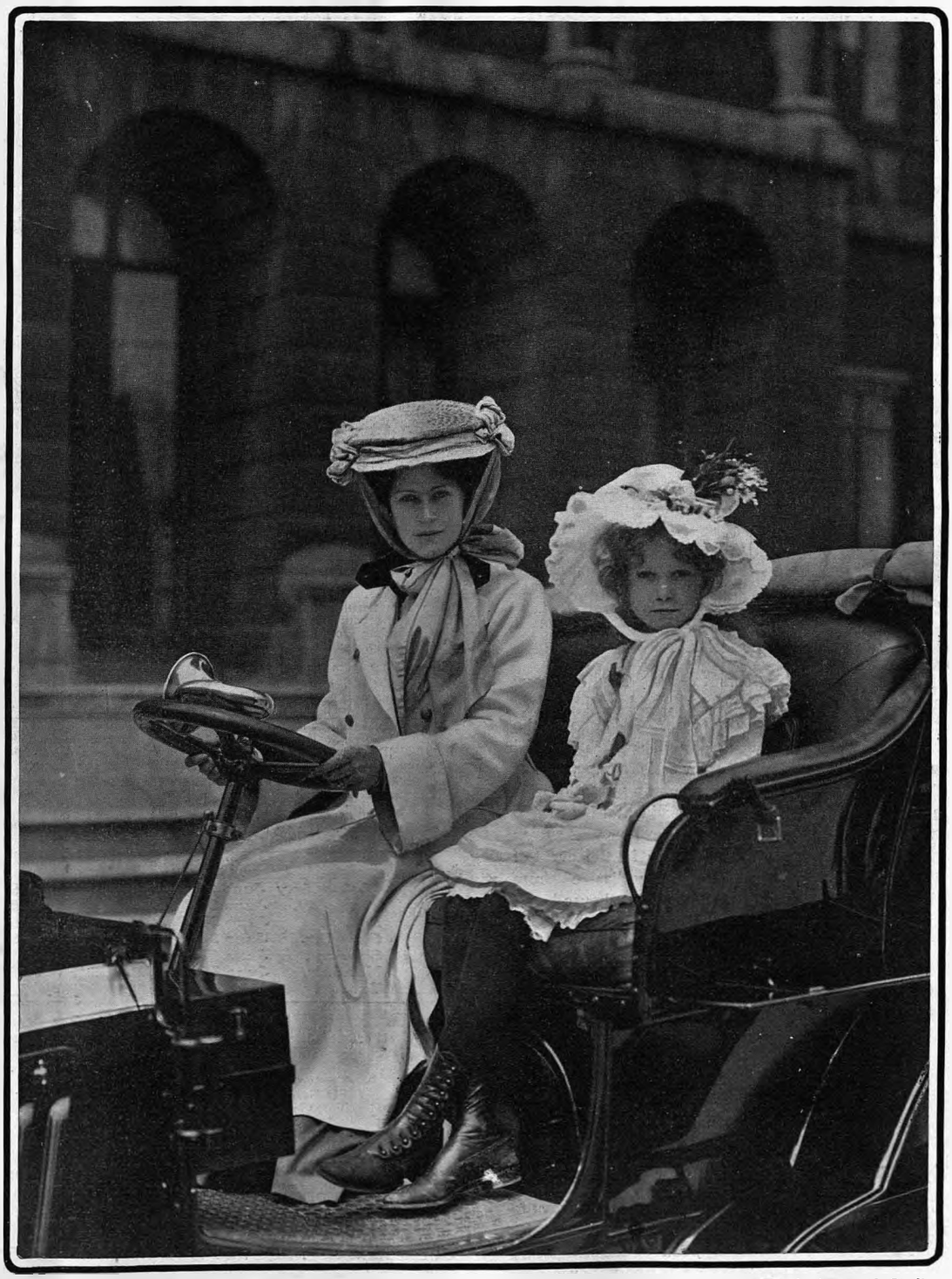
Vol. I., No. 5. London, June 25, 1902. Price Sixpence.

The Car

A JOURNAL OF TRAVEL BY LAND, SEA, AND AIR. ILLUSTRATED.

Edited by the Hon. JOHN SCOTT MONTAGU, M.P.



Photographed specially for THE CAR] [*by the Biograph Studio*

THE DUCHESS OF SUTHERLAND AND LADY ROSEMARY LEVESON-GOWER

The Car

A JOURNAL OF TRAVEL BY LAND, SEA, AND AIR. ILLUSTRATED.

London, June 25th, 1902.

EDITORIAL AND GENERAL OFFICES:

Piccadilly Mansions, 17, Shaftesbury Avenue, London, W.C.

Telegraphic Address: "Carilludo, London." *Telephone No. 1369 Gerrard.*

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"THE CAR" INSURANCE POLICY

FOR EITHER

DEATH OR TEMPORARY DISABLEMENT.

FOR the benefit of annual subscribers to THE CAR we have entered into an arrangement with the Law Accident Insurance Society, Ltd., 215, Strand, W.C., to pay the sum of £1,000 to the legal personal representative of any such annual subscriber killed through accidental, external, violent, and visible means, whilst driving in, or being driven in, or whilst mounting into or dismounting from a private motor-car, through an accidental happening to the car from collision. Death must result within four weeks from the time of the happening of the accident. Further, in the event of the said passenger being totally and continuously disabled from attending to business of any kind and confined to the house by an accident as above described, THE CAR will pay at the rate of £6 per week during such disablement and confinement, limited to ten weeks.

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LIGHTING-UP TIMES.

Wednesday	**June 25**	.. ..	**9h. 19m.**
Thursday,	**June 26**	.. ..	**9h. 19m.**
Friday,	**June 27**	.. ..	**9h. 19m.**
Saturday,	**June 28**	.. ..	**9h. 19m.**
Sunday,	**June 29**	.. ..	**9h. 18m.**
Monday,	**June 30**	.. ..	**9h. 18m.**
Tuesday,	**July 1**	.. ..	**9h. 18m.**

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Particulars of our Insurance Scheme will be found in the adjoining column

NOTICE TO CONTRIBUTORS.

The Editor is open to consider any manuscripts, photographs, or sketches which may be submitted, but they should in all cases be accompanied by stamped addressed envelopes. Every article should bear the name and address of the owner, which should also be inscribed on the backs of all photographs and sketches. While every effort will be made to return unsuitable contributions, the Editor cannot hold himself responsible in case of accidental loss. Contributors are reminded that paragraphs and short pithy articles are preferred to lengthy effusions.

conscription as the French system, but already a good many automobilists have given in their names through the A.C. as available in case of need. Why do not the War Office give a retaining fee of say £5 a year to each motor-car on the list, in much the same way as mercantile cruisers are subsidised and horses held under option in order that the Government may acquire them in case of need?

