

THE AUTOCAR

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

EDITED BY H. WALTER STANER.

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Notes.

The Reliability Trials.

All students of the results attained in the 1,000 miles reliability trials should bear in mind themselves, and when discussing the matter with others be careful to make it plain, that these trials are the most severe to which automobiles have ever been subjected. Here and there a single car might have been put to a more violent test, but the conditions have been entirely different. The car has not been under official observation, and any little derangement has been put right as soon as discovered. We dwell upon this because the results alone without considering the conditions are somewhat disappointing. That is to say, out of 104 cars which started on the first day thirty had dropped out of the competition by the end of the eighth and last day, while only four succeeded in completing the full 1,000 miles without a single involuntary stop. We say till the conditions are considered these results may appear disappointing, for it is necessary to bear in mind that nothing whatever could be done to the cars without the loss of marks. No small adjust-

ment could be made without points being dropped, and even the dust and mud of a thousand miles could not be washed off unless the driver was prepared to throw away marks. This means that practically every car was driven till it stopped. If a cylinder was missing fire it was allowed to go on missing—in fact, one of the non-stop cars started on the last day with only two out of four cylinders in action. Luckily, the other two gave no trouble, and we believe that the derangement, to some extent, cured itself as the motor warmed up, but the fact remains that in the ordinary way this matter would have been put right and a new plug would have been fitted, or the valves ground in; probably the latter were the cause of the trouble. At the same time, all other things being equal, there is no getting away from the fact that the car which will run longest without attention is, from the average user's point of view, the best car; and the conditions, severe as they are, are perfectly reasonable as reliability tests. The cars which have got through without loss of marks are, of course, those which have done best, but those which follow them closely, and only lost a very few, are, except so far as mere marks are concerned, to all intents and purposes as successful. In fact, the conditions are so onerous that we wonder, as does every practical critic, that a single car was able to get through absolutely without a stop. Other cars have done poorly, but it is necessary to consider their performances individually, because some of the poor performers are really good cars—cars which are equal to, and in some respects better than, those which have, so far as the present competition is concerned, beaten them. However, this is unavoidable, and their makers will have to wait till the next opportunity for publicly demonstrating the reliability of their products. More than one proved brand of vehicle is missing from the present series, and others of equal merit have performed poorly. This is the weak point in the trials. Only good cars can get through, but others equally sound may fail utterly.

Future Trials.

Reference to the makes which have already proved themselves either in the hands of the private owner or in former reliability trials brings us naturally to consider future trials. A number of the participants in the present tests have expressed the opinion that there is no need for further tests of reliability. This, however, as we have pointed out before, is a matter entirely in the hands of the manufacturers and agents. If they decide not to take part in trials the trials cannot be held under present conditions; and, unless an amateur series is started, that will temporarily end the matter. Still, the chances are that, despite the apparently general opinion that

further trials are unnecessary, the members of the industry when they meet a few weeks hence to discuss the matter will decide in favour of another series of tests next year, though no doubt certain modifications will be suggested, the ideal being that without decreasing the severity at all the duration of the trials shall be reduced. As conducted under the present arrangements they occupy with the preliminary trials and after examination by the judges well over a fortnight. There is no question whatever that the trials which have just concluded have been the best managed and altogether the most ably conducted which have taken place; and considering the extreme severity of the regulations, the participants have made very few complaints. There are, of course, points with which faults could be found and improvements which might be made in the management, but this applies to everything organised by man, and we do not believe that any equally difficult and trying series of events have been better conducted than the club trials of this year. There are many points worthy of consideration, and we must congratulate Mr. Basil Joy (the technical secretary of the club), his official assistants, and the host of honorary workers who have striven early and late day after day conscientiously to perform duties which would have been hopelessly irksome to them but for their devotion to the autocar and all that appertains to it. In other words, the salaried officials of the club have worked like volunteers, and the voluntary workers have vied with them in their enthusiasm.

Unavoidable Inequalities.

In the foregoing note we have somewhat digressed from our title of "Future Trials," so we now return to the subject. Suggestions might be made almost endlessly with regard to the regulation of

future tests, but among the subjects worthy of consideration we might well consider the voiturettes. There is a tendency to infer that these little machines have not had fair play in the present trials, and it is suggested that they should be differently treated in future, and that it is not right to expect machines costing between £130 and £200 to perform as well as those which are sold at higher figures. This, of course, is perfectly true. At the same time, there is a very widespread practice among people who do not own cars to speak as though they expect the cheap car to perform as well as the costlier types. The whole point of the matter is that the majority of little two-seated machines have been driven almost at full strength throughout the 1,000 miles. This also applies to some of the cars in the £300 class, but the majority in the other classes have had a surplus of power, and have not been by any means extended. We do not regard this as a regrettable feature in any way, as the fact that a small low-powered machine succeeds in performing creditably beside the larger and much more powerful cars is to its credit. Trials of this kind must be conducted mainly for the benefit of the average entrants, *i.e.*, while the larger machines have been underworked, some of the little ones have been overworked, but the average four-seated medium powered car has been put to a test calculated as nearly as possible to bring out its best points, and it must be remembered that while some of the voiturettes have been eliminated by the severity of the trials, they are not the only failures; cars of greater power have also failed. Still there is no doubt that the value of the trials and the interest in them would be greatly increased if the classes could be separated upon the road. It is scarcely possible to do this

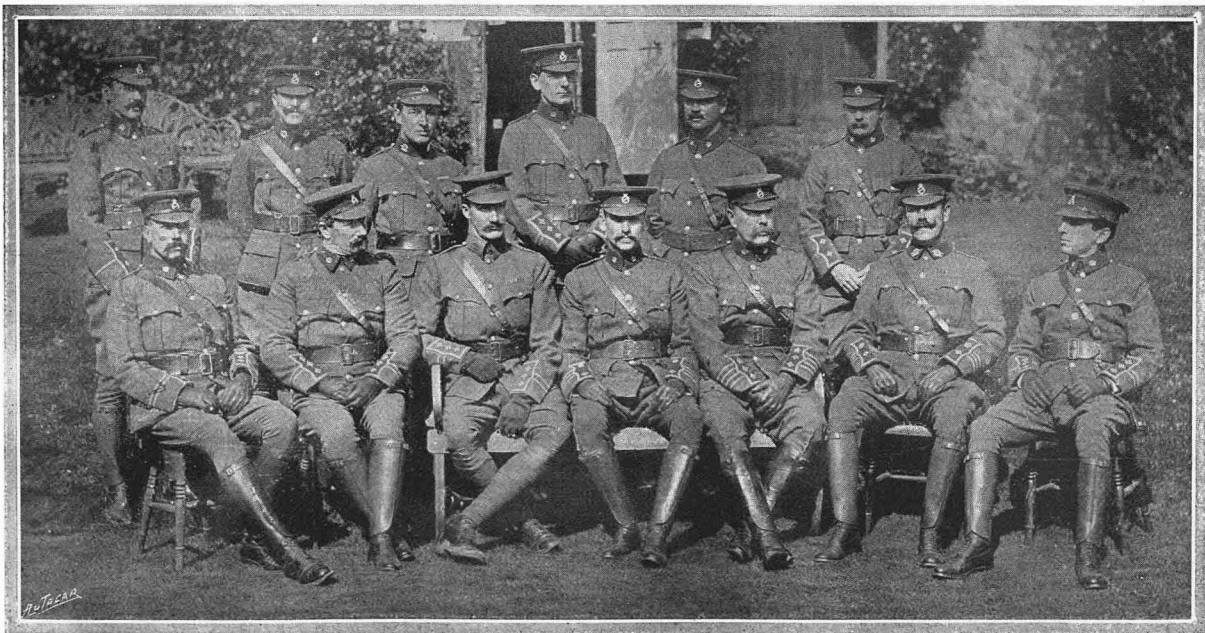


Photo.

Vandyk, Buckingham Palace Road.

A GROUP OF OFFICERS OF THE MOTOR VOLUNTEER CORPS.

Standing: Lieut. J. A. Holder. Capt. J. F. Stannard. Lieut. H. H. Paynter. Capt. W. J. Crampton. Lieut. H. J. Tupper. Lieut. the Hon. A. F. Cave.
Sitting: Capt. A. B. Hearn. Capt. H. V. C. Ker-Seymer. Capt. G. Skellington-Smyth. Lieut. Col. Mark Mayhew, O.C. Col. R. C. Knox.
(Adjutant) Lieut. Col. H. H. Forbes Eden. Capt. A. H. Lee.

by placing a time interval between them even if the day were long enough to admit of this. It would, of course, mean that some of the classes would have to be started exceedingly early and the others would finish very late. The only satisfactory way of doing it would be to despatch each class in different directions. For instance, assume eight classes and eight routes, as was the case this year: it is only necessary that each one of the classes should traverse a separate road each day to arrive at the proper separation of the classes. It would be much easier to follow the behaviour of each type, and no road would be unduly crowded on any one day. The passage of a hundred cars over a dusty road can only be regarded as a nuisance, and it would be a good thing to make the change we have suggested. There are certain difficulties in the way of terminal arrangements, but they are not by any means insuperable.

A New Centre.

There is also the question of a headquarters. The present trials have shown that no building is necessary. All that is wanted is a convenient ground and three or four suitable tents. The Crystal Palace itself has not been used at all by the competitors, except for an occasional evening meal, and they would have been just as well off if it had not been there at all. The Palace is matchless for a motor show, but no advantage whatever for a series of road trials, and it is most inconveniently situated, as it is so far east as well as south of London that the daily runs are necessarily restricted far too much to one district. Many participants in the trials would prefer that the headquarters should be away from London altogether, but there are many objections to this course, though it appears to us that there should be no difficulty whatever in obtaining a more convenient radiating point which should be further west. For instance, Park Royal, the permanent show ground of the Royal Agricultural Society, would be in many respects preferable. It would give access to the north and west, as well as to the south, without the least necessity for traversing any great length of suburban roads, while it is impossible from the Palace to contemplate going north for a moment, as between the North Road and the Palace there is not only Southern and Northern London but the City itself. West is almost equally out of the question, and it is evident that a better centre is required. Another point in favour of Park Royal is that it is very much more accessible from town, while it is on one of the great main lines and directly connected with another, so that competitors who bring their cars by train would find it a much simpler task to get them through than they do at present.

Petty Tyranny.

Last week the Southampton County Bench received what we hope will be a lesson to them, and as the matter is one which is likely to be of interest to motorists we think it deserves more than passing notice. An automobilist was summoned for exceeding the speed limit. He found it impossible to be present at Southampton without incurring serious personal inconvenience, so he instructed Mr. Malim, of Messrs. D'Angibau and Malim, of Boscombe, to appear for him at the Petty Sessions.

The automobilist felt it impossible for the constable concerned in the case to be in a position to speak positively as to the speed at which he was running, and therefore his solicitor pleaded not guilty. Thereupon, the magistrates enquired why the defendant was not present, and declined to hear the case in his absence unless he pleaded guilty; in fact, they accepted the statement of the constable, whatever it might be, without cross-examination. The solicitor for the defendant, in order to save his client further inconvenience and trouble, offered to plead guilty in order that the case might be settled, but at the same time he pointed out to the magistrates that they were practically forcing the plea of guiltiness, whereupon the Chairman of the Bench said that as the defendant was not present to give his representative instructions, the case would be adjourned for a week for him to attend. In other words, the magisterial decision was that the defendant must appear personally before the Bench, or must instruct his solicitor to plead guilty on his behalf. After a week's adjournment Mr. Malim again appeared and found that the magistrates still persisted in their intention to compel the defendant to appear before them. He therefore politely informed them that if they persisted in this attitude he would be obliged to serve them with a mandamus to compel them to hear the case in the absence of the defendant, and an action for false imprisonment if they presumed to apprehend him on a warrant. Thereupon, the magistrates adjourned the case "to consider their legal position."

The Third Appearance.

On the third hearing, the Chairman graciously announced they had decided to hear the case in the absence of defendant, and eventually a fine of £2 and costs was imposed. The case was a very weak one, and under the circumstances it should have been dismissed. This is not the main point; the subject for complaint is that the defendant should have been put to the expense of appearing through his solicitor three times before the Bench when it was the plain duty of the magistrates to have heard and determined the case upon the first appearance. At the same time, the automobilist in question, an American tourist, Mr. W. H. Bradford, deserves the thanks of automobilists at large, as by his persistence he has completely upset the illegal position taken up by this particular Bench, and has shown them plainly that their attempt to force him either to plead guilty or to appear before them personally was not founded upon law. As it is at sometimes inconvenient, if not impossible, for a man accused of excessive speed to answer the summons personally, it cannot be too widely known that the Bench has no right to insist upon personal attendance, and that if he is represented by a solicitor, the Bench is bound to hear and determine the case in the absence of defendant. We are not advocating senseless opposition to the magistracy, but some Benches are still inclined to go beyond their rights with regard to automobilists, and it is well that the limit of their powers should be clearly understood. Too many Benches have not yet realised the difference between an alleged excess of speed and some really serious and abominable offence against the laws of the land.

USEFUL HINTS AND TIPS.

Inspection Pit Construction.

May I make one or two suggestions, writes Sir J. H. A. Macdonald, *apropos* of your useful hint regarding motor pits? In my pit the descent is made by placing a square board about 8in. broad in the corner about 15in. down, then a shelf 1ft. broad running across the end at 18in. down, and then a third corner board lower down on the same side as the top one, but projecting 6in. beyond the line of the centre board. One foot is placed on the top board, the other on the long shelf, and the first foot on the lowest step. The second step makes a convenient shelf for tools, and may be made to slide along battens, as you suggest. This arrangement takes up less room, and is much cheaper than made steps. As regards lighting, you suggest that wall sockets should be placed along the walls of the pit. It will be found cheaper and much more handy to have the ordinary motor house light provided at the end of a long twin wire, coiled up on a hook. When required in the pit it can be hung over any convenient part of the car below that will light the spot at which work is to be done, or, as I have found convenient, it may be slung round the worker's neck, or hung in front of his shoulder.

Starting a Single Cylinder Engine.

I have had a serious back fire in starting an 8 h.p. single-cylinder De Dion engine, writes a correspondent, without the ignition being advanced. Result, a compound fracture of the arm. How has this been able to take place without ignition being advanced in the slightest? I am absolutely positive that the lever was in the retarded position, and besides, the motor was not hot, so that pre-ignition could not have taken place owing to overheating. Do not try starting without using the spring push on the inlet valve;

it releases compression. I balanced the starting handle backwards and forwards two or three times. Owing to this balancing movement, the spring on the contact breaker was lifted, which caused a spark in the combustion head before the compression point was reached; in consequence, back fire and a broken arm. With this igniter it is advisable to start by pushing on the knob, which depresses the inlet valve and releases the compression; or if you have an arm strong enough to start without, do not swing the starting handle about, but pull up from below, which will enable you to overcome the compression at the first turn. Otherwise, look out for broken arms.

Tapping.

Sometimes it will be noticed that the engine, which has been running perfectly well and easily, will begin to make a slight tapping sound. It is not sufficiently pronounced to be called a knock, and very often it will puzzle the driver to know what it is caused by, as he is apt to, and he will in the majority of cases, put it down to some slight peculiarity of his valves. As a matter of fact, it is nothing of the kind, but is due to very slightly premature ignition. Of course, when an engine begins to labour with the ignition too far advanced, there is no doubt whatever as to the cause; but the comparatively light tap caused by only very slight premature ignition is not usually recognised as the first symptom of too early firing. It will be found it invariably occurs when some slight increase in resistance, either through an up grade or traffic slack, causes the engine speed to be momentarily reduced, and the retarding of the ignition by a notch or so will on all cars provided with a moderately delicate ignition regulation put the matter right at once.

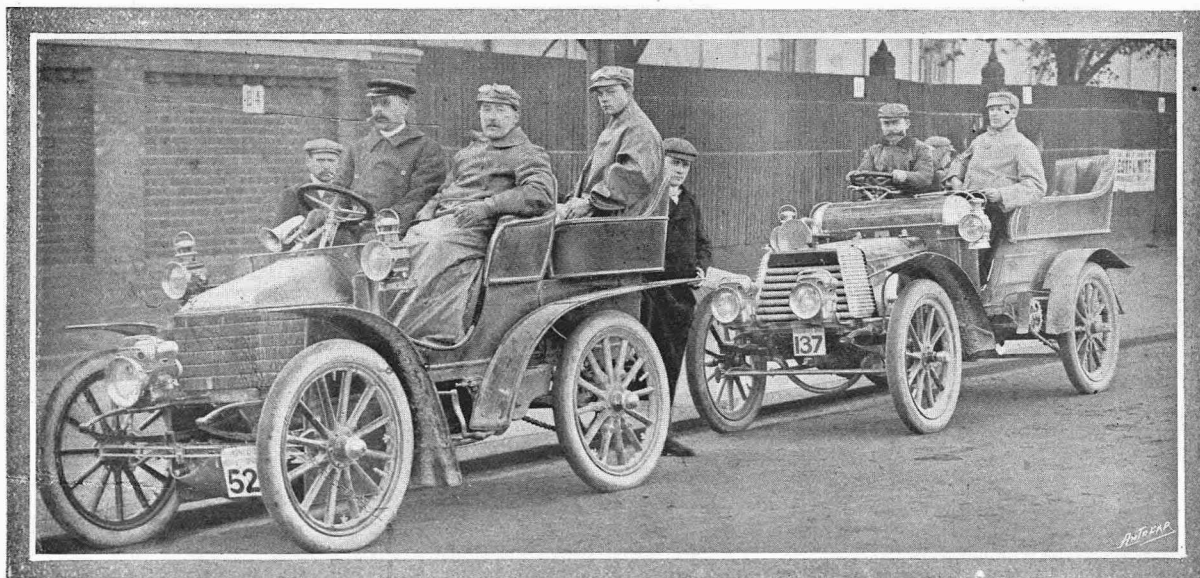


Photo.

Argent Archer, Kensington, W.

THE 1000 MILES TRIALS. The 10 h.p. Wolseley, No 52, followed by the 22 h.p. Daimler, No. 137. No. 137 was one of the four cars which completed eight non-stop runs, coming through the road trials with a clean sheet.

THE IMPRESSIONS OF A NON-MOTORIST.

THIS ARTICLE IS INTERESTING, AS IT RECORDS THE IMPRESSIONS OF A WRITER WHO HAD NEVER DRIVEN UPON A MOTOR BEFORE, AND WHOSE ENVIRONMENT AND PROFESSION WOULD TEND TO PREJUDICE HIM AGAINST THE CAR RATHER THAN IN ITS FAVOUR. WE HAD NO LITTLE DIFFICULTY IN PERSUADING HIM TO TAKE PART IN ONE OF THE DAY'S RUNS IN THE 1,000 MILES TRIALS, AND STILL MORE IN OBTAINING FROM HIM A RECORD OF HIS IMPRESSIONS.

