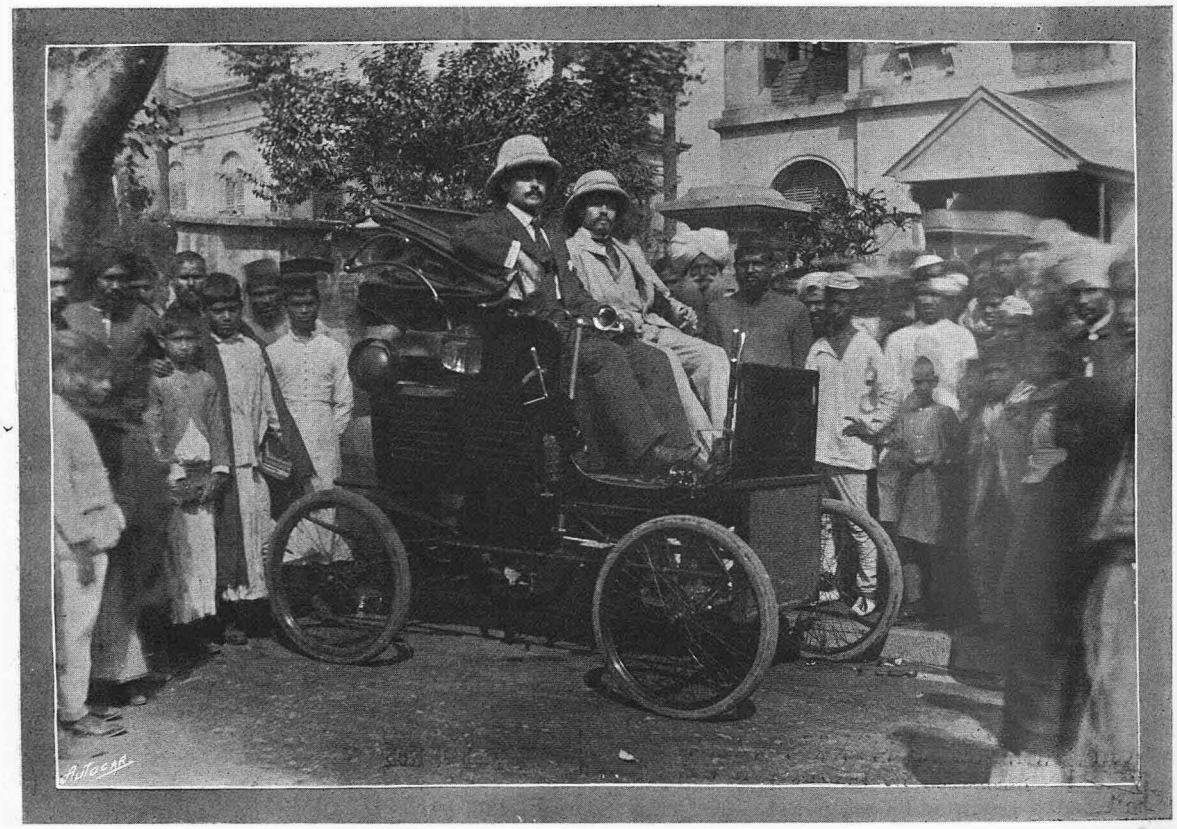
Our thanks are due to the following for items of news and various topics of interest which have been or will be dealt with: R. Kinnear, A. H. Wyatt, B. W. Valentin, T. M. H., A. W. Dougill, C. J. Paffard, A. W. Bell, W. Corbett, and others.

Letters forwarded: Peerless Mfg. Co., Cleveland, Ohio, and G. Cook.

T.J.—Please send us your full name and address, and we will reply through the post.

W. WOOLLER.—Sorry we were out when you called. Have written you to Aigburth Road, Liverpool. Is that right? Only Aigburth Road on your card.

ASIATIC ADMIRERS.



Mr. G. B. Cresswell on his Locomobile in Calcutta, surrounded by a crowd of interested natives.