Cross Country Journeys.

Here is another recent instance of the utility of the motor-car. Sir Francis Laking, his Majesty's physician, was conveyed on a motor-car from Windsor to Aldershot a few days ago, when the King was reported to be suffering from a slight chill. The train journey from Windsor to Aldershot under normal conditions involves a circuit by Staines, Virginia Water, Byfleet, and Woking, and I am unable to find by reference to *Bradshaw* that any train completes the journey either to North Camp or Farnborough station in less than one hour and a half. From Windsor to Aldershot by motor, on the other hand, would most probably not take more than three-quarters of an hour. The motor-car must eventually be a serious competitor to the railways in connection with cross-country routes. It may interest motorists to know that last year I calculated that over £40 was saved by myself in tickets for such journeys, besides the great economy of time, by using a motor-car for these cross-country runs. To put it in another way, this means the interest at 4 per cent. on £1,000.

Hints for the Hostess.

In the future, instead of printing on the head of our writing paper "3½ miles from Mudford Junction," the careful hostess will have a small lithographed plan of the local roads round the house, and the letterpress will tell you, "At the 37th mile post from London on the Great South Road turn to the east, thence 2½ miles." May I make this suggestion to the many excellent note-paper designers and sellers? The Car will be delighted to suggest correct headings for any of its readers, giving the exact distance from London by the best road.

Hoodman Blind!

Beware of the hooded van. The man in charge of the horse is unable to see behind or even to the side of him, and is apt to pull across your car without meaning to do any harm, but simply from his inability to see anything that is coming up from behind. Statistics show that of all the vehicles in London the hooded van is the most dangerous. Therefore beware when passing refuges in the middle of the road or when turning into side streets, for the hooded van will some day get in your way, and damage to your car, if not to yourself, and a tiresome lawsuit will probably be the result. Omnibuses also should be treated with respect, as they have a habit of suddenly turning out from the kerb in narrow parts of the streets, a practice which every hansom cab driver dreads and every motorist should beware of.

Are they under Control?

A week or two ago, commenting on the decision of the Chief Justice in New South Wales giving £250 damages against a car which had frightened a horse, I said that courts in this country would probably not have allowed damages. What damage would the learned Australian judge give in the case of the omnibus at Waterloo Station last week, when the whistle from an engine frightened two omnibus horses, which bolted down the steep exit into Waterloo Bridge Road? The vehicle and horses were smashed against the iron pillars at the bottom, several people being injured and one horse killed. It is hardly conceivable that any court of justice in this country would mulct a railway company in damages for this accident. The truth is that a great many horses are not under control in the legal sense of the word, and accidents do not occur more often because the horse is either too tired (in the case of a cab or 'bus) or too sensible to take notice of what may always frighten some other member of the equine race.

At the Automobile Battle of Flowers at Earl's Court the handsome banner offered by "The Car" was won by Mrs. S. F. Edge, whose Gladiator was bedecked with marguerites, yellow iris, Lenten lilies, daffodils, forget-me-nots, and lilies of the valley

THE KING'S CARS AT WINDSOR.

THE fourth motor carriage built for his Majesty the King was delivered at Windsor Castle last week. It has been constructed, under the supervision of Lord Suffield, by the Daimler Motor Company, of Coventry, and is fashioned upon truly royal lines.

The unique photographs which we have had the honour of obtaining by the King's special permission were taken immediately after the car had arrived at Windsor, whence it had been driven by road from Coventry. A short description of the new features embodied in this vehicle will be interesting as affording a means of comparison between it and the older types of Daimler touring carriage. The under frame is of wood, on the inner side of which is bolted a steel fish-plate, and, in this particular car, owing to its length (the car has a wheel base of 9 ft.), the construction is still further reinforced by the addition of a light angle-plate, one side of which is riveted to the fish-plate and the other fastened by bolts which pass right through the main wooden framework, whilst the four corners are rigidly held together by steel gusset-plates. The axles and wheels are of ordinary pattern and the tyres are 5 in. pneumatic. Hitherto the King's cars have been running upon solid rubber tyres owing to the fear of delays due to punctures, but the new car is carried upon the Goodyear puncture-proof tyre, for which very comprehensive claims are made.