I AM neither a motorist nor an engineer, and the conversation among my autocar friends was so much Urdu to me as I sat listening to them one night last week within a stone's throw of the Crystal Palace.

What did I know of exhaust valves, or of carburetters, or even of "bonnets," with or without bees in them? Motor apoplexy seems to be a most consuming disease, and I am afraid it is infectious, but it certainly is not carried by means of conversation.

After rising before the sun himself next morning I found the

dimly felt this as we sped on our way to Winchester. As we rushed along in the breeze of our own creation, the cars were humming their music to us "an' singin' like the Mornin' Stars for joy that they are made." By degrees London's gloom gave place to the brightness and the sunshine within which Winchester and its crowds stood waiting for us, and the roads became drier and drier as we neared the ancient capital. The scene below the Guildhall after luncheon was one to be remembered. To the totally unsympathetic the sound that filled the place might be a

din. To me it was like the great, solid boom of falling waters, playing bass to a multitude of other notes, and my nerves vibrated with glee amidst the animation. Out through the bright spectator-lined streets into the country roads we went, out again among the sunlit green of trees and fields, and by the blazing red of Virginia creepers on the house fronts. Lazily loling in a cushioned seat, one felt pure benevolence possessing one's soul as we were carried quickly over the dustless and perfect roads through Farnham and red Guildford. What creatures we are to be played on by circumstances! As the day approached its close my spirits drooped



Photos. Campbell and Gray.
The 14 h.p. Martini. The driver salutes the photographer.

misty air vibrating in sympathy with the throbbing of the multitudes of engines, as the cars left the great tents that had housed them during the night within the Palace grounds. All was bustle—drivers and officials preparing for the day's long journey. Outside, the Parade (wet with mist and bordered with fallen leaves) gradually woke up into animation, as car after car ascended the lane from the "stables" into the wide thoroughfare, and formed a long line before numbers fixed to the Palace wall. The seventy-five travel-stained vehicles were of all colours, shapes, and sizes, and nearly the same may be said of their human attendants. The cars



Photos. Campbell and Gray.
The canopied 20 h.p. Beaufort tonneau.

at the start seemed to become animated beings. One stood panting, waiting for the word to go, its head quivering with excitement; another waited, stolid and unmoved, its great mud-guard ears almost motionless; another gave out a little ripple of laughter as it bounded off; and yet another neighed



Photos. Campbell and Gray.
A front view of the 20 h.p. Humber.

proudly on the line, and one half instinctively looked for the tossing head of a thoroughbred.

Whatever its enemies may say, the motor car has poetry within it, and probably even the duller of us

in the unaccustomed rush, which had increased to over twenty miles an hour, momentarily to over thirty. My toes clutched for a hold as we raced down hills; the hum of the car became a moan, and the moan rose to be a wail in our long flight. But moan and wail ceased to be ere London's bounds were

reached, and shortly after six o'clock we found ourselves safe and sound before the large white housing-tent again, after a journey of one hundred and thirty-three and a half miles.



The Detective Decauville.



The 16 h.p. De Dietrich, No. 126.

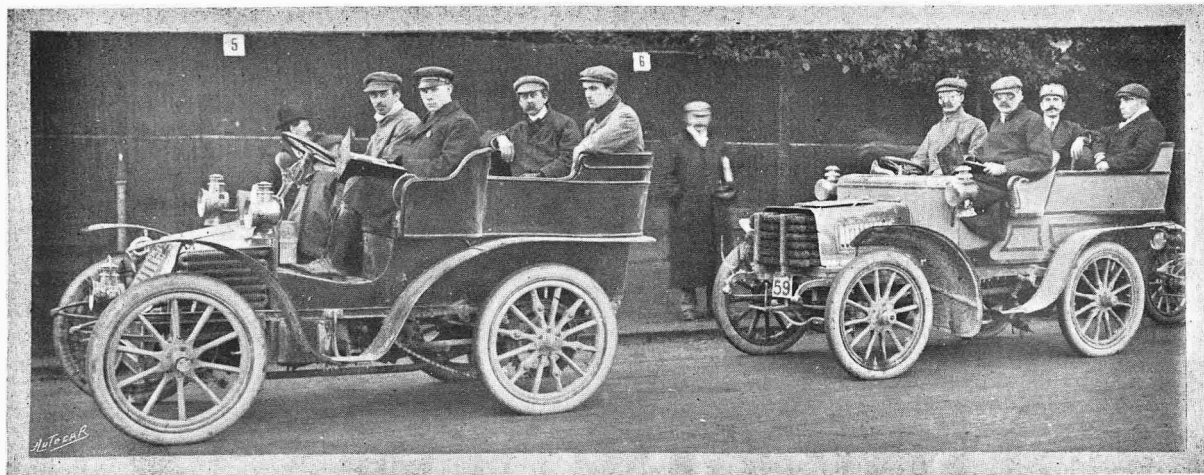


Photo.

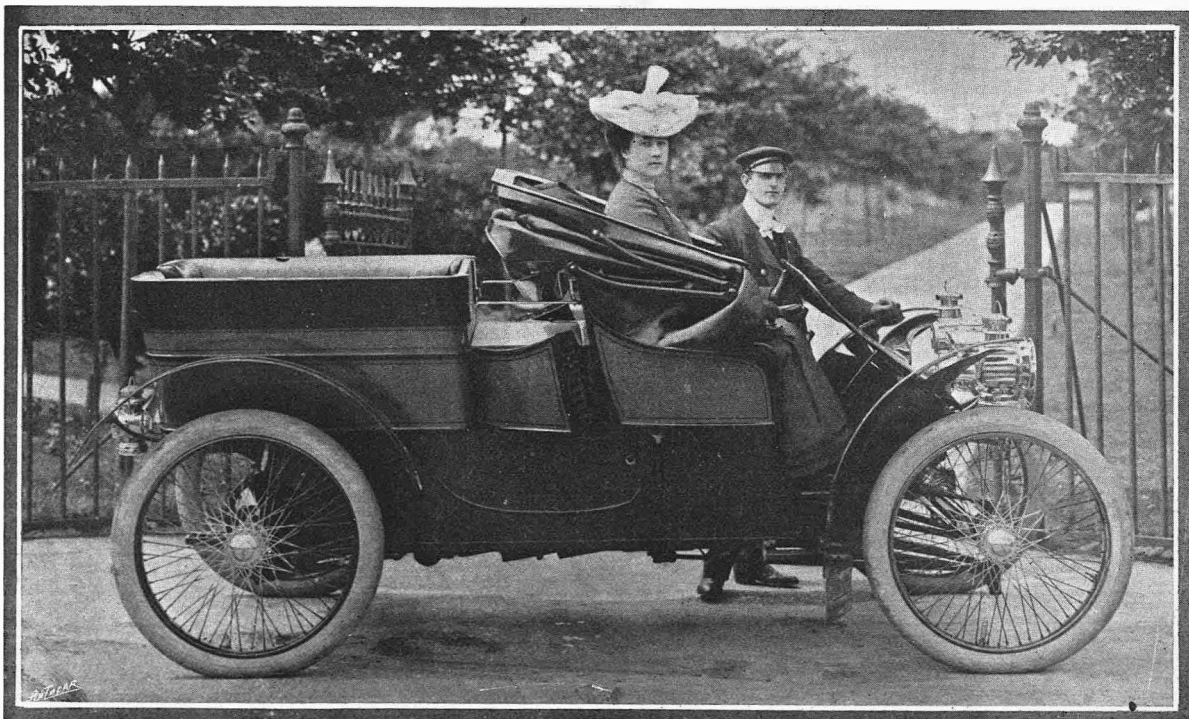
Argent Archer, Kensington, W.

THE 1,000 MILES TRIALS. The 9 h.p. James & Brown, No. 47, and the 13 h.p. Rex, No. 59.

Our run was not without its incidents. Once, about nine o'clock, we had a painful moment. A groom came towards us, riding a horse and leading another. Both animals appeared restive, and between the man and the led horse there began a tussle, in which the latter got quite across the road. By this time we were upon them. When our driver pulled up his 12 h.p. Sunbeam (almost in the hedge and half on a little bank by the side of the road), the car was within a foot of the beast. "The man *knows* he has got restive horses; he *knows* there are motor cars on the road; he is asking for an acci-

dent," said our driver, in his wrath, and he was justified.

Minor incidents there were in plenty, in the form of police "traps," but more numerous still were the warners—men, women, and children. Waving arms and handkerchiefs, and on one occasion a printed cloth, caused our speed to drop to a funeral pace, and as we slowly passed a guardian of the highway jocular inquiry was made as to his "Waterbury"—a more innocent form of recreation than banging like a seven-pounder with one's "exhaust box," which is unlikely to soothe the feelings of a restive



A PIONEER LADY MOTORIST. Miss Hampson, of Southport, is one of the pioneers of active automobilism for ladies, and has driven some 22,000 miles. Her last car, a 10 h.p. Lanchester, on which she was photographed, she has driven some 5,000 miles. She is a most skilful driver, and the way in which she handles her car excites admiration wherever she goes. On no occasion was this more pronounced than at the recent British Association meeting, when the motorists of Southport and district, among them being Miss Hampson, drove the members of the Association to places of interest in the locality.

horse, whatever effect it may have on a startled policeman. The constables—the glum, the smiling, the stern, the shy, the upright, and the crouching, all combined—seemed to have caught no fish on that Friday, but the seeming was deceitful, for at least one big catch came into their net, I was surprised to hear on our return. We behaved admirably on our way through the towns that lay on our route. At one of these we were accompanied by a police inspector riding a bicycle. "You are going," said he, "at the rate we want you to go. We don't want to summon you; we only want to prevent people grumbling." Let me confess it. I do feel some sympathy for the policeman, whose lot is anything but a happy one.

J. J. J.

As a general rule very little trouble was experienced with horse-drawn traffic during the trials, which were practically free from regrettable incidents. The long procession of cars gave horse owners an excellent opportunity of training their still unbroken cattle.



Photo. Argent Archer, Kensington, W.
The 20 h.p. Winton, driven by Mr. F. W. Packham, leaving Margate on the first day of the trials.

MILITARY TRANSPORT BY MOTOR LORRIES.

Lord Kitchener's Appreciation.

In the evidence taken by the Royal Commission on the war in South Africa, Lord Kitchener made a very important statement with regard to the extreme usefulness of the motor lorries used in South Africa. Quite apart from the high value set upon any testimony given by Lord Kitchener, we have to remember that the lorries were used under the most unfavourable conditions. That is to say, in a much rougher country than they would in the ordinary course of warfare be called upon to operate. The

extract from Lord Kitchener's evidence is as follows: "We had about forty-five steam road transport trains. As a rule, they did useful work, but questions of weather, roads, water, and coal distinctly limited their employment, as compared with animal transport, to which they can only be regarded as a supplement. The motor lorries sent to South Africa did well. Thornycroft's are the best. They will, in the future, be found superior to steam road trains as field transport."

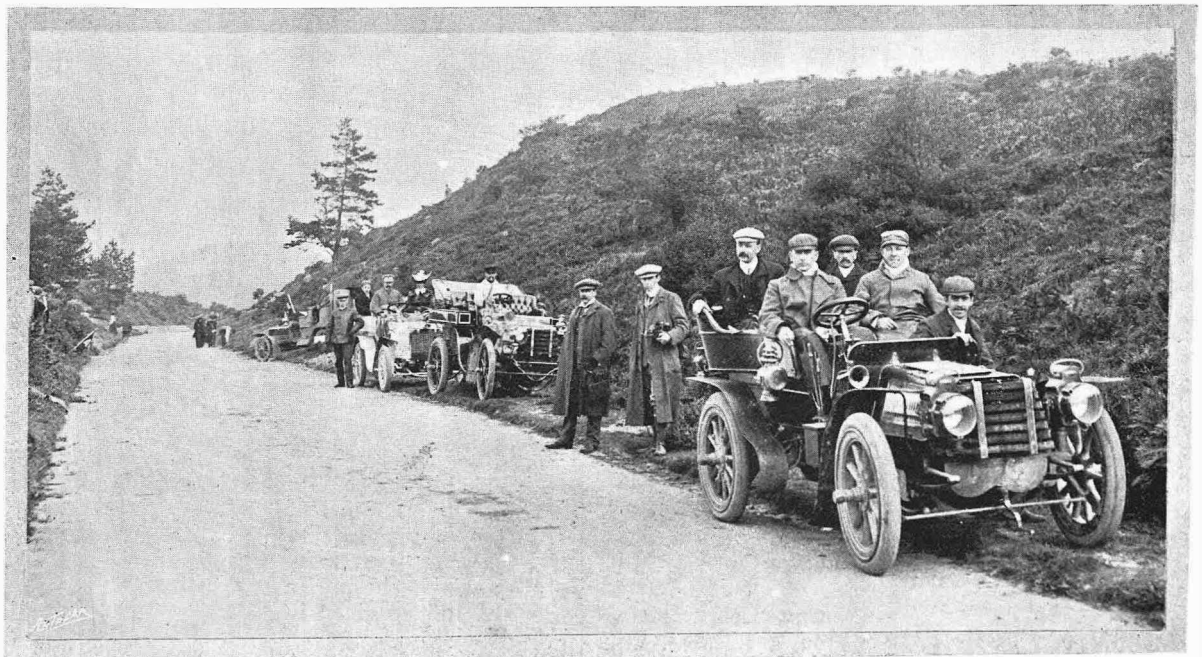


Photo. THE 1,000 MILES TRIALS. Spectators in their cars awaiting the arrival of the competing cars on Hind Head on Wednesday, September 23rd.

The 1,000 Miles Reliability Trials.

THE DIARY OF THE ROAD TRIALS.

(Continued from page 397.)

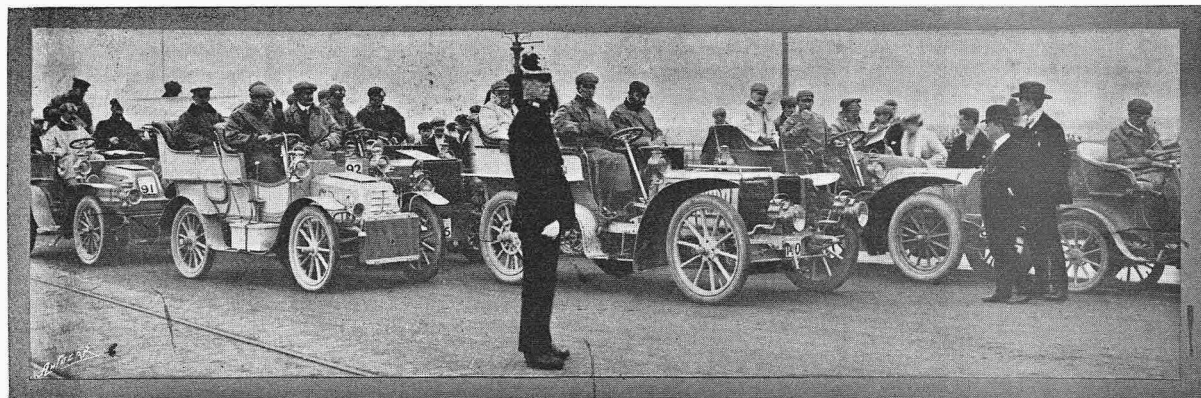


Photo.

Argent Archer, Kensington, W.

A group of cars on the front at Southsea, on Wednesday, September 23rd.

THE 1,000 MILES RELIABILITY TRIALS, CONDUCTED UNDER THE AUSPICES OF THE AUTOMOBILE CLUB, COMMENCED ON THE 15TH OF SEPTEMBER WITH THE HILL-CLIMBING AND BRAKE TESTS, WHICH WERE DEALT WITH IN "THE AUTOCAR" OF SEPTEMBER 19TH, IN WHICH ISSUE WERE GIVEN SOME BRIEF PARTICULARS OF THE COMPETING CARS. IN THE SPECIAL ISSUE OF "THE AUTOCAR," DATED SEPTEMBER 26TH, THE DUST, NOISE, AND VIBRATION TRIALS WERE REPORTED UPON. THE ROAD TRIALS COMMENCED ON THE 18TH SEPTEMBER, AND PARTICULARS OF THE FIRST FIVE DAYS' RUNS WERE GIVEN. IN THIS ISSUE WE CONTINUE OUR REPORT WITH AN ACCOUNT OF THE FIFTH DAY'S RETURN JOURNEY.

SOUTHSEA AND BACK. WEDNESDAY, SEPTEMBER 23rd.

OUR details of the trip of 144½ miles made by the eighty-three cars, or at least the seventy-nine of them that completed the days' run, were necessarily somewhat meagre owing to the demands of publication, which enabled us to deal with the outward journey only.

At 7.30 a.m. a heavy white mist of quite a Scotch character overhung the Palace, the effect of which combined with the rain that had fallen upon the previous day made the outward going even beyond Carshalton very slippery in parts. It had, however, the most



The 14 h.p. Brooke, No. 68.

welcome effect of keeping down the dust, so that the occupants of the long train of cars rode in comfort, and when the mists rolled away before the tardily dominating rays of the September sun, the car borne were able to thoroughly enjoy the glorious scenery of the Surrey

commons, the Hind Head, and Butser Hill, both on the outward and home-coming journeys. A compulsory stop was made in the delightfully quaint and picturesque county town of Guildford, after which the cars pursued their way along the Portsmouth Road through Godalming and Milford and over Whitney Common to the foot of the Hind Head, up two miles of which they were set to do their best against the watches of Messrs. Harry J. Swindley and Henry Sturmeay and T. W. Woollen and D. Straight. The first-named pair officiated from the seat of

Mr. Swindley's 16 h.p. Clément at the foot of the climb, and the latter two split upon the passing cars from Mr. McLulich's 10 h.p. Wolseley at the end of the climb. Owing to the extraordinary inaccuracies in the profile of the hill as given in the programme, we commissioned a well-known surveyor to level

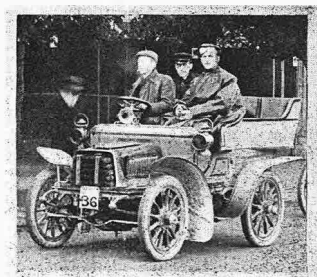


Photo. Argent Archer, Kensington, W.
The 10 h.p. Rex, No. 36.

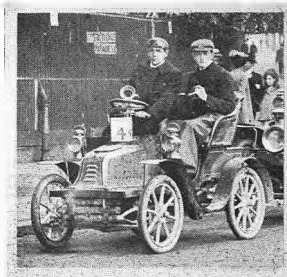


Photo. Argent Archer, Kensington, W.
The 5 h.p. Baby Peugeot, No. 4

and plot the particular length over which the cars were timed, and the fruits of his labours were given in our issue of last week. Comparison of the section made for us with that given in the official programme will show that, while the steepest gradient in the latter shows as one in thirteen, our specially-surveyed profile demonstrates that nowhere is the climb steeper than one in twenty. It is not surprising, then, that all the cars that arrived at the foot of the hill were successfully driven up, for an automobile that will not to-day scale two miles average gradient of 1 in 24.44 is not worth consideration. Barring the grease of the early morning, the roads were in splendid going order throughout. At Milford, No. 34 (10 h.p. Georges-Richard) retired from the trials owing to ignition troubles too serious to remedy on the return journey. No. 36 (the 10 h.p. Rex) did likewise at Liphook going out; while Mr. Packham, who was driving No. 104 (the 20 h.p. Winton), had the misfortune to break his crankshaft. Upon our own

return journey we found him, his mechanic, and his observer up a side road in Carshalton with a new flywheel and crankshaft in position, having wired to London for the refit. Two hours later he was again running and full of vim to go the whole course; but his observer was unwilling, as he could

not have completed the distance within the allotted minimum time, which alone would have permitted him to have started next day. No. 131 (18 h.p. Mors) ran into a gate at Ewell on the return journey, and so damaged the magneto ignition that it could not resume. This was probably due to the night fog.



Photo.
The judges on Mr. Burford's Milnes-Daimler awaiting the arrival of the cars at the top of Hind Head on Wednesday, September 23rd.

Argent Archer, Kensington, W.

On the return journey the judges stopped the cars for an unannounced or "surprise" examination of engines, steering connections, and any suspected parts receiving particular attention. Further down the Hind Head decline they were stopped suddenly for a surprise brake test.



Photo.

Argent Archer, Kensington, W.

The cars awaiting their turn on the occasion of the surprise examination by the judges on Hind Head. The 10 h.p. Gladiator (No. 41) and the 12 h.p. Darracq (No. 64) are in the foreground.

BEXHILL AND BACK, THURSDAY, SEPTEMBER 24th.

BEFORE the start for the scene of the speed trials, we learnt that, in addition to the four cars which were withdrawn on Wednesday, two more would be lacking from the line, viz., No. 2 (the 6 h.p. Eagle tandem), whose driver had gone on strike, and No. 125 (the 25 h.p. Maudslay), which was suffering from ignition troubles. A mist again overhung the Palace Parade when the clock struck the hour for departure, but the roads were still dustless until the *cortège* was well into Sussex. The route, *via* Locks Bottom, Sevenoaks, and Tonbridge, takes one through some of the hilliest parts of Kent, and the road is by no means level when Sussex is entered later on. Seventy-six out of the seventy-seven cars which that most earnest worker Mr. Siddeley started from the Palace reached Bexhill safely, all in very fair time. The one unfortunate to-day was No. 50 (the 10 h.p. Simms-Welbeck), which gave up the trials at Kipping's Cross, owing to gear troubles not defined.

The action of a resident of Bexhill in connection with the proposed speed trials of last year, which will be fresh in the memory of many of our readers, rendered it necessary to cut the trial of speed down to half a mile only, as the private cycle parade would only permit of this distance being run at speed in safety. As it was, the cars started with a run of about two hundred yards from the top of the steep slope to the east of the town, and most (though not all) of them had picked up well on their top speeds before the start of the half-mile on the actual crest was reached. This incline is plainly shown in the photograph we reproduce below.

The Speed Test.

The cars were timed electrically and by hand, Messrs. R. E. Phillips and Lyons Sampson dealing with the wires, while Messrs. Harry J. Swindley, Henry Sturme, and D. Straight held watches. The electric timing was not automatic, Mr. Phillips sitting on the ground and pressing a button when the car passed the post. The speeds per hour accomplished by the first fastest three cars in each class were as follows:

No.		Miles per hour.
CLASS A1.—Price less than £160.		
1	No. 1 Century tandem	31.8
CLASS A.—Price not more than £200.		
1	No. 18 6½ h.p. Clyde	33.0
2	No. 11 5½ h.p. Stanley steam car	32.1
3	No. 14 6½ h.p. Cadillac	28.8
CLASS B.—Price £200 to £300.		
1	No. 39 8 h.p. M.M.C.	29.5
2	No. 28 9 h.p. Beaufort	29.0
3	No. 35 9 h.p. Eagle	26.3
CLASS C.—Price £300 to £400.		
1	No. 51 12 h.p. Wolseley	35.1
2	No. 41 10 h.p. Gladiator	35.0
†3	No. 62 7½ h.p. Wolseley	32.7
†3	No. 52 10 h.p. Wolseley	32.7
CLASS D.—Price £400 to £550.		
1	No. 66 12 h.p. Gladiator	41.3
2	No. 92 12 h.p. New Orleans	39.3
3	No. 77 12 h.p. Star	39.2
CLASS E.—Price £550 to £700.		
1	No. 105 10 h.p. Gardner-Serpollet	42.8
2	No. 114 14 h.p. Martini	42.3
†3	No. 97 15 h.p. New Orleans	40.5
†3	No. 106 24 h.p. Georges-Richard	40.5
CLASS F.—Price £700 to £900.		
1	No. 133 20 h.p. M.M.C.	44.6
2	No. 120 20 h.p. Germain	42.4
3	No. 130 16 h.p. Rochet-Schneider	41.3
CLASS G.—Over £900.		
1	No. 140 24 h.p. De Dietrich	42.4
2	No. 137 22 h.p. Daimler	39.4
3	No. 136 22 h.p. Daimler	30.9

† indicates a dead heat between these cars.

It will be noticed that the 20 h.p. M.M.C. (No. 133), driven by Mr. George Iden, did the best performance of the day.



Some of the competing cars ascending the hill to take part in the speed trials at Bexhill. They returned down hill so that a good speed was attained before the commencement of the timed stretch on the level at the bottom of the slope was entered upon.

WINCHESTER AND BACK, FRIDAY, SEPTEMBER 25th.

THE number of cars which now remained for the starter to dispatch was reduced to seventy-six, and so well drilled were the drivers and the starter to the operation of getting under weigh that all had flitted westwards before eight o'clock. The route was as before to Guildford, where the cars were again halted for fifteen minutes in the Market Place preparatory to climbing the western end of the Hog's Back, and reaching the ancient capital of Saxon England by Farnham, Alton, and Alresford. The roads were in splendid condition, and the weather was all that could be desired. Between Alton and Winchester, but particularly between Alresford and the Hampshire city, the cars were obliged to run the gauntlet of a series of mean police traps, but being warned thereof by kindly disposed villagers and local automobilists, the vehicles progressed at a snail's pace through all these snares. Seeing that they were likely to be deprived of their expected haul, the police dropped any sort of pretensions to fair and adopted other means of warranting their expenditure of time and the county's money. They had left all the rest of the countryside, to which they should have been giving attention, to the mercy of all the tramps and roughs who chose to profit thereby, and were bound of course, for the satisfaction of the prejudiced folk who had goaded them to this shameful and tyrannical practice, to secure some victims. So they apparently secured any car that was in any measure isolated from the rest, and holding it up demanded the driver's name and address. Whether the powers that be will grant summonses and impose the usual

heavy fines remains to be seen. Should they do so, such a course will assuredly prove but another nail in the coffin of such despicable practices.

No less than forty-six cars made non-stop journeys over this trip of one hundred and thirty-three and a half miles, which showed how effectually the weeding out process had left the strong and enduring to continue the game. Massed in long lines beneath the shadow of Hamo Thornycroft's noble statue of

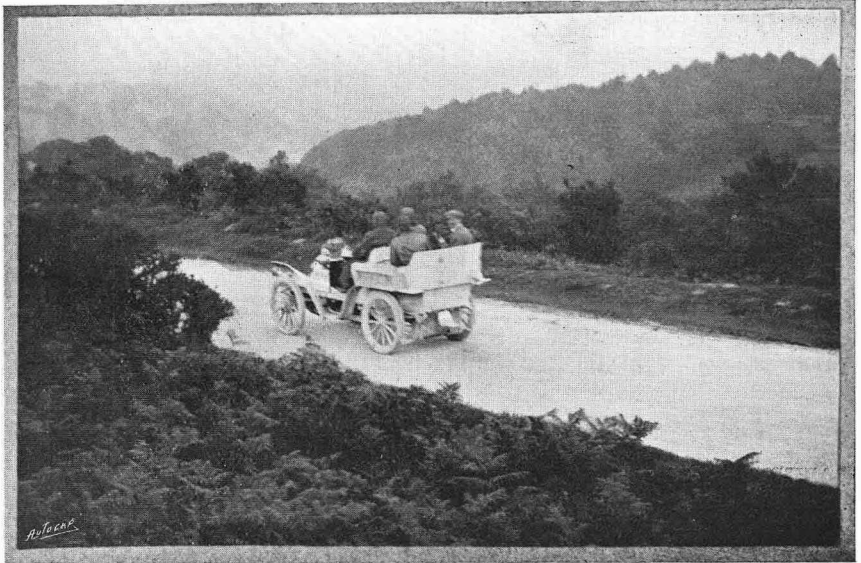


Photo.

Argent Archer, Kensington, W.

Over the Hog's Back, a part of Friday's route to Winchester.

Alfred the Great, the automobiles, though much begrimed by the long travel behind them, made a most imposing show, and greatly interested the Wintonians, who turned out in large numbers to witness the ingress and egress of the self-propelled carriages. The Winchester City Police, unlike their brethren of the County, marshalled the cars in masterly fashion, and made the arrival, massing, and departure quite a simple and easy matter. The



Photo.

Argent Archer, Kensington, W.

The big 22 h.p. ten-seated Daimler with a load of Press representatives.

THE 1,000 MILES TRIALS.

only victim of the day was No. 12, the 5 h.p. Coventry Humberette, which broke her connecting rod and piston at Guildford, and was consequently out of the trials, with but one day more to go. The

roads were in perfect condition, and nothing occurred to mar the day's run but the egregious and fatuous behaviour of the Hampshire police to which we have already referred.

BRIGHTON AND BACK, SATURDAY, SEPTEMBER 26th.

NOTWITHSTANDING that trouble might be expected from the police in the neighbourhood of Merstham, Horley, Crawley, etc., Brighton, of course, could not be left out of the gamut of trips comprising the trials. This was undeniable, as Brighton has found it to its interest to welcome automobilists, and has caused its town police to cease their absurd baiting tactics of a year or so ago. Of the 104 automobiles which lined up on the Crystal Palace Parade for the initial run to Margate on Friday, 18th September, but seventy-five were left to set out for London-super-Mare on Saturday last. Bad luck or the stress of travel over 927¼ miles of give-and-take road, together with three stiff hill climbs, had sufficed for knocking out over twenty-five per cent. of the actual starters. But before expressing surprise at the undoubtedly large proportion of failures, it must be borne in mind that quite a number of these were practically untried vehicles, to which the automobile public are quite

is not surprising that all the cars scaled it successfully. Owing to the fact that the first car arrived at the foot of the ascent shortly after 1 p.m., and that Hand Cross is well over thirty miles from



Timekeepers at the bottom of Hand Cross Hill. Messrs. H. J. Swindley and H. Sturmev are seen in the car on the right. Mr. S. F. Edge and his dog resting on the bank on the left.

new. Moreover, the conditions under which this distance had been run were infinitely more severe than those to which any private owner would submit a car in daily private use. In order not to lose marks there is no doubt that many drivers persevered long after they should have halted to make some more or less trivial adjustment, of the necessity of which the running of their car had long given them warning, and which if attended to earlier might have kept them in the running to the end. Certain of these failures were undoubtedly due to errors of judgment rather than to an unavoidable breakdown of mechanism.

The weather god had made up his mind to see the trials through decently on the whole, and no one eclipsed the last for real autumnal splendour. The dust was again somewhat in evidence on the return journey, but that was all that could be averred against the pleasure of the run. The return journey included the timed climbing of the well-known Hand Cross Hill, a steep of which no decent modern automobile makes much account, so that it



No. 136, the 22 h.p. ten-seated Daimler ascending Hand Cross with a full load.

London, the spectators were not numerous, and those owners of private cars who did attend, having doubtless perused our strictures upon the unsportsmanlike behaviour of many of their kind upon the previous day at Westerham, ran their cars into side turnings, or well into the hedges on either side of the road.

Of the seventy-five cars that left the Palace on Saturday last fifty-four made non-stop runs, ten drove to Brighton and back with a loss of five marks or less, and nine with a loss of more than five marks.

No. 82, 14 h.p. Brooke, driven by Mr. Frank Wellington, was withdrawn from the trials on the

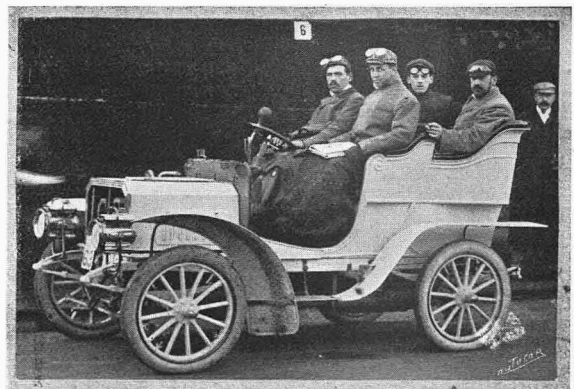


Photo.

Argent Archer, Kensington, W.

The 10 h.p. Spyker, No. 63.

last day, the cause of its defection being a stripped gear wheel.

No. 23, the 8 h.p. Achilles, is given in the official list as not computed, but as it passed us at 4.30 on

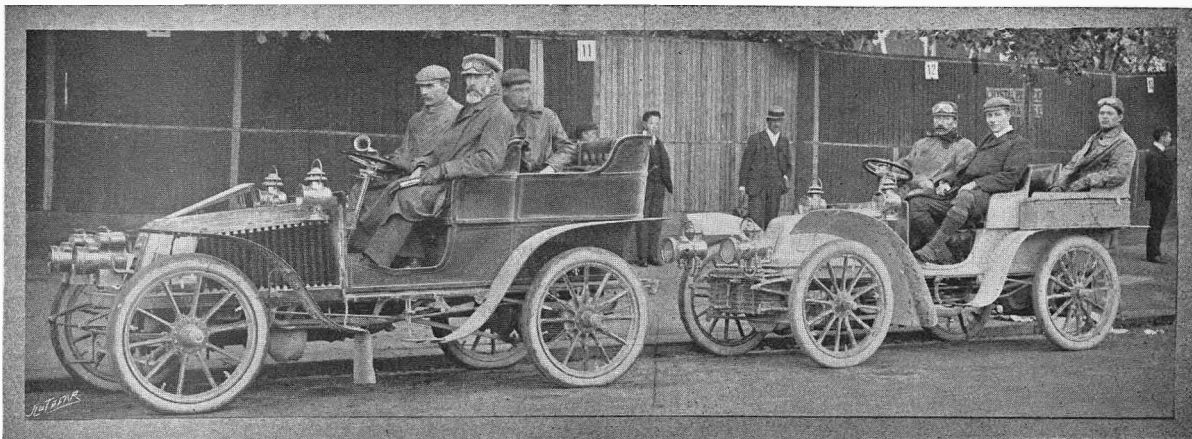


Photo.

Argent Archer, Kensington, W.

THE 1,000 MILES TRIALS. The 14 h.p. Renault, No. 113, and the 24 h.p. Georges-Richard, No. 106.

Saturday afternoon whilst we were engaged with a punctured tyre, and we did not repass it on our return to the Palace, it evidently got right through the last test trip, though it was considerably delayed, as it does not appear in the list of cars timed in climbing Hand Cross. The Trials Committee

issued a publication to the effect that the dust nuisance experienced during several days of the trials was, of course, insuperable with a line of one hundred cars running in close proximity, so they looked very dusty and mud begrimed vehicles towards the end of last week.

RELIABILITY ON THE ROAD.

SYNOPSIS OF THE DAILY RUNNING.

RELIABILITY ON THE ROAD IS ONLY ONE OF THE MANY QUALITIES FOR WHICH MARKS ARE AWARDED IN THE TRIALS. 375 MARKS PER DAY, OR 3,000 IN ALL, WERE THE MAXIMUM WHICH COULD BE EARNED FOR RELIABILITY ON THE ROAD, BUT THE HIGHEST POSSIBLE TOTAL IS 10,375 FOR THE WHOLE OF THE TRIALS.

Cars which completed **eight non-stop** runs (1,019 miles without an involuntary stop).

No. 39.	8 h.p. M.M.C.	...	Class B.
No. 48.	10 h.p. Argyll	...	Class C.
No. 51.	12 h.p. Wolseley	...	Class C.
No. 137.	22 h.p. Daimler	...	Class G.

Cars which completed **seven non-stop** runs, suffering a loss of **five marks or less** on one other run.

No. 52.	10 h.p. Wolseley	...	Class C.
No. 87.	10 h.p. Lanchester	...	Class D.
No. 93.	10 h.p. Renault	...	Class D.
No. 105.	10 h.p. Gardner-Serpollet steam car	...	Class E.
No. 116.	10 h.p. White steam car	...	Class E.

Cars which completed **seven non-stop** runs, suffering a loss of **more than five marks** on one other run.

No. 62.	7½ h.p. Wolseley	...	Class C.
No. 133.	20 h.p. M.M.C.	...	Class F.

Cars which completed **six non-stop** runs, suffering a loss of **five marks or less** on two other runs.

No. 42.	12 h.p. Albion	...	Class C.
No. 57.	12 h.p. Georges-Richard	...	Class C.
No. 77.	12 h.p. Star	...	Class D.
No. 91.	12 h.p. De Dion	...	Class D.
No. 102.	24 h.p. Wolseley	...	Class E.
No. 114.	14 h.p. Martini	...	Class E.
No. 126.	16 h.p. De Dietrich	...	Class F.

Cars which completed **six non-stop** runs, losing **five marks or less** on one run and **more than five marks** on another run.

No. 71.	10 h.p. Peugeot	...	Class D.
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Cars which completed **six non-stop** runs, losing **more than five marks** on two other runs.

No. 65.	12 h.p. Sunbeam	...	Class D.
No. 92.	12 h.p. New Orleans	...	Class D.
No. 140.	24 h.p. De Dietrich	...	Class G.