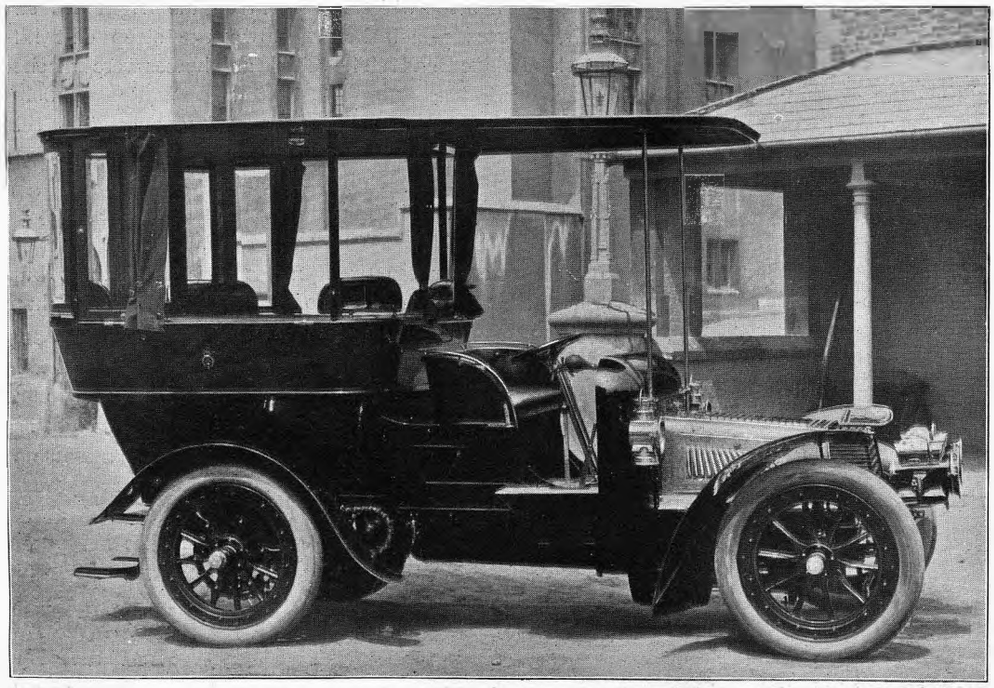


Photo. by] [*Lafayette*

SIDE VIEW OF THE KING'S NEW 22 B.H.P. DAIMLER

The car is driven by a four-cylinder motor developing 22 b.h.p., fitted with a high-tension system of electric ignition, and tube ignition as a stand-by. A delightful feature of this engine is the absolute control over its speed which is given to the driver, who is provided with a small lever fixed to the steering column, by which he can regulate to a nicety the volume of "mixture" he wishes to admit to the cylinders, so that, when running on a fair road, almost any speed from five to twenty-five miles an hour can be obtained by a very slight movement of this lever, and without any of the old-fashioned necessity for cutting out one or more of the cylinders; it has also the effect of making the engine run almost noiselessly if required. The transmission gear is of the new Daimler type, with a completely encased differential shaft and short gear-box placed close up to the back axle, and not, as previously, slung on the same lower frame as the motor. The new method admits of a short driving chain being used. The clutch shaft has a bearing immediately behind the clutch, and also a flexible joint close to the gear-box, an arrangement which should entirely prevent the clutch from getting out of line.

Both the brake which acts through the differential gear and the sprocket brakes are double-acting, the lever actuating the latter being very conveniently situated by the driver's right hand. One lever is provided for reversing and one lever for changing speed. The dashboard has a rounded top, and concave sides in which tool-cupboards are fitted; this, although somewhat heavy in appearance, is an undoubtedly handy and neat way of carrying oil-cans, spanners, &c. The wheel steering is irreversible and thoroughly encased from dust and dirt. The water circulation is assured by means of a rotary pump, the arrangement of the supply tank and radiator being especially neat. The former is made of the same shape, and is fitted in the same position, as the apron in the older cars, the shaft of the starting gear passing right through it, whilst the latter is built up of two hollow aluminium castings, carrying between them the usual type of radiating tubes. Sight-feed forced lubrication is adopted for the motor, and ring lubrication for all parts of the gear-box and countershaft bearings.

In the design of the body also his Majesty has taken a great deal of personal interest, with the result that a delightful and entirely novel type of touring carriage has been evolved, which all those who have been privileged to view it in its completed form are unanimous in describing as the best thing they have ever seen. The front seat, made to carry two persons very comfortably, is quite separate from the back part of the car. The rear seats are raised about 5 in. higher than the level of the front seat, so that in this way his Majesty will be able to get an uninterrupted view of the road. The disposition of the seats, which are arranged in *fauteuil* manner, with arm-rests, gives ample accommodation for six persons. Those in the two rearmost seats are completely protected from dust by curved glass panels, which follow the lines of the car across the back and for about a quarter of the distance along the sides. There is also a narrow central panel of glass between the driver and passengers, which admits light and gives a view of the road whenever, during very cold or rainy weather, it becomes necessary to draw close the waterproof curtains which are always in

readiness. The corner seats are made with high back-rests, and over all is a very light wooden roof fitted with an electric lamp in the centre.

The finish and upholstering of the car are fittingly luxurious, being done in dark blue morocco leather and painted in the royal colours, dark claret with fine red lines, whilst the levers, beadings, &c., are brass-plated. It will be noticed that the motor horn is fixed right in front of the car, between the two acetylene lamps, in which position it is far more effective, and is not annoying to the occupants of the car. The neat blue Melton cloth suits and cloth caps worn by the driver and his assistant are a sufficient indication of his Majesty's views upon the dress question.

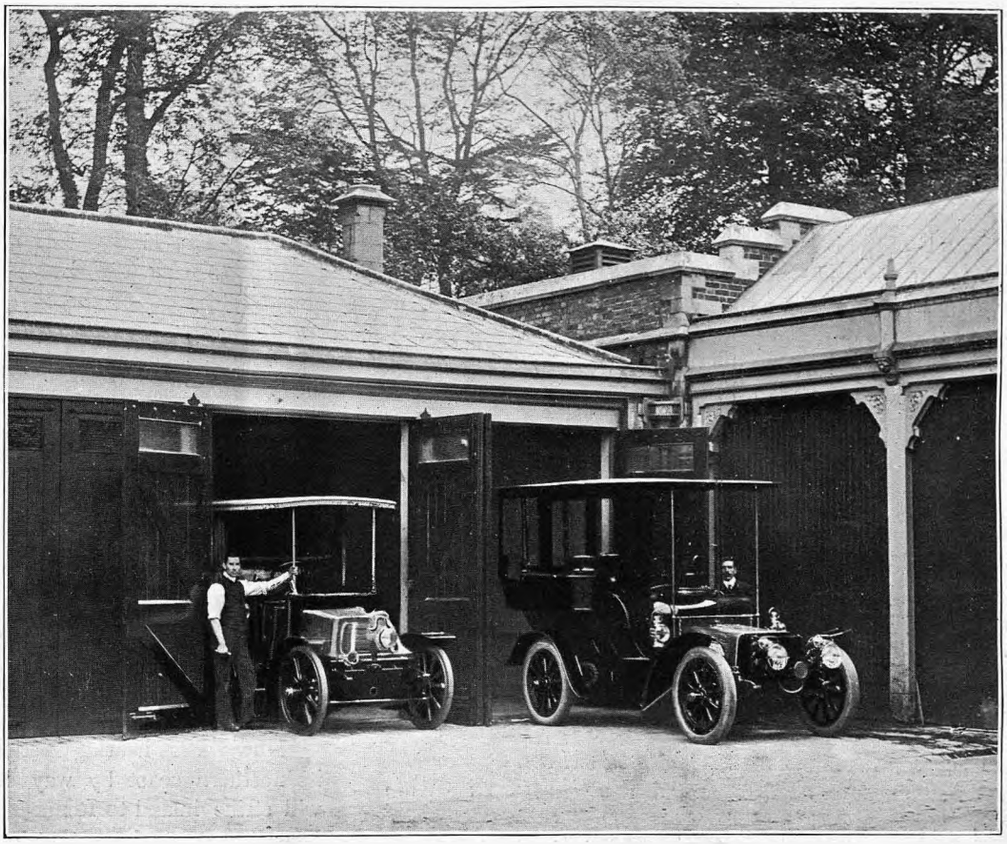


Photo. by] [*Lafayette*

THE OLD "TWELVE" AND THE NEW 22 B.H.P. CAR AT WINDSOR CASTLE

That the King may live long to enjoy the pleasures and advantages of a form of locomotion to the popularising of which his gracious support has been of such inestimable value is the loyal wish of every automobilist.