Cars which completed **five non-stop** runs, suffering a loss of **five marks or less** on three other runs.

No. 130.	16 h.p. Rochet-Schneider	...	Class F.
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Cars which completed **five non-stop** runs, suffering a loss of **five marks or less** on two runs and **more than five marks** on another run.

No. 84.	10 h.p. White steam car	...	Class D.
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No. 66, 12 h.p. Gladiator, driven by Miss D. Levitt, ascending Hand Cross

THE 1,000 MILES TRIALS.

Cars which completed **five non-stop** runs, suffering a loss of **five marks or less** on one run and **more than five marks** on two other runs.

No. 14.	6½ h.p.	Cadillac	...	Class A.
No. 24.	6 h.p.	Swift	...	Class B.
No. 63.	10 h.p.	Spyker	...	Class C.
No. 97.	15 h.p.	New Orleans	...	Class E.
No. 106.	24 h.p.	Georges-Richard	...	Class E.
No. 120.	20 h.p.	Germain	...	Class F.
No. 127.	15 h.p.	C.G.V.	...	Class F.
No. 136.	22 h.p.	Daimler	...	Class G.

Cars which completed **five non-stop** runs, losing **more than five marks** on three other runs.

No. 79.	16 h.p.	Argyll	...	Class D.
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The final awards will be made by adding together the marks gained by each car during the trial as follows:

	Marks.
(a) Reliability on the road	3,000
(b) Cleaning, replenishing, etc.	1,500
(c) Hill climbing	1,000
(d) Condition after trial	1,000
(e) Brakes	250
(f) Steering	250
(g) Absence of noise	250
(h) " " vibration	250
(j) " " vapour or smoke	250
(k) " " dust raising	500
(l) Speed on track	500
(m) Re-starting on hill	250
(n) Finish and appearance	250
(o) General cleanliness of motor and gear	125
(p) Fuel consumption	500
(q) Accuracy of horse-power	250
(r) Cheapness	250

The above is the total of the marks, and the cars which come nearest to earning the full number will



Photo.

Argent Archer, Kensington, W.

The 10 h.p. Argyll, No. 48, which made eight absolute non-stop runs. A two-cylinder Aster engine is fitted to this car, thus forming the only foreign element among the four cars which alone accomplished non-stop runs.

be the gold and silver medallists in their classes. The judges' report is not expected to be issued before the end of November, as the classification of the results and the calculations in connection therewith entail a large amount of labour, and there are many points which must be carefully thrashed out in judicial conclave before the final results can be announced.

With regard to these awards, it should be clearly understood that it does not necessarily follow that the cars which earn the largest number of marks on the road will be the winners in their classes. It will be seen from reference to the marks awarded for each quality that road reliability, though the longest and severest test in connection with the trials, only provides a maximum of 3,000 marks out of the total of 10,375 for the whole of the trials.

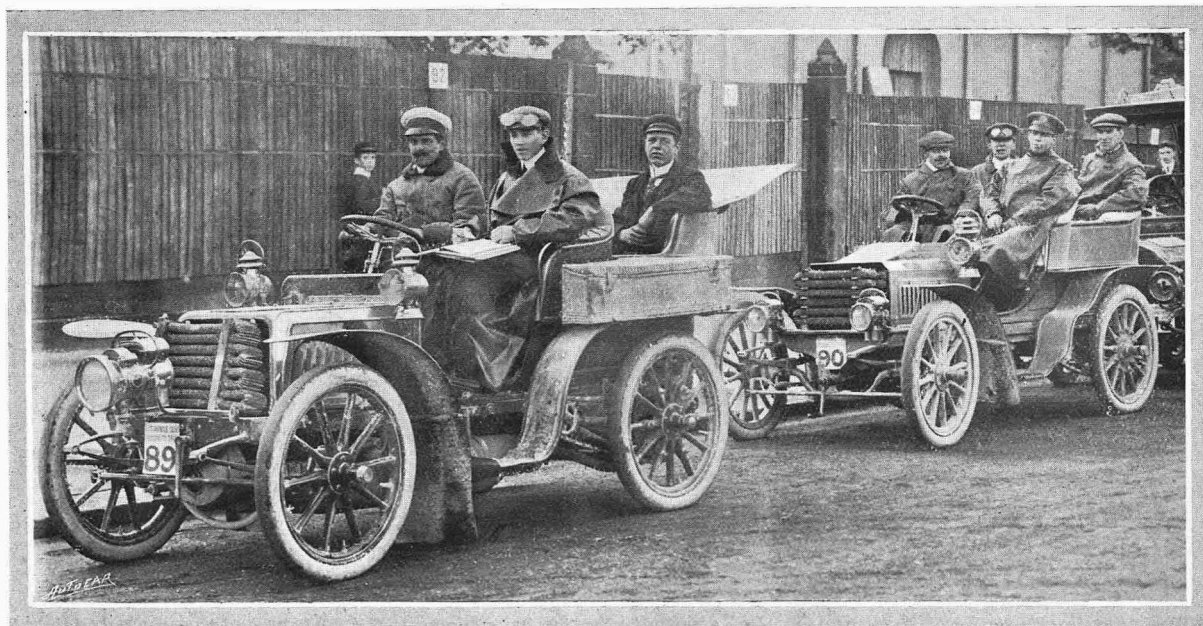


Photo.

The 14 h.p. Brush, No. 89, and the 16 h.p. Maxim No. 90

Argent Archer, Kensington, W.

CARS WHICH RETIRED FROM THE TRIALS.

FIRST DAY.—Margate and back.

No. 3.	3½ h.p. Rex Tricar.	Clutch troubles.
No. 15.	5½ h.p. Pony Richard.	Engine overheating.
No. 16.	6 h.p. Relyante.	Two collisions.
No. 25.	8-10 h.p. Regal.	Gear.
No. 37.	4-7 h.p. Roots (oil fuel).	Chains.
No. 67.	12 h.p. Ariel.	Bent axle.
No. 83.	10 h.p. Relyante steam car.	Bent connecting rod.
No. 111.	20 h.p. Spyker.	Gear.
No. 123.	12 h.p. Wilson and Pilcher.	Auxiliary gear.
No. 132.	20 h.p. Holcar.	Gear.

SECOND DAY.—Eastbourne and back.

No. 14.	6½ h.p. Cadillac.	Wheel broken in collision.
No. 19.	6 h.p. Elswick.	Ignition failure.
No. 75.	8-10 h.p. Elswick.	
No. 78.	14 h.p. Beaufort.	Cardan joint broke.
No. 86.	12 h.p. Clément.	Driver not allowed to proceed.
No. 99.	18 h.p. Star.	Sprocket wheel broke.
No. 109.	16 h.p. Lanchester.	Cooling fan broken.
No. 117.	12 h.p. Humber.	Pinion stripped.
No. 128.	18 h.p. Chenard and Walcker.	Could not run slow enough.

No. 14, 6½ h.p. Cadillac, replaced broken wheel, and was allowed to continue the trials, subject to confirmation by Judges' Committee.

No. 19, 6 h.p. Elswick, was also allowed to repair and continue on the same conditions as No. 14.

THIRD DAY.—Worthing and back.

No. 80.	15 h.p. Belsize.	Connecting rod broke.
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FOURTH DAY.—Folkestone and back.

No. 49.	14 h.p. Argyll.	Broken connecting rod.
No. 54.	12 h.p. Krupkar.	Broken cardan joint.

FIFTH DAY.—Southsea and back.

No. 34.	10 h.p. Georges - Richard.	Ignition failure.
No. 36.	10 h.p. Rex.	Differential gear trouble.
No. 104.	20 h.p. Winton.	Broken crankshaft.
No. 131.	18 h.p. Mors.	Collision with gate.

SIXTH DAY.—Bexhill and back.

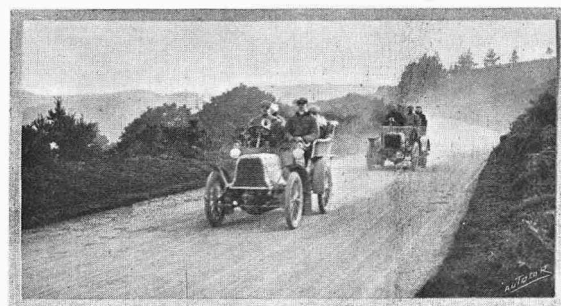
No. 2.	6 h.p. Eagle tandem.	Driver refused to start.
No. 50.	10 h.p. Simms-Wellbeck.	Gear.
No. 125.	25 h.p. Maudslay.	Ignition troubles.

SEVENTH DAY.—Winchester and back.

No. 12.	5 h.p. Humberette.	Broken piston and connecting rod.
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EIGHTH DAY.—Brighton and back.

No. 82.	14 h.p. Brooke.	Stripped gear.
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The descent from Hind Head.

THE RETIREMENTS CLASSIFIED.

We have classified the retirements, as they furnish some interesting figures.

CLASS A1.—Price less than £160.

Three starters and two retirements; one of these through no fault of the machine.

CLASS A.—Price not more than £200.

Fourteen starters; three withdrawals; also two cars damaged in collision, repaired, and allowed to continue subject to confirmation by the Judges' Committee.

CLASS B.—Price £200 to £300.

Eleven starters; four retirements.

CLASS C.—Price £300 to £400.

Eighteen starters; three retirements.

CLASS D.—Price £400 to £550.

Twenty-two starters; seven retirements. Only five due to mechanical derangements, the other two being due to a collision in one case and disqualification of the driver in the other.

CLASS E.—Price £550 to £700.

Eighteen starters; five retirements.

CLASS F.—Price £700 to £900.

Fifteen starters; five retirements, one of these due to a collision.

CLASS G.—Over £900.

Three starters, all of whom finished.

ANALYSIS OF RUNS.

Date.	Place.	Starters.	Non-stop.	Loss of five marks or less.	Loss of five marks or more.	Retired.
Sept. 18.	Margate	104	37	27	30	10
" 19.	Eastbourne	94	36	23	36	9
" 21.	Worthing	87*	39	24	25	2
" 22.	Folkestone	85	42	15	26	2
" 23.	Southsea	83	41	11	27	4
" 24.	Bexhill	77†	47	11	18	1
" 25.	Winchester	76	46	12	17	1
" 26.	Brighton	75	54	10	9	1‡

* Nos. 14 and 19, which are included in the "nine retired" on the 19th, restarted.

† Nos. 2 and 125 did not start. ‡ One not computed.

RESULTS OF THE HILL-CLIMBS.

Hind Head Hill, Wednesday, September 23rd, 1903.

Rise of 432 feet in two miles; average gradient, 1 in 25.9; worst gradient, 1 in 20.

RESULTS, IN MILES PER HOUR, FOR THE TWENTY FASTEST CARS.

Car No.	Make.	Speed, m.p.h.
105.	10 h.p. Gardner-Serpollet	33.86
133.	20 h.p. M.M.C.	26.37
114.	14 h.p. Martini	25.55
130.	16 h.p. Rochet-Schneider	25.46
100.	18 h.p. James and Browne	25.04
137.	22 h.p. Daimler	24.57
102.	24 h.p. Wolseley	23.93
120.	20 h.p. Germain	23.92
140.	24 h.p. De Dietrich	23.57
97.	15 h.p. New Orleans	23.15
91.	12 h.p. De Dion	23.06
134.	16 h.p. Fiat	22.97
116.	10 h.p. White steam car	22.78
129.	15 h.p. Pipe	22.47
106.	24 h.p. Georges-Richard	22.36
127.	15 h.p. C.G.V.	22.32
92.	12 h.p. New Orleans	22.23
66.	12 h.p. Gladiator	21.79
108.	16 h.p. Dennis	21.29
118.	24 h.p. Darracq	20.94

A plan and section of Hind Head were given in *The Autocar* of September 26th, page 392.

Hand Cross Hill, September 26th, 1903.

Rise of 154 feet in 880 yards; average gradient, 1 in 17.15; worst gradient, 1 in 10.31.

RESULTS, IN MILES PER HOUR, FOR THE TWENTY FASTEST CARS.

Car No.	Make.	Speed, m.p.h.
105.	10 h.p. Gardner-Serpollet	26.70
114.	14 h.p. Martini	22.28
140.	24 h.p. De Dietrich	21.73
100.	18 h.p. James and Browne	20.69
66.	12 h.p. Gladiator	20.69
130.	16 h.p. Rochet-Schneider	20.18
102.	24 h.p. Wolseley	19.02
133.	20 h.p. M.M.C.	18.87
113.	14 h.p. Renault	18.22
134.	16 h.p. Fiat	17.61
118.	24 h.p. Darracq	17.61
129.	15 h.p. Pipe	17.44
108.	16 h.p. Dennis	17.41
97.	15 h.p. New Orleans	17.24
120.	20 h.p. Germain	16.63
126.	16 h.p. De Dietrich	16.57
95.	12 h.p. Chelmsford	16.57
106.	24 h.p. Georges-Richard	16.13
121.	20 h.p. Beaufort	16.07
91.	12 h.p. De Dion	15.82

A comparison of these tables shows the performances of the cars on a long and a short pull.

Westerham Hill, Monday, September 28th, 1903.

Cars Retried.

On Monday last, the 28th ult., ten of the cars which were balked on the original climb up Westerham were permitted to travel out to the hill again for the purpose of once more trying their luck up

that arduous steep. Each car carried its full complement, including an observer, and was clocked up the hill by Messrs. Harry J. Swindley (*The Autocar*) and D. Straight, the latter being at the foot and the former at the summit of the climb. In order that the failing cars, if any, might not inconvenience following vehicles, a suitable interval was permitted between each car. Mr. Shrapnell Smith observed the cars on the knuckle of the climb on behalf of the judges. The cars made the ascent in the following order as to time:

No. of car.	Make.	M. S.	Miles per hour
105.	10 h.p. Gardner-Serpollet	1 39	22.23
130.	16 h.p. Rochet-Schneider	2 32½	14.44
140.	24 h.p. De Dietrich	2 33	14.36
66.	12 h.p. Gladiator	2 46½	13.23
127.	15 h.p. C.G.V.	3 8½	11.68
100.	18 h.p. James and Browne	3 11	11.52
126.	16 h.p. De Dietrich	3 21½	10.92
17.	5 h.p. Oldsmobile	4 51½	7.55
57.	12 h.p. Georges-Richard	5 15	6.97
19.	6 h.p. Elswick	8 27	4.38

No. 79, 16 h.p. Argyll, failed upon its first attempt, owing to some trouble with the petrol flow, but upon this being put right it descended the hill, and going again climbed in 3m. 4½s. It is questionable, however, whether the judges will recognise this second attempt. No. 94, the 20 h.p. Thornycroft, failed at Hell Corner, and did not try again. No. 19, 6 h.p. Elswick, faltered badly at the worst part of the corner, with clutch slipping.



Photo. *Argent Archer, Kensington, W.*
The 12 h.p. Albion, No. 42, fitted with the Murray governor and ignition

THE VOITURETTE CLASS SPECIAL REPORT.

THIS YEAR FOR THE FIRST TIME THE SMALL MACHINES COSTING £200 OR LESS AND PROVIDED WITH SEATING ACCOMMODATION FOR TWO (CLASS A) ARE WELL REPRESENTED IN THE RELIABILITY TRIALS. MANY OF THEM ARE ENTIRELY NEW, AND AS LITTLE IS KNOWN ABOUT THEIR PRACTICAL PERFORMANCES, WE HAVE COMPILED A SPECIAL REPORT UPON THEIR BEHAVIOUR, WHICH IS CONTINUED FROM PAGE 397.

THE FIFTH DAY'S RUN.

THE total number of starters on this day was eighty-three, and of these eleven only were left in out of the original entry of twenty-three in Class A1, for vehicles to be sold at £200 or less, but it should be remembered that on the first day the starters in this class numbered fourteen only.

All made good time into Southsea except the Stanley steam car and the Elswick, which had both experienced some small trouble.

The journey included a timed run of two miles up Hind Head, with an average gradient of 1 in 25.9, and although the official figures are not available at time of writing, the following were noted to be going up very well considering the power: The 5 h.p. Baby Peugeot, 6½ h.p. Cadillac, 6 h.p. Regal, 6½ h.p. Clyde, and 6 h.p. De Dion-Bouton.

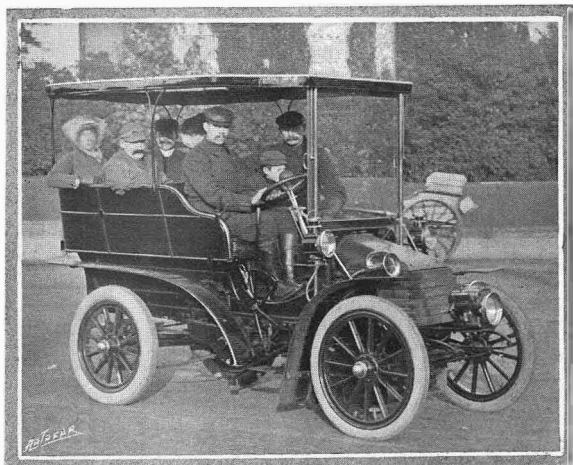


Photo Argent Archer, Kensington, W.

A 10 h.p. Wolseley car, supplied to the Metropolitan Police Commissioners. The car was a persistent attendant during the 1,000 miles trials, and followed them daily.

On the way back, when approaching the foot of Hind Head a surprise inspection by the judges took place, and the majority of the cars had the bonnet removed for inspection of engine design and condition. As we were in the front rank at this time and on a competing car it was not possible to get a look at the voiturettes which were all behind, but although the judges' notes on this event are not to be made public, it was later on ascertained that the majority of the cars had passed the ordeal satisfactorily, and that the smaller cars, with certain exceptions, were especially commended on their consistent running.

This, however, was not the only surprise test, for no sooner had the cars got into stride again than two officials, one each side the road, rushed out

with red flags stretched across the road, the drivers naturally pulling up quick.