G. F. P.

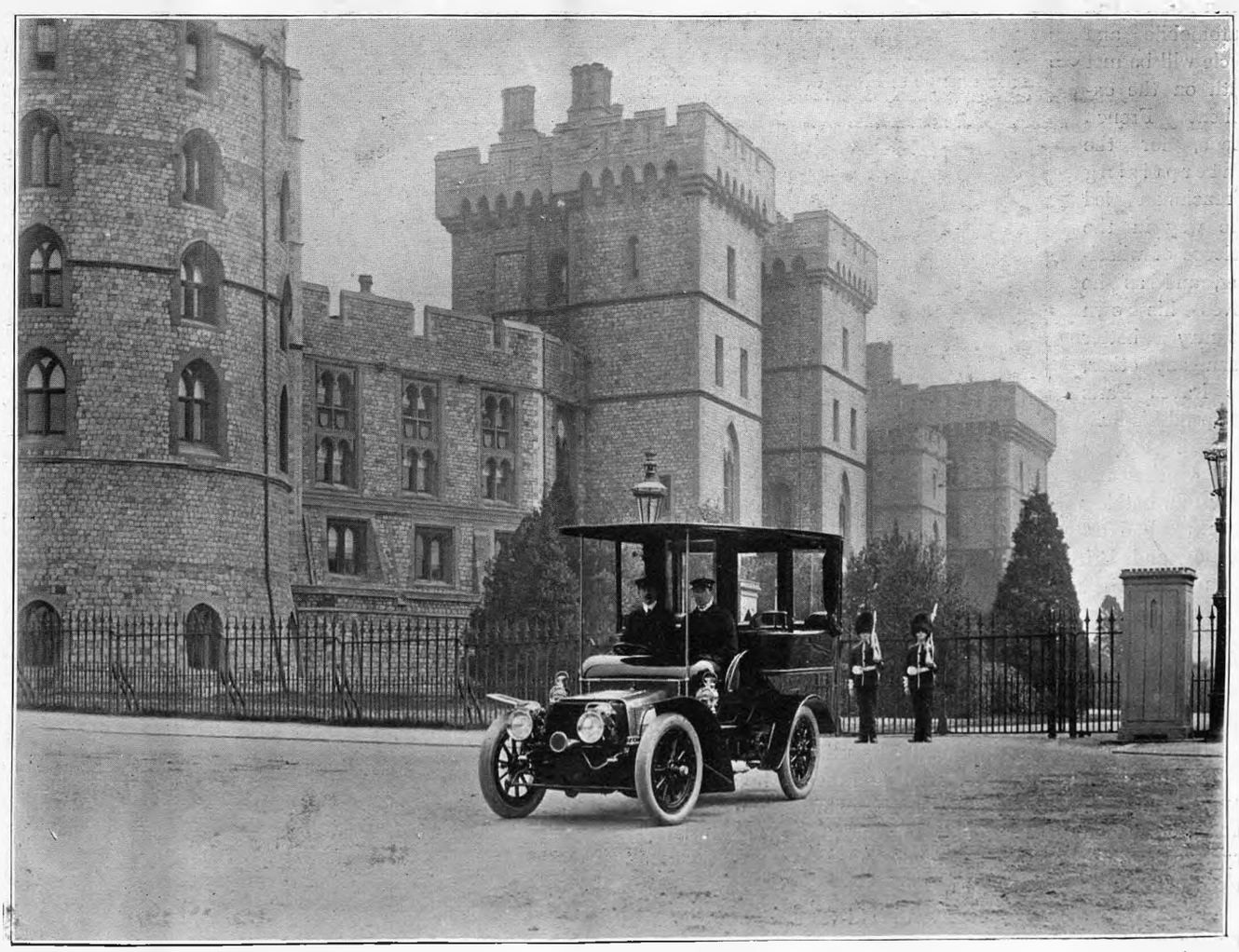


Photo. by] [*Lafayette*

THE KING'S NEW CAR IN THE CASTLE GROUNDS

A TOUR IN NORMANDY AND BRITTANY.

ONE of the best starting-points for a motor tour in Normandy and Brittany is Havre, and the crossing by London and South-Western boats, leaving South-

BRETON WOMEN WASHING

ampton at midnight, takes about seven hours. Every description of automobile and cycle will be met with on the excellent French roads, for the enterprising Frenchman led the way in the science of wheeling, and as he loves his own country better than any other, he leaves Paris to spend his holidays in touring and visiting the beautiful bathing places of Normandy and Brittany, which are always so bright and animated in the summer months.

FISHERFOLK ON THE QUAY AT CONCARNEAU

Havre is interesting on account of its fine shipping, whilst at its suburb, Ste. Addresse, there are good hotels and sea-bathing, but there is little to attract tourists, so we will move on to Trouville, either by the boat to Honfleur or by following the road. This favourite resort of Parisians is too well known to need description. Its beautiful sea and sandy shore are ideal for bathers, who find every luxury and amusement at the hotels and casino. During the hottest hours of the day visitors stay indoors, but the dauntless cyclists and automobilists tear along at a splendid pace in clouds of dust.

From Trouville we proceed to the old-world city of Caen, a distance of forty-four kilometres, most of the time in view of the sea. The road lies through many watering-places, including Deauville, Villers-sur-Mer, Houlgate, and Dives-Cabourg, and here one cannot do better than break the journey to visit the beautiful seashore of Cabourg, frequented by some of the best French families. Dives lies two kilometres inland—a pretty town nestling on the hillside, and famous as being the starting-point for the Norman invasion. A list of William's followers hangs in the old church, and the little hotel, "William the Conqueror," is quite unique. The dining-room, panelled and furnished in old oak, has a quaint old chimney-piece, stained-glass windows, and old china and silver ornaments. The garden is a mass of flowers, and a favourite resting-place for wheelmen and women, some dressed for the road, others elegantly got-up.

Caen looks dingy and dull after Trouville and Cabourg, and does not tempt one to linger after exploring its fine churches, of which St. Pierre, with its exquisitely graceful spire, is specially interesting. Bayeux is sixteen kilometres distant, and should be visited for the famous tapestry.

Now we are nearing Brittany, and instead of making for its northern coast by way of Granville and St. Malo, we will strike inland to Rennes, capital of the Ile and Vilaine Department, an important but somewhat gloomy-looking town, the Mordelaise gate being one of its few antique remains. From Rennes we go on to Ploërmel, seventy kilometres distant, with the castle of Josselin near by, a beautiful estate belonging to the Duc de Rohan. Thirty-two kilometres beyond Josselin is Vannes, capital of the Morbihan Department, a very interesting Breton town, where the majority of people wear their

SARDINIÈRES AT CONCARNEAU

national dress. The fine cathedral, old gates and tower, where Oliver de Clisson was imprisoned, are worth seeing, and from Vannes the road on to Auray (eight kilometres) lies through somewhat wild and gorse-grown country.