This was a surprise test for the brakes, but we do not consider it at all conclusive, as, of course, the brake mechanism is dependent on the action of the driver, and he in turn depends on quick thought

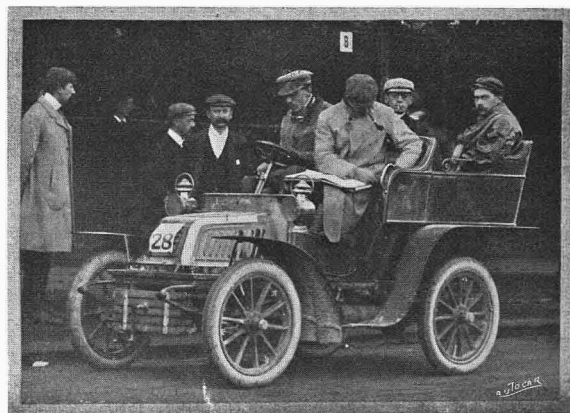


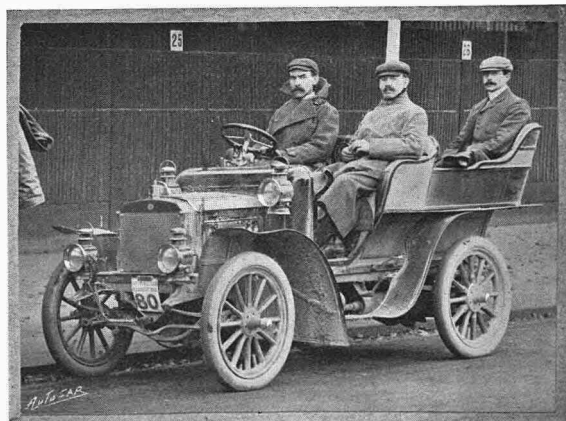
Photo.

Argent Archer, Kensington, W.

The 9 h.p. Beaufort Tonneau, No. 28.

and instant transmission of impression from brain to hands, so that the car pulling up in the shortest distance is not necessarily fitted with the best retarding mechanism.

These results also are not to be made public, but from personal notes it would appear that the cars



Photo

Argent Archer, Kensington, W.

The 15 h.p. Belsize car, No. 80

best managed were able to pull up from twenty miles an hour, or thereabouts, to a dead standstill inside forty feet, some accomplishing the task in twenty feet or less.

THE 1,000 MILES TRIALS.

In slowing down to make time we ran for a considerable distance within sight of the Baby Peugeot and the No. 17 Oldsmobile, both of which were running remarkably well, and by their position with us must have been quite up to minimum time, and, indeed, on awaiting arrivals at the Palace these two came in first, and were both in the garage at 7.40, followed by the De Dion at 8 o'clock, and the Elswick at 8.20.

SIXTH DAY'S RUN.

FOR some inexplicable reason the run to Bexhill and back, although 121½ miles in length, was generally looked upon as an "off day," and easy of accomplishment by all and sundry, the chief interest being centred in the speed trials on the private track.

Actual results very nearly corresponded with anticipations, as out of seventy-seven starters seventy-five were in Bexhill in good time, and in the complete day's running only one car retired, but Class A was on this day conspicuous for good running on both outward and homeward journeys, though three cars only made the absolute non-stop run.

One car stood out alone in its class on the outward run, this being the 6½ h.p. Cadillac, and on the speed test it made the half-mile with flying start at the rate of 28.8 miles per hour; though this time was beaten by two others—the 6½ h.p. Clyde (which made the really remarkable speed of 33 miles an hour) and the Stanley steam car (which did 32.1 miles an hour).

In considering these speeds, the £175, at which the 6½ h.p. Clyde is priced, seems very favourable to that handy and reliable little car when compared

Official figures disclosed the following results of the day's run:

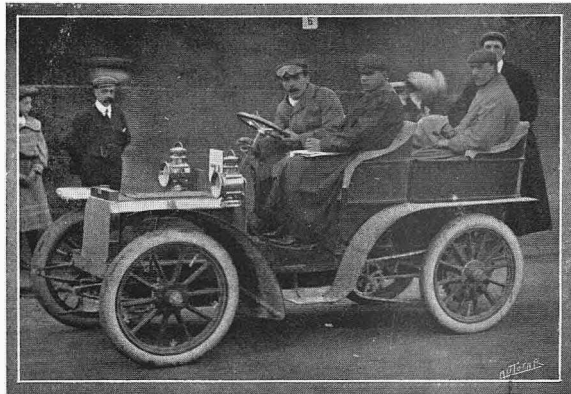
NON-STOP.—4 h.p. Baby Peugeot, 6½ h.p. Cadillac, 5 h.p. Oldsmobile, 6½ h.p. Clyde, and 6 De Dion. All the others in this class had delays, involving the loss of five marks or more, but all completed the run, if some were thrown late through mistaking the turns in the dense fog.

with some of the larger cars costing from £300 to £1,000.

The third fastest time in Class A was made by the Cadillac already referred to.



The 6½ h.p. Cadillac on Hand-cross Hill.



Photo

Argent Archer, Kensington, W

The 10 h.p. Peugeot, No. 71.

The fastest time made by any car was the 44.6 miles per hour achieved by the 20 h.p. M.M.C.

On arrival at the Palace the following had made non-stop runs: 5 h.p. Regal, 6½ h.p. Cadillac, and 5 h.p. Oldsmobile. Others losing but five marks or less, and thus doing practically as well, were: 5½ h.p. Stanley steamer, 6½ h.p. Clyde, 6 h.p. Elswick, and the other 5 h.p. Oldsmobile.

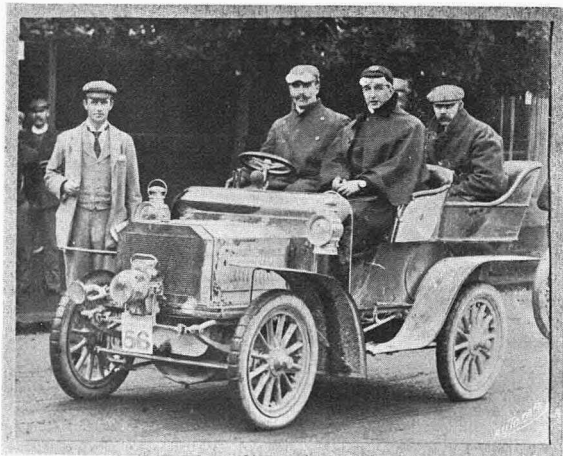


Photo.

Argent Archer, Kensington, W

The 10 h.p. Horbick car, No. 56, making its first public appearance in the Trials.

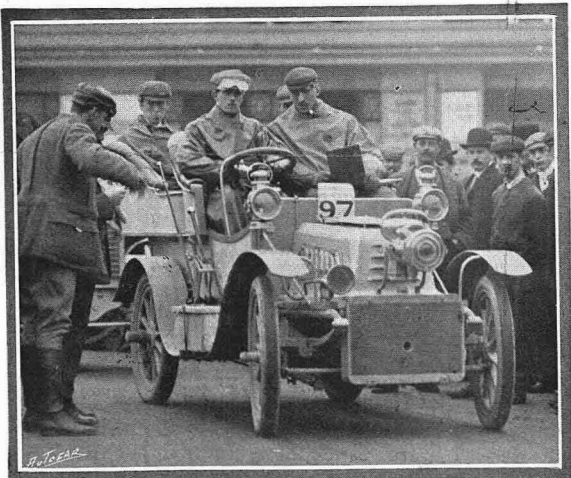


Photo.

Argent Archer, Kensington, W

The 15 h.p. New Orleans. No. 97.

SEVENTH DAY'S RUN.

TO Winchester by Guildford and the Hog's Back, a return distance of 133½ miles, was chiefly notable for grand roads and the unique opportunity it afforded for studying the moods and methods of the policeman as he is revealed to the



The 8 h.p. M.M.C. car, No. 39, one of the four which made eight absolute non-stop runs. The photograph was taken as the car was passing the judges at the top of Hind Head.

motorist when on stern duty bent, no less than eight police traps being disclosed by kindly cyclists or private motorists.

On the outward run it was noticed that the Clyde near side driving wheel was running sadly out of truth through reported collision with a grass bank, but otherwise running as well as ever.

The 5 h.p. Oldsmobile, No. 17, was passed, being pulled up for repairs. The Cadillac and the 8 h.p. Achilles were noted as going particularly well.

Leaving Winchester last on a fast private car, Class A was overtaken in the following order, which will show the position and style of running in the earlier stages of the homeward journey.

The Stanley steam car was passed two miles out of Winchester; then a little further on the Clyde, the Oldsmobile, the Baby Peugeot (going well), the De Dion, the other Oldsmobile, and a considerable dis-



Photo.

Argent Archer, Kensington, W.

The 18 h.p. James and Browne car, No. 100, driven by Mr. T. B. Browne.

tance in front the Cadillac, though this started away first in its class; and, finally, the Regal, which had



Photo.

Argent Archer, Kensington, W.

Scene in the grounds of the Grand Hotel, Folkestone, the objective of the fourth day's run, Tuesday, September 22nd. Some of the cars were preparing to leave at the moment the photograph was taken.

THE 1,000 MILES TRIALS.

not previously come under notice on this particular run.

The first small car to arrive back at the Palace was No. 11 (the Stanley steamer), followed at intervals by the De Dion (which must have come well),

the Baby Peugeot, the Cadillac, and one of the Oldsmobiles. The Humberette broke the piston connecting rod, and retired. The Stanley steamer, Baby Peugeot, Cadillac, Clyde, and the Elswick had all accomplished non-stop runs.



Photo.

Argent Archer, Kensington, W.

Two competitors in the voiturette class. The 6 h.p. Swift, No. 24, Class B; the 5 h.p. Oldsmobile, No. 17, Class A; and the 6½ h.p. Clyde, No. 18, Class A.

THE FINAL RUN.

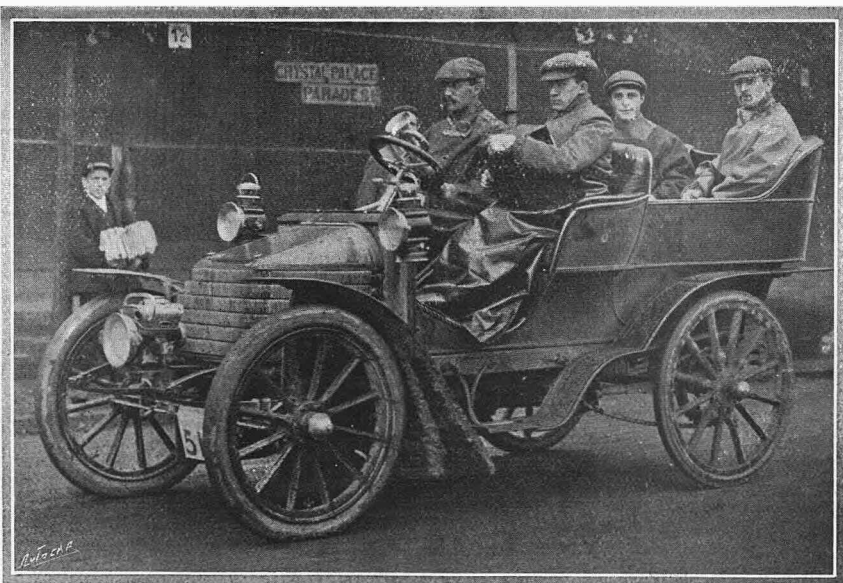
THE final run to Brighton was the easy one of the series to those cars still remaining in good running order, and there were still seventy-five cars left in, of which nine were in Class A. Unfortunately, the car which carried us broke down ten miles after leaving the Palace, and the private car driven by Mr. Paul Brodtmann (manager of the Continental Tyre Co.), which eventually took us through to Brighton, was too far behind to allow of notes being taken on the way down.

Handcross Hill was timed on the way back, but figures are not yet available. So far as Class A is concerned, the following came up well and in the order given (average gradient one in seventeen, worst one in ten): The Stanley steam car (well up with big cars), De Dion (going extra strong), Clyde, Baby Peugeot (going splendidly on steepest portion), the No. 17 Oldsmobile (going well), Elswick, No. 21 Oldsmobile, and the Regal.

The Stanley steamer, Cadillac, Elswick, De Dion, and Oldsmobile, all made non-stop runs.

Analysing Class A throughout, and not merely on marks earned, but rather on observations personally made as to

general behaviour in running, and omitting such occurrences as would be considered of no serious moment in actual usage by a private owner, we should be inclined to give especial mention to the really fine performances made by the Baby Peugeot, the Stanley steam car, the Cadillac, and both the Oldsmobiles; whilst perhaps one of the very best in its class will prove to be the 6½ h.p.



Photo

Argent Archer, Kensington, W.

The 12 h.p. Wolseley. One of the four cars which completed eight non-stop runs. The back wheels of this car, which weighs, unloaded, 19 cwt., are shod with Buffer solid tyres of 3in. section

Clyde. The De Dion-Bouton 6 h.p. also did well, and was never encountered going otherwise, though it must have met with trouble more than once. This car was always seen at its best on level and slight uphill grades. The Elswick did splendidly some days, but seemed to hang fire on others, notably the last.

The 8 h.p. Achilles was another rather variable performer; but all those mentioned have shown ample justification for their existence, and if the class in its entirety has not shown the best of aver-

ages it is merely that several vehicles were entered which had no pretensions to complete such a trial. This, however, should be all the more to the good and satisfaction of the makers of those which completed the trials in what must be allowed a splendid manner when compared with other classes, if original cost be taken into account.

Unfortunately, it was impossible to obtain any reliable data as to petrol consumption at the time of going to press; but the matter will not be lost sight of when figures are available.

THE 1,000 MILES TRIALS.

TRIAL NOTES.

It should be understood that the withdrawal of the 6 h.p. Eagle tandem running in Class A1 was



Photo. Campbell and Gray.
Front view of the 12 h.p. Wolseley,
No. 51.

due entirely to the driver throwing up his work without giving sufficient notice to enable his principals to obtain a substitute. The tandem came out very well in the brake, dust, and noise trials, and performed creditably during the first five days, but owing to no driver being available it could not start on the sixth day, and this, of course, dis-

qualified it from further participation in the trials.

* * * *

Mr. Worby Beaumont, one of the judges, took his grading instrument with him to Westerham, and informed us that the steepest part of the hill was 1 in 6 $\frac{3}{4}$. Of course, nothing so steep as that is shown on the section we published, as that merely gives the average gradients between points some considerable distance apart.

Two cars finished with badly-bent wheels from collisions which had occurred during the trials—No. 18, the Clyde, which had wire wheels, and No. 35, the 9 h.p. Eagle, with wood wheels. Both had driving wheels so badly bent that it was really a wonder they were able to satisfactorily complete the trials, as apart from the strain on the wheels, the extra work and wear imposed on the tyres must have been very great.

* * * *

The 14 h.p. Brush car—No. 89, driven by Mr. Bamber, of the Brush Electrical Engineering Company—made a non-stop run, including the ascent of Westerham, on Saturday, the 26th ult., the ascent of the hill being made in 3m. 52.45s. This fact was omitted from the report of the day's proceedings in our last issue on page 388.



Photo. Campbell and Gray.
The 24 h.p. Wolseley.



Photo.

On the return journey from Southsea, Wednesday, 23rd. Cars undergoing a surprise examination at the hands of the judges.

Argent Archer, Kensington, W.

THE 1,000 MILES TRIALS.

The only chain-driven machine in the trials running with its driving gear entirely protected was the 12 h.p. Sunbeam. This had complete metal covers to each of the side chains, and the pile of dirt and mud upon these covers showed most convincingly what the chains had been saved from. These are the first chain cases which have been successfully used in a long trial. Not only do they save the chains from an immense amount of wear and tear and the user from the necessity of cleaning them, but they conduce greatly to the silent running of the car, as the chains keep in pitch and run smoothly, as they are perfectly clean, besides being always well lubricated, while any slight hum they may make is deadened by the case, which acts as a muffler.

* * * *

There are some drivers of automobiles who take no heed or consideration of their own kind when

clouds of dust. These are indeed the persons who—hoofigans by nature—deserve the name of road hogs, and bring automobilism into hateful disrepute



The Speed Trials at Bexhill. One of the cars going over the course

with the general public by their shameful want of consideration for others. It is difficult to understand how a man who owns and uses a car can be so inconsiderate to his fellows.

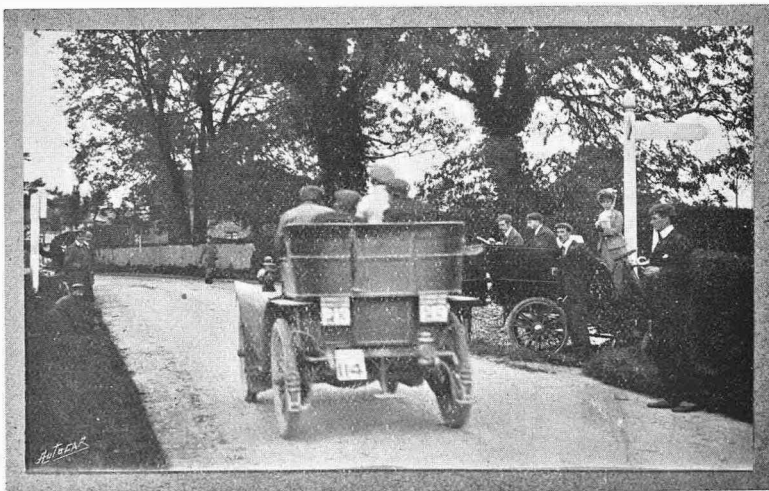
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One very interesting detail of the trials is the fact that the 10 h.p. Argyll, one of the four cars which made absolute non-stop runs, went the whole of the 1,000 miles without the cooler being replenished. It will be remembered that this machine had the thermo-syphon system. Mr. Govan tells us that he believes the car would have gone another five hundred miles before it would have been necessary to add water. It is rather interesting to know that another non-stop car, the 12 h.p. Wolseley, carries its water high. It is true that a pump is fitted to the Wolseley machines, but owing to the horizontal position of the engine the bulk of the water is above it, and leads are so arranged that in the event of the pump failing, the car can still be driven, though in this case it results in rapid evaporation, so that the water must be renewed somewhat frequently. Without at the moment going into the merits of the two systems, it is undoubtedly a convenience to be able to drive either without a pump at all or with the pump out of action if necessary.