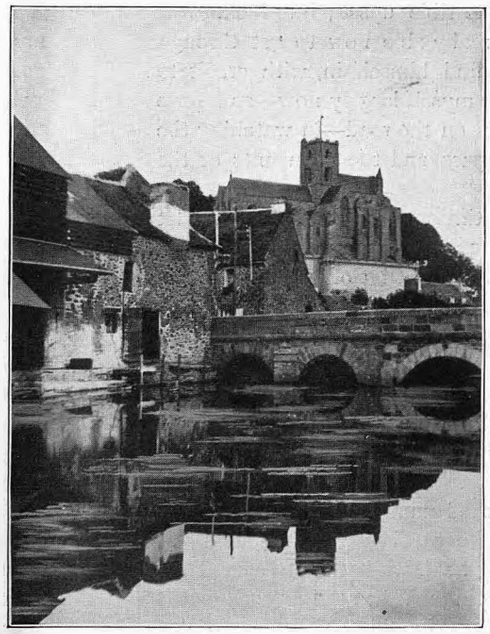
Ste. Anne d'Auray (near Auray) is famous for its "Pardon," held on July 24th, one of the most important religious *fêtes* in Brittany. Passing through the commonplace and modern towns of L'Orient and Hennebont we reach Quimperlé, a charming little town in a wooded valley watered by the River Laita. Its ancient churches are well worth seeing and the whole country round is very lovely, especially at Le Faouët, which is twenty-one kilometres distant.

This idyllic scenery continues to Pont Aven, a spot beloved by artists and containing an excellent little hotel much frequented by French and Americans. From here we continue through delightful wooded scenery to Concarneau, a quaint seaport thirteen kilometres distant. Concarneau is a centre for sardine fishing, and the fisher-people in their Breton dress are intensely picturesque. The old town, built on a rock in the middle of the harbour, is surrounded by ramparts and connected with the mainland by a drawbridge.

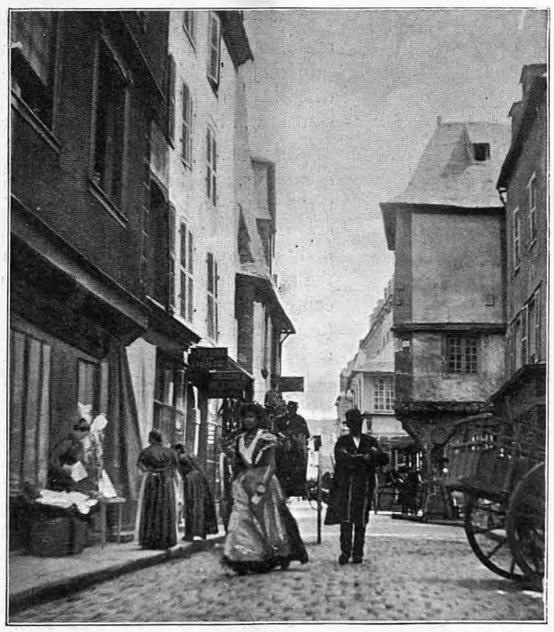
Twenty-two kilometres westward lies Quimper, the capital of Finisterre, with the finest cathedral in Brittany. This pleasant town is a strange mixture of ancient and modern. It has good hotels, and in its beautiful cathedral, whose spire dominates the town, one finds, side by side, fashionable dames and the most primitive peasants from the country round.

We are now arrived at the wildest district of Brittany, known as the Cornouaille, a hilly district of moors and forests and rugged coast. About twenty kilometres from Quimper is Douarnenez, a fishing port of the sardine industry, a picturesque place, visited by many *en route* to Audierne, and the Pointe du Raz, thirty-six kilometres, where the sea in rough weather is unequalled for its awful grandeur. From here one can continue to Brest and Plougastel (noted for its calvary and curious costumes), or take the road by Landerneau and the valley of the Elorn to St. Pol de Léon, once an important cathedral city. Thence to St. Thégonnec with its curious calvary and church, and on to Morlaix. This prosperous town, five miles from the sea, with quaint houses and historical associations, is now remarkable for its great viaduct, which towers overhead, 900 ft. long.

Taking now the road to Tréguier, a fine old cathedral city, fifty-four kilometres from Morlaix, one passes through Plestin to Lannion, where there are some quaint houses and a notable church. This brings us to the north-western corner of the Côtes du Nord. We will follow the homeward route by the northern coast to Brittany, obtaining worthwhile views of the sea and coast on our way.



CHURCH OF NÔTRE DAME, LAMBALLE



OLD HOUSES, DINAN

The next place (nineteen kilometres distant) is Paimpol with its grand bay, interesting on account of Loti's romance, *Pêcheurs d'Islande.* Progressing eastward brings us through very interesting scenery and by small towns, including Etables, Binic, and Pordic, to St. Brieuc, a favourite bathing place. The latter part of the run is down hill for about five kilometres, and then St. Brieuc is approached by a pull up a very steep and dangerous hill.

And now the most quaint and primitive part of Brittany is left behind, as we are approaching the towns on the bay of St. Malo, so largely colonised by English folk. Lamballe is a sleepy little town with a handsome church. Then comes Dinan, nearly sixty kilometres from St. Brieuc, and beautifully situated on the River Rance. Here are good hotels and much to explore in the churches and quaint streets. Dinard and Paramé are too well known to need comment, especially the former, which is very fashionable in the season. If desired the tour may come to an end at St. Malo, from whence good boats cross every night to Southampton, but if possible one should continue the tour back to Caen or Havre.

Leaving St. Malo for Pontorson (forty-five kilometres), we visit the cathedral at Dol *en route*, and from Pontorson cross to the wonderful Mont St. Michel, and on to Granville (forty-nine kilometres) by Avranches, picturesquely situated on a height overlooking the bay of Mont St. Michel. From Avranches our homeward route lies through Caen, and so on to Havre. J. Q.

THE Austrian archdukes are great enthusiasts on the subject of automobiling, and a new proof of their interest has been supplied by Archduke Ludwig Victor, who has presented the Austrian Automobile Club with a handsome silver cup as a prize for the Paris-Vienna event. Prince Galitzine, who lately arrived in Vienna from Paris, is quite satisfied as to the condition of the roads. The prince's car was steered for the greater part of the route by a very youthful lady of fourteen, who with her governess and a *chauffeur* made up the party.