Photo. Argent Archer, Kensington, W.
The 22 h.p. Daimler, No. 137, the 14 h.p. Martini, 114, and the 18 h.p. James & Browne, No. 100, on the Hog's Back.

passing them halted in trouble on the road, and of these veritable road hogs we endured several samples between Crawley and Horley last Saturday afternoon. We were well drawn in on the left tending a bad horse-nail puncture to our offside driving tyre, and had patches—fabric and rubber—well smeared with solution lying on our dashboard awaiting the tacky state when they might be applied to cover and air tube with some probability of permanent adherence. Several motorists slowed up and made kindly offers of assistance. One, indeed, suggested the loan of an inner tube, while even a gentleman no longer young driving a lady in a dogcart drew up and kindly inquired if we had sustained a serious breakdown. Needless to say, we thanked him for his courtesy, and could not but compare his bearing with that of several motorists who, knowing full well the work in which we were engaged, dashed by smothering us and our tackily growing patches with



The 14 h.p. Martini on the summit of Hand Cross. Mr. J. McLulich's 10 h.p. Bufferted Wolseley, with Messrs. D. Straight and T. H. Woollen aboard taking the times of competing cars

The Vulcan 6½ h.p. voiturette No. 9, which was running in Class A, was withdrawn the second day through no fault of its own. On the return journey from Eastbourne, about twelve miles from the Palace, the Vulcan was passing between a non-competing car and a dray when a cyclist came between the two right in the path of the Vulcan. To save the cyclist the driver of the competing car turned his vehicle into the dray, so damaging it that on inspection its makers, the Vulcan Motor Manufacturing and Engineering Co., of Bolton, decided to withdraw it rather than run it in its damaged state. The impact was so violent that the observer was thrown out of the car and over the bonnet. It was certainly hard luck for the makers, as the car, though a new one for the trials, is not an untried design, and it would probably have shown up excellently in its class but for the accident.

* * * *

An Unbiased Letter.

Dear Sir.—During the run of the motor cars on Wednesday, September 23rd, to Portsmouth and back, I happened to be an eye-witness of what might have been a very serious accident both to the occupants of the car and to two cyclists and myself with a horse and cart, but, owing entirely to the presence of mind and the prompt action of the

driver of the car, it resulted in a broken-up cycle, a little damage to the car, and a few cuts and bruises

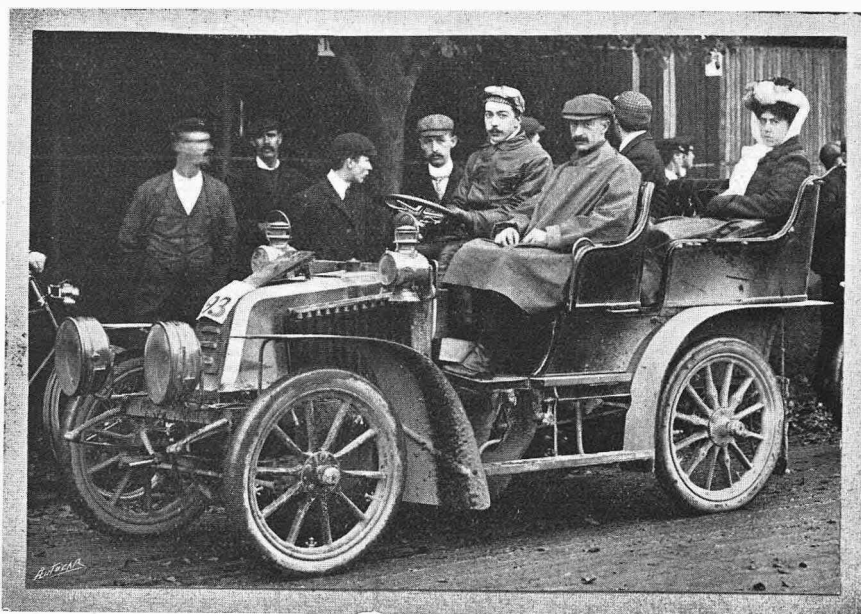


Photo
Mr. H. R. Wilding at the helm of the 10 h.p. Renault, which he had driven over 4,000 miles before starting in the Trials. It is worthy of note that this car made a very good performance.

to the people in the car and one cyclist, while the person who was really the cause of the accident got off without a scratch. I should like to say that if only all drivers of cars exhibited such presence of mind and action under such conditions, accidents of a serious nature would be few and far between. The accident was in no way the fault of the people in the car.

AN EYE-WITNESS.

* * * *

Towards the end of the trials many of the competitors expressed a hope that future tests for reliability might be less protracted. Of course, so far as signs of actual wear are concerned, all the better cars would show nothing worthy of mention; certainly nothing which would cause any loss of marks, and it will be necessary to run many of them ten times the distance before the wearing parts other than, say, tyres or driving chains, showed serious signs of wear, and even then, so far as the metal portions were concerned, it would be a very small matter to renew them. There is a good bit in this contention, and it brings us to ask the question whether a thoroughly good series of trials could be arranged in which all the practical points of an automobile should be brought out, and which would not extend over more than two or three days.

* * * *

It is impossible to read the reports of the trials which have appeared in the daily press without being struck with the improvement they show with regard to accuracy, as compared with former years. This, it is only right to point out, is due to the work of Mr. Shrapnell Smith, the hon. press secretary, who worked very hard, not only to provide the press representatives with correct information in a condensed form, but in enlightening the uninitiated as to the purport and value of the trials.



The Chelmsford steam car, No. 95. This is a six-seated covered car, and is the only vehicle of this class in the Trials. The Nos. P1, P2, and P3 denote that distinct mechanical features in the car are entered for trial under Section II.

CONTINENTAL NOTES AND NEWS.

The Speed of Racing Cars.

It is announced that, on the proposition of the president of the sporting committee, the Automobile Club of Germany has decided to convene a conference of representatives of all the automobile clubs in Europe and America to discuss the question whether it will not be expedient to limit the speed of racing cars. At first sight such a suggestion would appear a little singular, and, indeed, to verge on the absurd; but, presumably, the idea of the club is the same as that which has been put forward in France for limiting the engine power. There can, of course, be no question of limiting speed, because in such a case racing would no longer be possible, and would certainly not have any value as a means of demonstrating the efficiency of cars. Even if the engine power is limited, it does not necessarily follow that the speed will be reduced, for so long as makers strive after speed, they will always find a means of building fast cars. In the Paris-Madrid race Louis Renault's 35 h.p. car beat the powerful monsters between Paris and Bordeaux, and was timed to travel at a record speed over some parts of the course. How, therefore, can any arbitrary restrictions be placed upon speed? Besides, the question seems to have little importance at a time when racing has been definitely suppressed on the public highways, except under certain special conditions, and on enclosed tracks there really does not seem to be any reason why the speed should be limited at all.

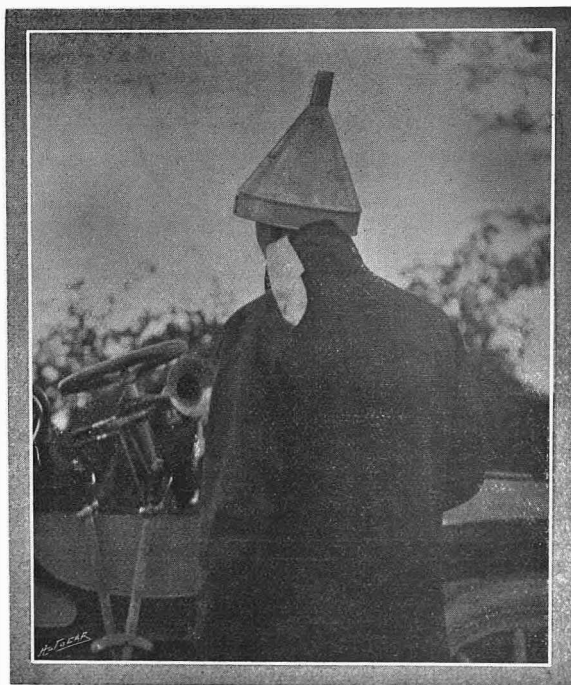
The Gordon-Bennett Cup Race.

The Automobile Club of Germany does not intend to bring forward its proposal for speed restriction until after the race for the Gordon-Bennett cup, as it desires to see this event run off under exactly the same conditions as the previous contests. Nevertheless, it appears that the arrangements for the cup race are not proceeding so satisfactorily as had been expected. The committee of the A.C. of Germany are reported to have examined all the proposed courses starting from and finishing at Homburg, and they are of the opinion that none of them are suitable for a test where powerful cars will be racing at their top speed. If this be the case, it is probable that the committee will meet with some considerable difficulty, as the sanction for the race was obtained by the personal intervention of the Mayor of Homburg, and it remains to be seen whether the Emperor will authorise the race in another part of his dominions. However, it may be taken for granted that these difficulties will be overcome, for the Germans are firmly determined to run off the event in their own country, and no influence will be wanting to secure permission to race on the course most suitable for the purpose. We have already announced that the Cannstatt works will be running two cars in the cup race, and will compete in the qualifying trials with the other makers who are seeking cup honours; but the manufacturers of the Mercedes will have two strings to their bow, or rather five or six, for they will be running three cars on behalf of Austria. Of course, the vehicles will not

be the Cannstatt Mercedes, but cars of exactly the same type built at the Wiener-Neustadt works, which, we believe, are merely a branch of the Cannstatt factory. In any event they are Austrian Mercedes cars, and will uphold the honour of the Cannstatt firm. According to the regulations of the A.C. of Germany, the Teutonic cars will be driven by members of the club; but as no such restrictions exist in Austria, the vehicles representing that country will be piloted by three professionals, who are stated to be Braun and Werner (the famous Mercedes drivers) and Max (who distinguished himself by falling down the Arlberg with his Darracq in the race from Paris to Vienna).

The Speed Trials at Dourdan.

The speed trials at Dourdan on October 22nd will be divided into seven classes, according to the cubical cylinder capacity of the engine. Classes 1 and 2 (which are presumably for motor cycles) are from a quarter of a litre to one and a half litres, Class 3 is from one and a half litres to two and a half litres, Class 4 from two and a half to three and a half litres, Class 5 from three and a half to five litres, Class 6 from five to seven litres, and Class 7 seven litres up to eleven litres. All petrol engines come under this classification, but the Serpollet steam cars will be subject to the old classification of weight. These cars could not be measured on the same lines as the petrol engines; but as they have nearly always done such remarkable performances in trials and races, they are entitled to separate classification.



THE 1,000 MILES TRIALS. On the outward journey to Folkestone—one of the wettest runs during the trials—a passenger on the 10 h.p. Rex, No. 36, lost his cap. A head covering was improvised by means of a petrol funnel lined with a pocket handkerchief, which we are told was an excellent substitute under the climatic conditions existing at the time.

Correspondence.

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

SOLID TYRES.

[3185].—Seeing that many motors are now fitted with solid tyres I should be glad of the experiences of those who have used them, especially with regard to the following points: (1.) Effect on the mechanism. (2.) Effect on the occupants. (3.) Length of time in use. R. N.

THE TEN MILES LIMIT: THE NEED FOR IMMEDIATE ACTION.

[3186].—I think that many motorists are unaware that county councils are inviting district councils and other local authorities to take action under the new Motor Car Act, and to suggest roads for nomination to the Local Government Board which shall be closed to motor traffic as being less than 16ft. wide, or over which the speed limit shall be only ten miles an hour. Local motor car owners and motor cyclists must organise themselves immediately, and take prompt action, appealing to their local authorities by deputation or otherwise, suggesting that as they are strong they should be merciful, and pointing out the great severity of the Act without the imposition of the above clauses. Unless they organise, the whole country will be cut up into "ten mile" areas where not definitely closed to motor traffic.

It is only local influence that can induce these authorities to postpone action and give motorists an opportunity of showing that the application of these clauses is unnecessary. What we need is an organisation consisting of local units, strong branches, with a central committee of representatives for general control. The maximum subscription must be a really small one, within the reach of every motor cyclist, and half of it at the disposal of the local committee. Such an association would reach everywhere and know everything that was being done, and seize an opportunity that would be missed by a central body. We do not need a weekly journal; we are already well supplied, but at the most a monthly report on O.T.C. lines. All these points seem essential to really successful action. Prompt local organisation has had a wonderfully good result in the large town from which I write.

CARPE DIEM.

[3187].—With regard to your article headed "The Necessity for Immediate Action," I think it is very little good anyone trying to approach public bodies or public officials in this matter personally. What is wanted is a strong committee of local automobilists, if possible representing a local club, who will act as a deputation. A public body can hardly fail to receive with courtesy a body of persons joined together for a common purpose, but it can and may be extremely rude to private individuals. Something may be done in private conversation, but I am wholly in favour of combined action and deputations received before committees.

I intend to press this most strongly on our local club committee at their next meeting this week.

J. T. HEREFORD.

A DETACHABLE TREAD OR TYRE PROTECTOR.

[3188].—"Progressive," in his letter on page 400 last week, speaks of the "Wilkinson" tread, and remarks that it would be better if the tread could be made detachable; that is to say, not to be vulcanised or cemented to the tyre in any way. I have been experimenting on this idea for some time, and have brought out a tread or tyre protector, which can be put on to any motor tyre in a few minutes, and I will guarantee that it is impossible for the tread to come off while the tyre is on the rim. I have only a few running at present, but these, I am pleased to say, have stood the test perfectly, after four months' work, out every day in every sort of weather: there is no perceptible wear, and the treads have never been touched, while the tyre, of course, is practically as good as the day it was put on.

Every car owner knows that tyres are the biggest item in the upkeep of a car, and I claim by my patent tyre protector to reduce the tyre bill by forty-five to fifty per cent.

Of course any form of tread such as the "Wilkinson" could be vulcanised to my protector.

The convenience of being able to put a tread on your tyres yourself without having to send them away to be vulcanised on is also a great consideration, besides costing considerably less. J. SCRIVEN.

NON-SLIPPING TREADS.

[3189].—Having recently returned from taking part in connection with the Southern manoeuvres, during which the writer had to traverse by-roads the surfaces of which were practically covered with small flinty pebbles, it may prove of interest to your numerous readers to have recounted the experience he had as the result of an experiment of trying two different non-skid arrangements on the driving wheels of his car.

The rear driving wheel tyre had been fitted with the Wilkinson patent tread and the off wheel tyre with the Parsons patent chain attachment.

In the case of the former, and when the tyre had been used for about fifty miles, the tread became detached for a few inches at one spot, which has not increased since, although the tyre has been used for a thousand miles.

In the second case, the chains caused the chief trouble through breaking, four having gone before two hundred miles had been covered, and, finally, the whole arrangement came off before another hundred miles had been added. Both arrangements, however, possess their special merits, the chief of these being the entire elimination of anything of the nature of side-slip, even when traversing at a good pace the most greasy surfaces.

Other merits consist in the fact that the one acts as an extra protective cover to the original one, is absolutely silent in action, and is cheaper than having the tyre re-trod, while the other is detachable, and can be used as the occasion or state of weather demands.

It is desirable to have both driving wheels fitted with either the one or the other, separately or in combination, as the strain on the differential is considerable if only the one wheel be thus fitted, since both have a slowing effect upon the car.

MOVOLCAP.

INFORMATION WANTED.

[3190].—Will any of your readers who have had experience of the 1903 pattern White steam car give me their opinion of same with particular information on the following points: Does the boiler give any trouble, are the condenser and return water arrangements satisfactory, and is there any noise from the bevel gear either when the car is new or after the gear becomes slightly worn? Is the workmanship throughout the car of a first class description, and is the machine, taken as a whole, strongly and substantially built and calculated to stand hard wear?

H.W.

AN EXPLANATION DESIRED.

[3191].—Mr. Basil Davies asks, in letter 3175, what his engine can have been firing when it ran without petrol. I think there can be no doubt it was exploding the lubricating oil, and probably by means of the overheated cylinder head and not the spark at all. Many lubricating oils explode easily under these conditions, and give a lot of power too. The stopping of Mr. Davies's engine when the contact blades were lifted might have been due to exhaustion of oil only.

C. L. SCHWIND.

LE ROY'S CHEMICAL VULCANISER—A WARNING.

[3192].—Immediately on publication of your article on this process in your issue of the 15th August I sent to France for the apparatus, which I only received last week. Undoubtedly such a process is badly needed—the ordinary solutioning of patches is quite useless, as quite a moderate degree of heat will cause the solution to become soft and the patch to blow off, and ordinary vulcanising ruins the tube outright (I have had five tubes ruined in this way this summer (?) alone). Having experimented on this subject myself at intervals since 1895, when I first took up motoring abroad, where I happened to have the necessary materials at hand in my business, I have satisfied myself that the vulcanising can be done satisfactorily at a heat sufficiently low not to damage the tube, but it is quite distinct from a roadside repair.

Now I write this as a warning in reference to the Le Roy vulcaniser in case my fellow motorists intend to experiment in it. I find the yellow bottle, No. 11, called "Vulcanisant," contains amongst other ingredients the strongest fuming nitric acid—a substance utterly unsuitable for use in the hands of the general public, as I am sure any chemist or our medical motorists will agree. The slightest degree of carelessness may have the most appalling results. It seems incredible, but it is a fact, that the bottle is sent out corked instead of glass stoppered, and for its use is supplied an ordinary brush instead of a glass one! Of course the bottle reaches you with the cork rotten, but the maker obligingly supplies three spare ones. No warning whatever is given of the dangerous nature of the contents of this bottle, except that it is advisable to wear goggles during its use—hence my warning. As one has to apply the contents very hurriedly—instantaneously the maker says—it is impossible to avoid occasionally splashing the clothes. First result to the writer before he recognised the chemical, a ruined shirt! If used at all it should be in the open air and away from the car house and tools, as its steaming fumes and vapour will tarnish and rot all metal work in the vicinity. Finally, I may say that its fumes are (from my old experience of it) disastrous to everything, and specially the respiratory organs.

I may add that, probably from some fault of mine, none of my first three patches are perfect, done by its aid. Where the rubber has united the junction appears very perfect, and the rubber itself will sooner tear than separate, but it seems to leave loose spots here and there. I enclose a section of one joint for your inspection, part of which I have torn away. **FRED. H. HADFIELD. M.I.E.E., M.S.A.**

A HYDRAULIC AIR REGULATOR.

[3193].—During the recent reliability trials I had the opportunity of a run on the Hon. Marshall's 12 h.p. Napier, and was very much surprised at the extreme quietness of the engine and its ability to run at remarkably low speeds.

By chance I learnt that a great deal was due to the Napier hydraulic carburettor, or to call it by what seems a more correct term, a hydraulic air regulator.

My reason for writing to you, sir, is to draw attention to what I believe is one of the most remarkable inventions in connection with the petrol motor we have yet seen, possessing as it does all the advantages of the Krebs invention, and one most important one over it, that it does not reduce the power of the engine as Krebs does by some one-twelfth of its total horse-power.

Why the Napier people have kept this invention so quiet I cannot understand, as it seems to me one of the greatest strides forward in motor engine construction I have seen, and, best of all, it is the invention of one of our countrymen.

W. WATKINS.

ENGINE BRAKING.

[3194].—This interesting subject should not be carried to the point where it ceases to be instructive to the average motorist. I take it that it was opened up with a view to teaching drivers a simple and effective means of getting out of a difficulty, and if such is the case it is a pity it should be treated theoretically rather than practically.

In the case of a car descending a hill with insufficient or ineffective brake power, and gradually getting up an uncontrollable speed, the risk run by the driver and passengers is very real, and any advice as to what will bring the car again under control, or will keep it so when brought, is just one of those things the driver at that moment is more anxious to know than anything else in the world, and if by connecting his engine by means of the low gear he can get or keep his car under control he doesn't care a jot whether it is theoretically correct or otherwise, and he does not worry as to whether air is just as elastic under certain conditions as it should be; nor does he wonder why his descent is retarded, seeing that the compression and expansion strokes balance and the other two movements of the Otto cycle do not count—he is perfectly satisfied to take the practical result.

There is very little doubt that a car will travel more slowly down a hill, either with or without brakes, with the car driving the motor, than it will with the motor out of gear, but it must be distinctly understood that the car must drive the motor, and that either the electricity or the gas supply cut off, and the greater the compression the slower it will travel.

I am not making this broad statement on theoretical lines, but from actual practical experience. I have driven a four-seated car full down the little known hill into the village of Penrhyn from the pass of Aberglaslyn with engine brake and foot brake only. It is but a short hill, but it will take a lot of beating.

I have taken the same car and load down the hill on the Dinas Mawddwy Road coming from Dolgelly with the high gear in and without having to put on the side brakes at all, and occasionally had to ease the foot brake somewhat to get sufficient way on the car. This is not a show hill, there is very little between life and death in descending it, and there must be absolutely no mistake in the control of the car. There is not even a wire fence on the right, and it twists all the way down following the curves of the hill.

I have also done the same thing down the hills on the roads in Devonshire across Exmoor, and also on the North Coast road.

But although this can be done, it can, unfortunately, only be done with cars that are constructed in such a way that the coupling up of the engine to the gear does not render one of the usual brakes useless; that is, when the parts are so arranged that the putting on of the foot brake does not free the engine clutch. There are not many cars made, although there are many more than Mr. Sturmer mentioned.

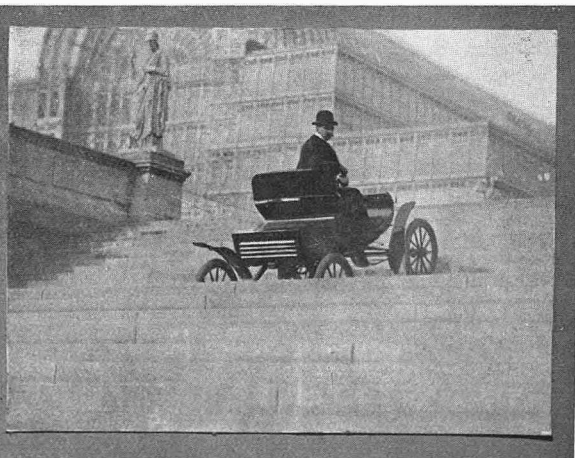
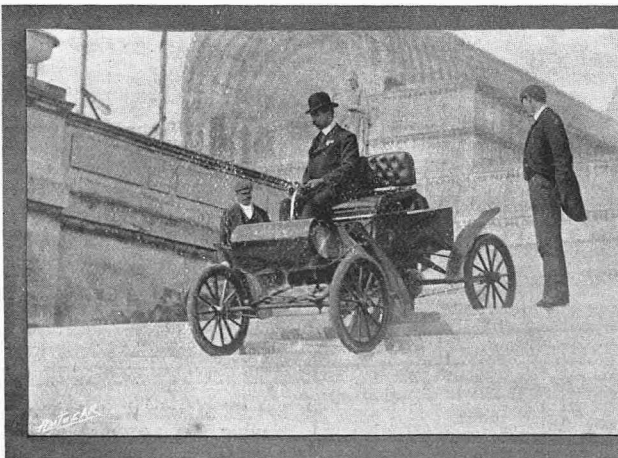


Photo.

Russells, Crystal Palace.

A STEP CLIMBING FEAT. As mentioned in our last issue, one of the sensations at the Reliability Trials was Mr. Letts's feat of driving his Oldsmobile car up the steps leading to the terrace in front of the Crystal Palace. The illustrations given above will serve to convince any who may not be familiar with the testing ground of the severity of the climb which the Oldsmobile accomplished.

in his original letter, that admit of the foot brake being put on without the clutch being released, but I imagine there will be many more still when a few more people have been killed by their inability to put the engine into gear and get a little more brake power without throwing away the help to be had from one of the regular brakes.

When I have a car to alter or am asked advice on the brake question, I always advise independent levers for brake and clutch, or a brake of so effective a nature that any pressure, from the slightest rub to stopping the road wheels turning round, can be applied at will, but prefer the former arrangement to the latter, as three brakes may be fairly taken to be better than two.

It is the duty of every driver to ascertain in the early stage of driving a fresh car which of the various means of retarding it at his disposal are the most effective, and it is the duty of all teachers of driving to teach this as one of the first lessons, and this lesson having been taught, the subject should be so impressed on the mind that it becomes a second nature and can be done without thinking, as it is just at the time when there is no time for thinking that prompt action is most necessary. Your correspondent Mr. Cross remarks to the effect that it is immaterial as regards the effective compression of a petrol motor as to where the joints of the piston rings are in relation to each other. I am afraid he loses sight of speed as a factor in this case, and if he will make a few practical experiments, he will find, as I have on many cars, that it often makes all the difference. Let him take a clean new piston, put all the joints of the rings together, and run the motor for a given time, say two hours, and mark the result as to time over a given distance and up certain hills. Now let him take out his piston, and unless the rings fit perfectly at the joints, which they are rarely likely to do, he will find a carbon deposit shown on the piston past all the rings. Let him now clean this off and set his rings at different points, as far away as convenient, and repeat the time, distance and hills, and again examine the piston, when it will be found that the products will have passed one ring, may have passed two, but most likely no further. His time should work out as good or better, but his hill-climbing much better. A test of pulling over with the starting handle would not give so good a means of comparison, but this will generally show a difference, especially if it is tried with a multi-cylinder engine, one cylinder of which has the ring joints all together, or a maximum pressure gauge could be fitted and actual figures obtained.

C. H. GUEST, M.I.M.E.

FOR DUSTY ROADS.

[3195].—In reading your account of the "dust trials" at the Crystal Palace, where a portion of road was covered with flour, it struck me whether a mixture of flour and water, or chalk and water, would not be a good dressing for dusty roads. They would both be clean, and the latter very inexpensive. Perhaps some of your readers may consider it worthy of a trial.

SAMSON PARSONS.

A CORRECTION.

[3196].—Permit me to point out an error in your otherwise extensively accurate and interesting journal. The car described in the photograph on page 403 in your last issue is not that employed by the Commander-in-Chief, but it is the car employed by General Sir Archibald Hunter, to whom I was especially detailed.

JAMES OCHS.

STEAM v. PETROL.

[3197].—I see in your issue of the 26th ult. a letter written by "F.E.R." on the above subject. I have been using a Locomobile car for the last three years, and have often thought of getting a petrol car. I use my car for going to my office, a distance of over seven miles. The disadvantages I find to this car are as follow: (1.) The quantity of petrol used in a distance of fifteen miles—one and a half gallons. (2.) Having to get up steam (180 lbs.) takes about fifteen minutes. (3.) Having to get a fire to heat the torch. (4.) In windy weather the fire blows out. (5.) Having to keep a constant eye on the water gauge, air pressure and steam pressure gauges. (6.) If I am visiting a friend and stay an hour or two I have to relight, as I must put the fire out.

Now in petrol cars you have none of these troubles. I

should be very glad to read the remarks of some others on this subject. Would "F.E.R." mention any steam car that can start in the same time as a petrol car, and leave it for a few hours standing without the trouble of heating a torch and firing up the car? All things being equal in this respect, everyone would go in for steam. J.A.

A NEW PREDICAMENT.

[3198].—May I be allowed to suggest that your correspondent Y. Z. should alter his views as our roads require altering, viz., broaden them. His "reasons" are too absurd for words, but, as he so carefully enumerates them, I will deal with them in the same way.

1. There are still some honest persons left on earth, in spite of what we hear, and there is no earthly reason why his *chauffeur* cannot buy his own petrol and oil, provided he receives his wages.

2. Surely a 16 h.p. car does not occupy his time for the entire twenty-four hours; if so, I should advise him to get a fresh engagement.

3. If he is "free to go scorching all over the country" he is equally free to pay the fines, and I can see no reason why his employer is liable to any blame in the matter.

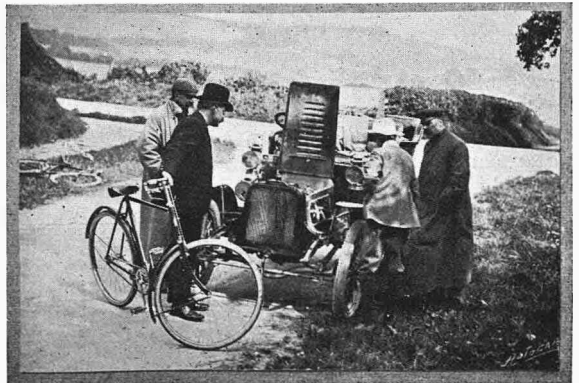
Evidently your correspondent's knowledge of motor cycles is very small, or, if he is correct, I should be pleased to learn the address of the firm who supply motor cycles at £20.

F. G. COOPER.

A WORD FOR STEAM.

[3199].—with reference to the steam car versus petrol engine, I think it is entirely a matter of individual taste. Both systems will always have their advocates. May I be allowed to give a personal opinion why I selected steam and not petrol? I am a practical engineer, drive my own car, and employ no mechanic, and the points that appealed to me in the steam car were absence of vibration, no gearing for altering speed, burning paraffin instead of petrol—a dangerous spirit requiring great care in handling, simplicity in the working parts, and reversing the engine in an emergency as brake power; also, a certain amount of skill is required in driving to secure the best results. This latter, in my opinion, adds to the pleasure of a steam car with a flash boiler. I can quite understand, however, that a person not having a taste for mechanical subjects, or employing a paid driver and mechanic, would not derive the same pleasure from a steam car, and would select a petrol; and I believe I am correct in stating one reason why petrol is more in favour is that it was the first in the field and that manufacturers have not given the same attention to the steam as to the petrol car. The steam engine has proved very successful for heavy loads, both as applied to motor cars and to the railway locomotive, and if the same amount of attention was given to the four-seated steam car as has been given by manufacturers to the petrol car, I think there would be a considerable demand for steam. The greatest room for improvement lies in the direction of quickly getting up steam in the initial stage, starting off cold, and with common paraffin as fuel. I do not know of any steam car where this can be done under fifteen minutes, which is much too long for most people.

PROGRESSION.



On the Pilgrims' Path at Westerham. Waiting for the hill-climb in the 1,000 miles trials to commence.

Flashes.

Whilst running our 12-16 h.p. Clément on all but one day of the late reliability trials, we used "Carburine" motor spirit, manufactured by the Gas Lighting Improvement Co., of 18, Devonshire Street, Bishopsgate, E.C., and found it most satisfactory in every respect. The engine pulled excellently, and upon examination of the valves and sparking plugs at the end of the trials, these were found to be clean and free of any sign of corrosion.

* * *

It will be interesting to motorists in South-western London, as well as to tourists generally, to know that the proprietor of the Red Lion Hotel, Dorking, is giving special attention to motorists. He has a pit, besides keeping all necessary requisites.

* * *

In dealing with a motor car case, Colonel de Burton, chairman of the Bourne magistrates, said the craze for pace was doing the motor car industry harm. He believed that if drivers would be satisfied with a reasonable pace a good many more people would buy cars, and the more careful would not be deterred from adopting this mode of travelling.

* * *

In our issue of September 19th we mentioned that the Russian Government had established an automobile service; but in stating that it would be between Tiflis and Vladivock (8,000 miles), we gave them credit for more than was due to them. The service will extend for 133 miles, from Tiflis to Vladikarkas; and, while undoubtedly a step in the right direction, is far less extensive than our first announcement made it appear.

* * *

The Clipper-Continental Tyre Co., since their success in the Gordon-Bennett race, have paid more attention to motor vehicle tyres, and have added to their expert staff in Coventry, so that they are now in a position to reply promptly to any enquiries that may be made by tyre users. Mr. E. A. Stephens, the manager of the company, is very emphatic in endorsing the opinion we have so often expressed, that a very large proportion of the tyre troubles automobilists have to contend with are due to the fact that cars are undertyred. If motor car owners paid attention to the important fact of having their cars fitted with tyres which were calculated to carry more than the nominal weight of the car, the tyre trouble would be reduced to a minimum. In our own experience we have met many users of cars who have fitted tyres calculated to carry a greater weight per wheel than is prescribed by the ordinary formula, and their experience has been of the most satisfactory nature. The adoption of this policy naturally results in increased life to both tyres and car.

Holland has long been almost the only highly civilised country in the world which does not grant patents of invention. However, the Dutch Government are now preparing a patent law, and its early presentation to Parliament was mentioned in the Queen's speech. Holland is a member of the union for the protection of industrial property, consisting of nearly all the principal countries of the world, except Austria, Hungary, Russia, Persia, China, and Turkey, and each country in the union has pledged itself to a large extent of reciprocity in connection with patents and trade marks.

* * *

Lieut. Wyndham, a King's Messenger, and the author of the useful little handbook on the management of the Darracq cars, is taking a car to India this winter, and hopes to make a long tour there. He is anxious for information as to the best form of tyre to be used. Of course, he does not want untried theories from those who think that some particular type is good, but he would be grateful to hear from automobilists who have had experience in India, and therefrom know the best brands of tyres to use.

* * *

Another North London firm which has installed the necessary machinery to enable it to do repairs to motor cars is Messrs. Beard Bros., official repairers to the C.T.C., of High Street, Cricklewood.

* * *

The Southport municipal authorities are to be congratulated on the energy displayed in connection with the promotion of the speed trials in conjunction with the Liverpool Self-propelled Traffic Association, the whole arrangements being under the watchful eye of the A.C.G.B. and I. Among those who are deserving of special mention are Mr. T. T. L. Scarisbrick, the Mayor, Councillor E. Trounson, and Alderman Griffiths.

* * *

The following extract from a letter which has lately been received by Messrs. S. F. Edge, Ltd., from Cape Colony, and which they in turn send to us, is interesting. The writer purchased a motor lorry for transport purposes, and although previous to the receipt of the machine he possessed no knowledge of its construction, he has found it in every way satisfactory. He says: "I have had all kinds of goods, even bricks up to 9,000 lbs. weight on the waggon, and she is a marvel. I had Dr. Jameson on yesterday, picked him and Capt. Gordon Wilson up, broken down on the Cape Town Road. I have had seats made to fit along the sides to carry twenty people, and am taking a crowd out on Saturday and Sunday. I had fifty-five children on for a picnic a few weeks ago. On her fourth gear she does fifteen miles an hour, and climbs anything. You would not recognise the waggon if you saw her now. I have made a good many small improvements, and am constantly finding out more. I expect next week I shall be starting off for the Karoo, up to Calvinia. The merchants are paying 20s. per 100 lbs. carried."

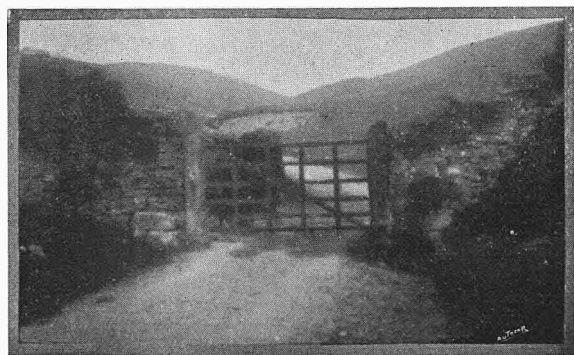
"THE AUTOCAR" DIARY.

- Oct. 2-3.—**Southport Speed Trials.**
 " 3.—Lincolnshire A.C. Drive to Folkingham.
 " 3.—Leicestershire A.C. Drive to Dunchurch via Rugby.
 " 3.—Southern Motor Club. Drive to Chertsey.
 " 3.—Cheltenham and Gloucestershire A.C. Drive to Tewkesbury.
 " 5-10.—Paris Cab and Delivery Van Trials.
 " 10.—Midland A.C. Hill-climbing Competition.
 " 10.—Sheffield A.C. Drive to Sickleholme.
 " 10.—Southern Motor Club. Drive to Ditton.
 " 15-21.—Leipzig Automobile Show.
 Nov. 15.—German War Office Alcohol Competition for Heavy Vehicles.
 " 17.—Scottish A.C. (Western Section). Anniversary Drive to Troon.
 " 22.—Leicestershire A.C. Drive to Market Bosworth, Hinckley, and Earl Shilton.

Mr. T. B. Cooper writes: "I am a civil engineer, and being very full of work have only managed one week's holiday this year. As one of the 'moderate means' brigade, I own a solid-tyred $5\frac{1}{2}$ h.p. Wolseley car. On this very reliable, trusty little steed I wended my way from Bristol, through Gloucester, Hereford, Ludlow, Church Stretton, Shrewsbury, Crewe, Macclesfield, Buxton, Sheffield, and Doncaster, to York. Not having examined my *Autocar* with sufficient care, I blundered into the celebrated police trap near Selby. I stopped immediately the uniform man signalled, was perfectly civil to both him and the sergeant, and gave my correct name and address. According to their biased views, my speed was seventeen miles per hour. The case came on upon September 24th, and I and my poor little car were mulcted £4 and 9s. 6d. costs. My holiday had previously cost myself and my brother-in-law £10 all told. It now amounts to £14 9s. 6d., due to the Goole Bench, who administer the present law, already morally repealed, with such absurd severity. I may say, as you will know, a car like mine can only make twenty miles per hour under favourable conditions of wind or hill. May I add, with some pride, my only stop (involuntary) was to renew one sparking plug?"

* * *

Beneath is the gate which replaced the one through which the car in which Lord Monkswell was driving crashed without sustaining any injury. The car—a 10 h.p. Decauville—sent the lower bars of the gate flying for many yards, but the top bar passing over the bonnet was broken by the steering column, one of the broken portions of the top rail being the cause of Lord Monkswell's fractured arm. The gate occurs on the road between Dent and Barbon, in



The scene of Lord Monkswell's accident.

Westmorland, on a portion where the state of the road and the gradient invite the use of the top speed. Being concealed by a bend in the road, the gate is approached so suddenly that one cannot stop a car in time to avert a disaster. The photograph from which our illustration was taken was kindly sent us by Mr. J. A. Farrer, of Lancaster.

A new L.C.C. petrol motor launch is now on the lake at Battersea Park, and will shortly be carrying passengers at a penny a head.