TO own a 16 h.p. Durkopp may be the height of felicity; to sit in it in the torrential rain of a Lincolnshire thunderstorm, with the floor flooded with water, the accumulators given out, and two tubes of the four fitted refusing to heat, is the height of misery. It was the fate, however, of Mr. C. W. Pennell, on his way to the meet of the Lincolnshire Automobile Club at Skegness. Other motorists joined in the run. One arrived from Lincoln absolutely drenched, and tried to enjoy the tea provided at the Sea View Hotel wearing a collar like soaked paper, and that refused to keep buttoned. He shall be nameless. Only the hon. secretary, Dr Cragg, got there "on time" without a spot of rain. Mr. Jevons and Mr. Padley from Market Rasen, Dr. Griffiths from Brigg, and Mr. Parsons Wright, all used De Dions. Mr. H. T. Benson, J.P., came on a new Pick and Mr. Godson was on a Daimler. The next meet is at Belvoir, and it is to be hoped that better weather will be experienced.

MY MOTORING DIARY:

BY CECILIA.

MARCH 20, 189–.

We have been having some splendid runs lately, and Jack is becoming quite an experienced motorist. My confidence in his driving powers was certainly severely shaken after that terrible upset; but luckily *his* nerves were not, and he is really able now to get through any "tight place" he may find himself in, with credit to himself and his car. I amuse myself largely now—as I have ceased to keep straining eyes on the road—in watching the behaviour of the horses we pass and the occupants of the vehicles they drag!

Really it is a comedy at times. The other day we "let her out" a bit, as they say, on a splendidly level stretch of road, and were anticipating a real fast bit of running, when a dog-cart appeared in the dim distance. "D——," says Jack, "that means we must stop and spoil our run, and the engine working so sweetly and well, too;" and so it proved. Frantic wavings of handkerchiefs, &c., went on, and when we got nearer, the horse—poor beast!—was pulled up, and the driver scrambled out, meanwhile furiously signing to us to stop, which of course we did. Oh dear! it was a comic performance; the wretched animal, which was perfectly quiet, was, no doubt to its intense disgust, blindfolded and then led into a neighbouring field, while the driver and his friends patted him all over, saying "Whoa there," "Steady," "Be quiet," &c., but the horse, making the most of his opportunity and feeling grass under his feet, proceeded calmly to eat it! I could scarcely control my intense desire to laugh as we went by, and I am sure that if those people could have seen themselves as *we* saw them, they would have tried to appear more unconcerned.

The really funny thing, though, happened yesterday. On our way to see the L——s we passed through a meet of the hounds. Jack didn't much like it, for he was afraid of some chaff, and he was justified, for several of his friends asked him what he was doing in that "infernal machine." "Sorry, old chap, your horses have all gone wrong," "Lost your nerve for riding?" &c., &c. Jack kept his temper like an angel, but I am afraid I behaved rather badly, for I had noticed a grumpy old gentleman who had held a handkerchief ostentatiously up to his nose at first sight of us, and still continued to hold it as we departed, apparently quite forgetting that no wind blows *two* ways, and if our car had left any smell behind it—which I sincerely hope was not the case—he could hardly perceive it all the time! We managed to get through the crowd of horses, men, and hounds without any mishap, but I shall really be rather pleased when one is greeted a little more cordially than we were to-day. I hear there is some talk of electric cars. What fun it will be to see old ladies with their horses carefully protected from the *smell!*

Yesterday I was rather excited, for Jack let me have my first try at driving the car. He said it wouldn't matter *very* much if I broke it up, for he had ordered a newer and better one; the only bother would be if I broke *myself*, for that would be expensive in doctor's bills, not to speak of the daily creature comforts that Jack would miss! I was rather pleased with the result of my first attempt, though I found it rather hard and difficult to "change speeds," and Jack got impatient when I couldn't manage it quickly, as he said I "burred the cogs," whatever that may mean. I shall know, though, some day. I got very hot and rather cross sometimes, but did *not* go into the ditch. We were very near it sometimes though, for in my frantic efforts at "changing" I quite forgot that my other hand was left in sole charge of the tiller, and several times I found myself perilously near the edge of the road and had to put my right foot—the left was fully occupied—on the brake as hard as I could. Certainly motor-driving requires some "head," for it seems to me that all one's arms and legs are doing different work! and it is difficult to remember what they *ought* to be doing. It is very obvious that if I am to drive a car I must understand its works and mechanism. If anything went wrong, and I had no *chauffeur* with me, what should I do? It is quite possible that even if I understood all about the engines I should not be able to rectify anything wrong, but still I should know what part of them needed mending. I am going to have some more experiments in driving, with Jack's leave, and hope that some day I shall be quite an experienced *chauffeuse*.

What fun it will be to see the faces of my friends when I turn up at their doors driving my own car! I hope I shall always manage it "in style," for I want to do every credit to automobilism. It would never do to smash their pet iron gates, or run up against a pillar at the front door, or even to spoil the well-kept grass edges of their drives. These things would all bring discredit on motors, and would harden the prejudice of a wavering convert to this most exciting, amusing, and useful of all new movements.

We understand that the municipality of Dieppe and the directors of the local Casino are organising an automobile day for the latter half of July, whilst at Deauville they are planning a couple of mile trials at a month's interval. Only those taking part in the first contest will be permitted to enter for the second event.

Charles N. Schwab, the Steel King, has recently become a *chauffeur*, and has even taken a liking to high speed rates, finding that his car—a Mercédès capable of doing 100 kilometres an hour—is scarcely fast enough. The chairman of the Steel Trust has accordingly commissioned at Cannstatt a new vehicle capable of attaining the phenomenal speed of 145 kilometres an hour. The purchase contract stipulates that the price of the car is to be 12,000 dollars (60,000 francs), with a further payment of 5,000 dollars if the car satisfactorily accomplishes the promised speed.

ADVICE AS TO MOTOR-CARS.

"WHICH SHALL I BUY?" is a question which hundreds of people are now asking themselves when contemplating the acquisition of a motor vehicle. In the majority of cases the prospective purchaser has no previous knowledge of automobiles, and has perhaps no experienced friend whom he may consult. Naturally he is bewildered by the immense array of cars of all types now before the public, each claiming to be the best.