ABOUT TO CROSS THE ARCTIC CIRCLE. This photograph was taken of Mr. Glidden's 16 h.p. Napier, just before crossing the Arctic Circle. The occupants of the car are Mr. C. J. Glidden, Mrs. C. J. Glidden, the American Consul, and Thomas the mechanic. The tour was 6,670 miles in all, and of 54 days' duration. On three days 200 miles or over were covered, and the shortest day's run was 25 miles. This is the third motor trip that Mr. and Mrs. Glidden have made, and with the two previous ones their total European mileage is 13,795. The extreme northern point of their wanderings has been the Arctic Circle; the southern, San Sebastian; the eastern, Vienna; and the western, Waterville Island, and they estimate they have passed three million people on the road.

Sir William Richmond, R.A., speaking in Sheffield recently, criticised the design of motor cars, and appealed to manufacturers to produce something more beautiful. *Judy* has done it.

* * *

"It has been calculated that the energy stored up in an ounce of radium would suffice to drive a 50 h.p. motor car at the rate of thirty miles an hour round the world."

* * *

Last week a letter appeared from the Borough electrical engineer of Eastbourne referring to the motor omnibuses which his progressive municipality are using. It will be remembered that his one complaint was with regard to the tyres, and it might be taken from his letter that every variety of solid tyre had been tried and found wanting. We are much interested in the solid tyre question, as we look upon it as the solution of many difficulties, and as we have heard of heavier vehicles than the Eastbourne omnibuses being shod with Buffer tyres and standing work about five times as long, we made a point of ascertaining whether this particular make had been tried. We found that it had not, so that the Eastbourne people need not abandon hope of finding a satisfactory solid tyre for their particular requirements. We go into the matter at some length, and in a form which is somewhat unusual for us, but as the motor omnibus is regarded by many corporations as a dangerous experiment, we think it only right that it should be made clear that the Eastbourne experiences are not, as they at first appeared to be, discouraging, for the simple reason that the particular form of tyre which has shown itself equal to the very hard condition of a motor bus service has not been tried.

SOME QUERIES AND REPLIES.

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

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

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

DYNAMO AND ACCUMULATOR WIRING.

I beg to submit to you the enclosed sketch of the wiring of a dynamo and accumulator fitted to a 15 h.p. Panhard, with a statement of my reason for writing you, and trust you will be able to help me out of my difficulty. As I understand it, the engine is started up on the accumulator by switching on to AC and then switched on to DY, when the dynamo is supposed to supply sufficient current for the engine and have a surplus to make good any current used from the accumulator. My experience is that when running and switched on to DY, the accumulator is run down very rapidly in about fifty miles to 3.6 volts, and the car begins to flag and misfire. When another accumulator of four volts is connected, the car goes perfectly till the second accumulator is run down. As I cannot find any short circuit, it appears to me that the dynamo does not generate enough current, and the deficiency is abstracted from the accumulator. The dynamo has a governor, and is worked by friction off the flywheel. Will you please say if the wiring is correct, and give me the course of the current from start to return both of the accumulator and the dynamo? If the switch is on AC, thus not having any connection with DY, what is the dynamo then doing?—H. ELLIS.

The engine is started with the switch on A C, when the accumulator supplies current to the coil to produce the spark for ignition. After starting, the switch is moved to DY; the dynamo then supplies current direct to the coil, and any surplus is absorbed by the accumulators, and should keep them fully charged. In your case, as shown

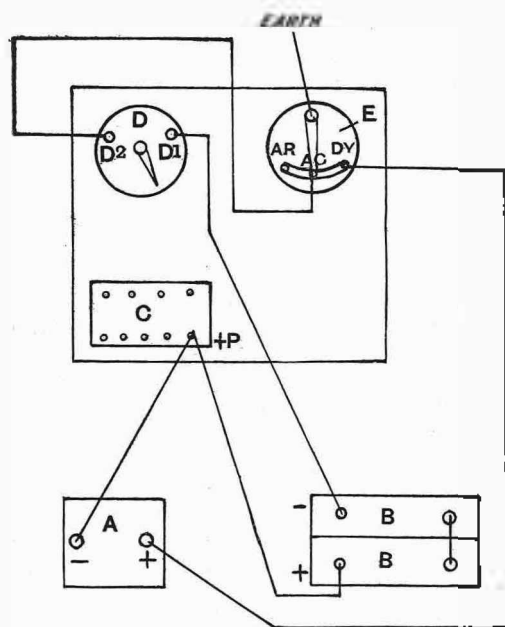


Fig. 1.

A, dynamo C, coil D¹, charging E, switch
B, accumulators D², discharging

of the plates and rapidly spoil them. If the connections are made as shown in diagram fig. 2, where the positive of dynamo and of the accumulator are coupled together at the coil, you will find that everything will run satis-

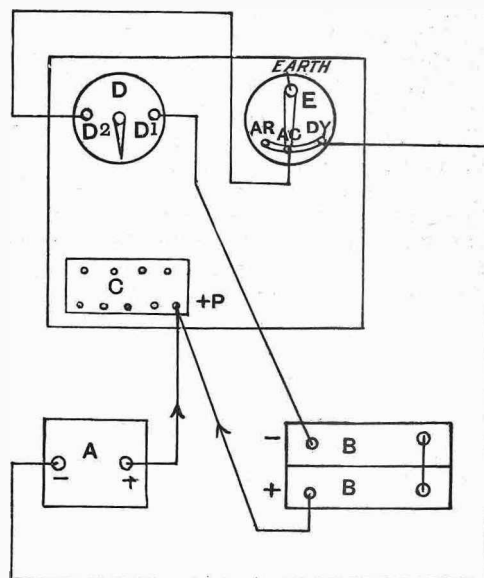


Fig. 2.

factorily. Always note that whenever a dynamo is set to charge an accumulator under any conditions, the positive poles of both must be connected together. When the switch is on AC, there is no connection to the negative terminal, and hence an "open circuit" results, so that no current is generated by the dynamo for use outside, and it is simply running light and absorbing very little power.

ANTI-FREEZING MIXTURE.

Six weeks ago I bought a small two-seated car fitted with a single cylinder 64 h.p. Aster engine, water cooled by aid of a pump. I am a country doctor, and am using the car for business purposes. I would like to use it in all weathers during the winter, and am anxious lest the water should freeze and so damage the cylinder or other parts. I noticed a recommendation to mix the water with twenty per cent. of glycerine in order to prevent freezing, and would like to hear your opinion about these points: (1.) Is this method practicable? (2.) Will ordinary commercial glycerine do? (3.) Will a lower percentage of glycerine serve the purpose as well as twenty per cent.? (4.) Is there any danger of the glycerine and water forming an explosive mixture?—W. Mc.D.S.

(1.) Glycerine is at present the most practicable form of anti-freezing mixture known, although this is not altogether satisfactory at very low temperatures. It is therefore advisable in extremely cold weather to drain off all water from the cooling system overnight before putting the car on one side. (2.) Ordinary commercial glycerine is all that is required. (3.) Experiments have proved the proportion named to be the best mixture for the purpose. (4.) There is no danger in glycerine and water forming an explosive mixture.

by diagram fig. 1, the dynamo is wrongly connected to the coil and switch. What happens then is that, instead of charging the accumulators, the dynamo is helping to discharge them, and, in fact, it tries to reverse the polarity

THE SOUTHPORT SPEED TRIALS.



The south-west end of Southport Promenade. The finishing point of the flying kilometre speed trials is just before the bend, after which comes the slowing down portion.

Yesterday and to-day, October 2nd and 3rd, a series of automobile speed events took place on the promenade at Southport, the popular Lancashire watering-place. The results of these trials will be given in the next issue of *The Autocar*, which will be illustrated from specially taken photographs.

There are sixteen classes, including four for motor cycles, and these four will be dealt with in *The Motor Cycle*. The car classes are divided into two sections, tourists and racing, and the following are the vehicles entered:

Tourist Section.

CLASS E (price not more than £200, with two seats).—Two 6 h.p. De Dions, one each 4 h.p., 5 h.p., and 6 h.p. Oldsmobiles, 5 h.p. Baby Peugeot, 6½ h.p. Vulcan, 6 h.p. Wolseley and 6 h.p. Light Phoenix, 6 h.p. Peugeot, 6 h.p. Pick, and 7 h.p. Cottereau.

CLASS F (price over £200 and not exceeding £400, to carry four).—Three 12 h.p. Richardson, one each 10 h.p. and 12 h.p. Argyll, 10 h.p. and 12 h.p. Wolseley, three 12 h.p. and one 10 h.p. Georges-Richard, 10 h.p. Duryea, 12 h.p. Belsize, 9 h.p. Renault, 12 h.p. Vulcan, 12 h.p. Phoenix, 10 h.p. Déchamps, and 9 h.p. Darracq.

CLASS G (price over £400 and not exceeding £550, to carry four).—Two 12 h.p. Gladiator, 15 h.p. Belsize, 16 h.p. Mathieu, 16 h.p. Argyll, 12 h.p. M.M.C., 12 h.p. Clément, and 24 h.p. Darracq.

CLASS H (price over £550 and not exceeding £750, to carry four).—Two 24 h.p. Newton-Pearce, two 16 h.p. Lan Chester, two 20 h.p. M.M.C., 18 h.p. James and Browne, 15 h.p. C.G.V., 24 h.p. Darracq, 24 h.p. Wolseley, 12 h.p. Peugeot, 16 h.p. Panhard, 20 h.p. Déchamps, and 24 h.p. Georges-Richard.

CLASS J (price over £750 and not exceeding £1,000, to carry four).—Four 15 h.p. C.G.V., three 24 h.p. De Dietrich, 20 h.p. Brush, 25 h.p. M.M.C.,

24 h.p. Gobron-Brillié, 20 h.p. Ariel, 24 h.p. Fiat, and a touring Darracq.

CLASS K (price over £1,000, to carry four).—Two 20 h.p. Napier, one 15 h.p. and one 24 h.p. Panhard, 20 h.p. Mercedes, and 22 h.p. Daimler.

CLASS L (steam touring cars).—No entries.

CLASS M (the Lancashire inter-club handicap).—Only cars which compete in one of the touring section class events are eligible. 10 h.p. and 20 h.p. Déchamps, 24 h.p. and 30 h.p. Darracq, 10 h.p. two 12 h.p., and 24 h.p. Georges-Richard, 20 h.p. M.M.C., 24 h.p. Newton-Pearce, 20 h.p. Mercedes, 16 h.p. Lan Chester, 15 h.p. C.G.V., 24 h.p. Wolseley, 12 h.p. Clément, 15 h.p. Panhard, 9 h.p. Renault, 12 h.p. Peugeot, and 22 h.p. Daimler.

Racing Section.

CLASS N (racing cars weighing less than 650 kilogs. = 12 cwt. 3 qrs. 5 lbs.)—10 h.p. De Dion-Bouton Spider, 20 h.p. Light Prunel, and Darracq voiture légère.

CLASS O (racing cars weighing not more than 1,000 kilogs. = 19 cwt. 3 qrs. 20 lbs.)—Two 60 h.p. Mercedes, 70 h.p. and 80 h.p. Panhard, 35 h.p. and 45 h.p. Napier, 40 h.p. and 70 h.p. Mors, 70 h.p. Paris-Vienna Panhard Centaure, 36 h.p. Wolseley, and Star racing car.

CLASS P (scratch race; prize awarded to the fastest car under 1,000 kilogs. covering the flying kilometre under 40s.)—Two 60 h.p. Mercedes, 70 h.p. and 80 h.p. Panhard, Paris-Vienna Centaure, 35 h.p. and 45 h.p. Napier, 40 h.p. and 70 h.p. Mors, 36 h.p. Wolseley, Darracq voiture légère, 24 h.p. Fiat, and Star racing car.

CLASS Q (race for cars of any power).—Two 60 h.p. Mercedes, 40 h.p. and 70 h.p. Mors, 35 h.p. and 45 h.p. Napier, 70 h.p. Panhard Centaure, 70 h.p. Panhard, Darracq voiture légère, 15 h.p. C.G.V., 30 h.p. Darracq, and Star racing car.

CLUB DOINGS.

Yorkshire A.C.

The result of the speed trial at Wentworth Woodhouse has been issued, and the performances of the cars are given in miles per hour. Each vehicle ran first down the course and afterwards up it, and the average of the two tests are shown. Class I. (touring cars up to 6 h.p.): Herbert A. Jones, $4\frac{1}{2}$ h.p. Pieper, average miles per hour 16.69; F. J. Borland, $3\frac{1}{2}$ h.p. Renault, 16.39; J. Mortimer, $4\frac{1}{2}$ h.p. Renault, 14.69. Class II. (touring cars over 6 h.p. and not exceeding 12 h.p., carrying two persons): E. Faiers, 12 h.p. Clement, 29.64; Alf. W. Dougill, 12 h.p. Sunbeam, 28.49; P. Bayliss, 12 h.p. Sunbeam, 26.81; W. Wentworth Clark, 7 h.p. Clement, 19.38; A. Burton, 9 h.p. Darracq, 17.31. Class III. (touring cars over 12 h.p. and not exceeding 30 h.p., carrying two persons): Walter Jackson, 20 h.p. Brush, 41.04; Earl Fitzwilliam, 22 h.p. Daimler No. 2, 34.3; Earl Fitzwilliam, 22 h.p. Daimler No. 1, 32.07. Class V. (motor cycles up to 3 h.p.): F. Wasling, 3 h.p. Minerva bicycle, 37.31; H. W. Elworthy, 3 h.p. Quadrant, 30.29; P. Muschamp, 3 h.p. Clement, 26.76. Class VI. (motor cycles over 3 h.p.): C. Parker, $3\frac{1}{2}$ h.p. Griffin bicycle, 32.0; T. E. King, $3\frac{1}{2}$ h.p. Century tricycle, 14.56.

Kent A.C.

Sir,—Mr. Lucas in his letter regarding his car which ran at the Wrotham Hill club says it was a standard two-seater, but does not deny that it was driven to Wrotham fitted with a tonneau, which was removed and left at the Bull Hotel during the trials. The letter is interesting, as it emphasises the points I raised, viz., that it could hardly be considered a touring car, since it is necessary to fit sprockets according to the district into which the car has to run.

It follows that for touring it is necessary to carry a change of sprockets, whereas with the Darracq it is able to run at any speed up to forty miles an hour on the level, climb all ordinary hills on top speed, and if necessary take a full load up a gradient of about one in five at fully ten miles an hour.

Since Mr. Lucas went to the trouble of preparing a special sprocket made of boiler plate, with a gun metal chain ring cut into sections and bolted at intervals round the same because of its large diameter, I have no doubt that the sprocket used on Vigo Hill was as carefully selected to give the best results.

H. E. HALL.

Yorkshire A.C.

The committee of this club, having come to an agreement with the management of the Great Northern Hotels in Leeds and Bradford, have arranged for suitable headquarters in those cities. The headquarters at Leeds will be open all day, and there will be kept club papers, books of reference, information of general use to members, and notices relating to other clubs. There is a covered way where cars may be left; also a garage where members' cars may be left free day or night. It is intended during the winter to have lectures, lantern lectures, papers read, and social evenings, notice of which will be given later.

Derby and District A.C.

The last drive of the season in connection with the Derby and District A.C. took place on Saturday last, over twenty participating. Sudbury, *via* Hilton, was the destination, and except for the compulsory crawl through the latter place owing to a police trap, the drive was very enjoyable and devoid of an unusual incident. Next year a more ambitious programme will be compiled for the club, which is to include several interesting competitions.

Irish Automobile Hill Climb.

On Saturday last the Irish Automobile Club held a hill-climbing competition at Glendoo Hill, near Dublin. The distance of the contest was about three-quarters of a mile, and the average gradient of the hill was about one in twelve, while a couple of sharp turns ensured that a due regard would be paid to the legal limit of speed. Twelve members took part in the contest, and only one of them failed to climb the hill. The fastest of the cars was a 12 h.p. Napier, driven by the chairman of the club, Mr. W. G. D. Goff, whose time, 5m. 1s., works out at about nine miles an hour. The excellent performance of the little 6 h.p. De Dion, driven by the wife of the hon. sec.

of the club, Mrs. R. J. Mecredy, was a feature of the competition, and had not Mrs. Mecredy been rather slow in releasing her brakes at the start—the cars were started down hill—she might have won. The result is as follows:

		M.	S.
W. G. D. Goff	12 h.p. Napier ...	5	1
W. Sexton	10 h.p. Siddeley ...	5	11
L. J. O. Higgins	10 h.p. Gladiator ...	5	11
Mrs. R. J. Mecredy	6 h.p. De Dion ...	5	35
C. W. Hely	10 h.p. Panhard ...	5	38
R. J. Mecredy	10 h.p. Siddeley ...	5	42
— Hayes	10 h.p. Wolseley ...	6	33
Lord Plunket	10 h.p. Lanchester ...	6	57
J. O'Connor	6 h.p. De Dion ...	7	28
Dr. Wright	6 h.p. De Dion ...	7	47
— Westby	15 h.p. Belsize ...	9	3

New Patents.

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

The following specifications were printed and published on the 24th September, 1903. All notices of opposition to the grant of patents on the several applications should be filed not later than the 9th November, 1903.

1902.

19,263.—E. M. Preston. Commutator to deal with accidental reversing of two-cycle motors.

20,613.—C. Merington. Motor cycle driven pulley of which one part is connected rigidly to the wheel and the other part is connected flexibly to the hub.

21,451.—A. J. Allen. Radiator with detachable flat tubes.

22,343.—J. W. Hornsby and C. James. Two radiators are arranged in series and each is provided with its own fan.

23,096.—J. Bazeley. Variable speed and free engine motor cycle driving pulley.

23,227.—J. Y. Johnson (Société Anonyme Forges de Douai). The members of channel section frames are made to support each other by thin flanges, the bolts being in tension only.

23,570.—J. W. Hunter. Sociable motor bicycles, and means of attaching saddles, footrests, and hoods thereto.

23,704.—E. J. Buckingham. Sharp-edged metal discs are mounted in a bracket and lowered to the ground to prevent side slip.

23,915.—V. and V. Lorenc. Driving gear designed to adapt itself automatically to the load.

24,250.—A. D. Able (La Société Anonyme des Anciens Etablissements Panhard et Levassor). The timing of the closing of the inlet valve is regulated by the adjustment of a compound actuating cam.

27,887.—The Tangye Tool and Electric Co., Ltd., and A. H. Bate. Magneto electric igniter with stationary coil.

1903.

14,310.—G. Barker (Horace van Everen). Reversible hydro-carbon motor.

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