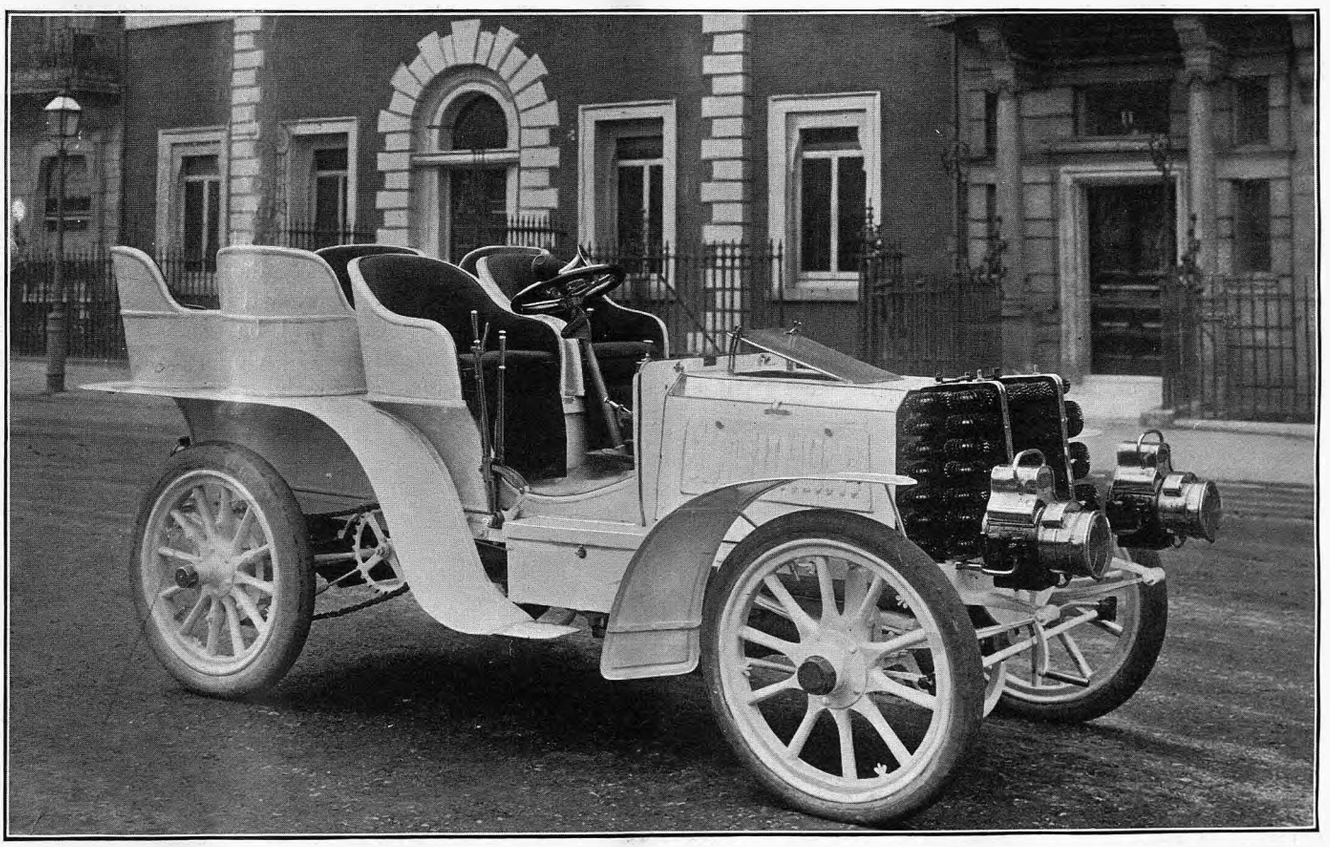
To every reader of THE CAR we make this offer: On receipt of the necessary particulars as to the price which the reader is prepared to pay, the average speed at which he desires to travel, the nature of the road surfaces and gradients in his district, &c., we will advise him as to the most suitable car for his requirements and the best equipment as regards the make, type, and diameter of the tyres.

The staff of THE CAR has no mere passing acquaintance with motor vehicles; every member of the editorial department owns and drives his own car, and has had practical experience of many other types, as well as being conversant with the exhibits at all the great shows in Paris and London from the commencement of the automobile movement to date.

MOTOR-CARRIAGE DESIGN:

BY H. J. MULLINER.

THE carriage-building, or body portion, of a motor-car is, I think, worthy of more general study and thought by manufacturers than are usually allotted to that portion of the automobile. Although the reliability and design of the engine and underworks are, of course, the chief things to be considered in the manufacture of a motor-car, yet the general comfort and utility for which the *chassis* is designed must not be lost sight of. Anyone who has made long journeys must realise the value of a comfortable seat and a restful position. Speaking also from a trade point of view, the first impression of an uninitiated novice when he enters the sale-room of a motor-car manufacturer is chiefly derived from the general appearance and outward effect of the whole car as it stands before him. Hence, both from an automobilist's and a salesman's point of view, too much attention can hardly be paid to the general appearance and comfort of a car.



A 40 H.P. PANHARD WITH MULLINER BODY

In building a body there are four main points that must not be lost sight of—lightness, strength, comfort, and elegance. Taking an ordinary touring carriage such as a 10 h.p. Panhard or an 8 h.p. De Dion, let us consider for a moment how we can best set to work to take full advantage of the space at our disposal, at the same time keeping before us these four cardinal points.

The first problem that arises is, What material shall we use in order to ensure the greatly-to-be-desired lightness? There are two materials which are in general use at the present time, wood and aluminium. Wood is too heavy and does not readily lend itself to the obtaining of graceful curves which are so essential to an elegant car, while to make a body entirely of aluminium, on the other hand, is not, in my opinion, correct practice, though this is, I admit, a point open to debate. There is with aluminium considerable danger lest the vibration of the engine and shock of driving on rough surfaces should make the rivets work loose. I have found from long experience in the manufacture of every type of body that a combination of the two materials is best, that is to say, wooden framework with aluminium panels and mouldings. Of course this must be strengthened throughout with necessary steel corner and angle plates.

With respect to the comfort of cars, very much depends on the manufacture of the frame and underworks, especially as regards the carriage springs, and I must say that a great improvement has taken place of late in these parts of the car. Coupled with this, of course, is the need of thoroughly well-made spring cushions both for the seats and backs, which should be stuffed with the best horsehair. Elegance is a matter of opinion, and tastes change as they become educated. It is merely a question of training the public eye to appreciate true lines of beauty and to admire curves which go to make up a graceful whole. When motor-cars were first introduced anything was thought good enough to put on the frame in the shape of a body, and one saw the horse-drawn vehicle adapted for this purpose. Yet, however comfortable and graceful a horse-drawn vehicle may be, it is utterly unsuitable for mechanical locomotion, and I think one ought to get as far as possible away from the appearance of a horseless vehicle.

Lately distinct progress has been made from conventional horse-drawn patterns, and of all the types now

running I think the tonneau is the most graceful, comfortable, and practicable on the market. One important advantage of the tonneau is that it may be made detachable. That is to say the two back seats may be made separate from the front seats, so that all the rear portion of the carriage work above the frame may be removed, and in its place a tool box or luggage-holder can be fitted. By this means, when wanted for two persons only the car may be very considerably reduced in weight and consequently accelerated, while when wanted the rear seats convert the car into a comfortable touring carriage with ample room for luggage and passengers. Again, if a small omnibus top be fitted to the tonneau it is converted into a comfortable closed carriage for evening work. Thus it is feasible with this one type of body to combine all the advantages of three separate vehicles.

To those people who have lately received their new cars I would like to offer a few words of advice as to the maintenance of the carriage portions. Of prime importance is the rule that the car must always be washed with plenty of clean cold water and that the washing should be done immediately after the completion of a journey. The mud and dust ought never to be left on the car long, as delay inevitably involves the ruination of the paint-work. Secondly, the car having been washed all over with a hose-pipe, it should be carefully wiped over with a sponge and leather and then the metal-work should be properly polished. If these three things are done carefully and regularly, the car will maintain for a long time its original beauty, but if neglected the deterioration of even the highest class of coachbuilders' finish will be rapid, and a costly vehicle will speedily become shabby with ineradicable stains.

WHY CHOKE THE EXITS?

THERE are many new schemes for tramway extensions in and around the suburbs of London before the House of Commons this year. Motorists, bicyclists, and other users of the road should realise that if these schemes are carried out in their entirety there will practically be no free exit remaining to and from the west or south of London, for almost all the main roads will have been monopolised for the purpose of tramlines.

The project, for instance, put forward to lay a tramway over Hammersmith Bridge, and then past the reservoirs and Mortlake towards Richmond, is particularly objectionable. The Hammersmith Bridge portion has already been thrown out by the House of Commons committee. But the rest of the route is still *sub judice*. Automobilists have no objection to tramways if the roads upon which they run are sufficiently widened so as to add to the road the space taken out of it by the introduction of the two sets of rails. The proper policy for Parliament to adopt would be to compel the tramway companies desiring new routes through the suburbs to take up fresh ground altogether, leaving the old existing roads for use of the present traffic, which is always increasing. In twenty years' time the traffic on these roads will probably consist mainly of automobiles, and these tramways in their turn will be superseded by the introduction of motor omnibuses.

Automobilists and all those interested in preserving free exits from London should approach their local members, with a view to putting a stop if possible to this absorption of the public highway by private companies without adequate widening. Tramways are an undoubted boon to overcrowded districts where there are inadequate services of trains or omnibuses, but in any case they should not be allowed to further encumber the already far too congested traffic. There is a growing feeling amongst many members in the House of Commons that some alteration in the law must be made upon this question, and a small committee is about to be formed, consisting of representatives from all sides of the House, to consider the desirability of watching over, and if necessary opposing, these new schemes, which will be so destructive to the carrying power of the existing London highways, and should be nipped in the bud accordingly.

Photo. by] [*theBiograph Studio*

TWO "COUNTRY GIRLS" ON AN 8 H.P. BRUSH CAR

The above illustration represents Miss Nina Sevening and Miss Edwardine, of the "Country Girl" company, on a new 8 h.p. two-cylinder Brush car. The photograph was taken in Battersea Park

HEALTH AND THE MOTOR-CAR:

BY DR. F. W. H. HUTCHINSON.

THE fact that motor-car driving exerts an extremely beneficial influence on the health of those engaged in it is one that is obvious to all who have any experience of the matter. But it is well for the benefit of those who have not such experience to insist on the fact, and in any case it is a matter of general interest to consider a few of the causes of such influence.

The lungs and air-passages are part of a mechanism by means of which waste products of bodily action are excreted (the "exhaust" of the body, to use an engineer's term) and by means of which fresh oxygen is conveyed to the blood-stream which carries it over the whole body. It is necessary to the various living mechanisms of the body in the essential process of converting stored-up energy into actual work. The lungs are in fact a sort of carburetter, and unless the air supply is sufficient the bodily engine in its amazingly complicated parts will not work satisfactorily. When the air we breathe is impure, that is to say charged with poisonous gases and with extremely minute organisms, many of which are capable of living in fluids of the body and causing disorders owing to their excreta (which with other poisonous bodies go by the general name of toxins) being poisonous, we are defended from these hurtful agencies by a certain vital mechanism. This is of an extremely complicated nature, at present only partly understood, of which the function is to eliminate these poisons and destroy these micro-organisms. If it were not so none of us could live half a day in a town, or even in the open country of most parts of the world.

Photo by] [*Mason & Basébé*

DR. HUTCHINSON ON HIS 10 H.P. BENZ

Part of this mechanism consists in the power, possessed by certain of the corpuscles of the blood and also by the individual living elements (*i.e.* the cells) which compose the linings of the air-passages and lungs, of chemically acting on those microbes which become adherent to the linings and of actually eating them up. Sometimes, as in cases of tuberculosis of the lungs (or "consumption"), some forms of bronchitis, and other diseases, including probably the common "cold," the microbes multiply in the lining membranes faster than they are destroyed, and if a process does not occur by which they (or their toxins) are destroyed the person dies of their effects.

Again, a person may breathe habitually such large doses of poisonous gases, or receive such quantities of toxic substances into the system through having to deal habitually with large numbers of microbes, that the whole mechanism of his body is in a varying condition of chronic poisoning, which causes headaches, anæmia, languor, and the like. In motor-car driving not only is one breathing, generally, comparatively pure country air, but, especially in fast driving, more oxygen is brought to the lungs in a given time owing to the velocity of travel.

It has been computed that, roughly speaking, eighty per cent. of the dust of towns consists of dried excreta of horses, and the effect on the general sense of cleanliness in towns due to the removal of this will make the town of the future a very different place from the town of to-day. Comparatively few people realise the fact that we are situated not unlike those crayfish that one may see moving slowly about at the bottom of an aquarium in water partly opaque with the *débris* of various forms of dirt floating around, as we move about our more or less dusty business at the bottom of the immense ocean of the atmosphere. But with the general use of the motor-car instead of our present vehicles with an elementary and archaic type of locomotion adapted more for jumping over boulders and ditches than for transit on civilised roadways, our standard as to the necessary cleanliness of the air we breathe will become both healthier and more æsthetic. Probably then people will cease to regard as unpleasant dispensations that we cannot avoid those influenzas, colds and sore throats, &c., which afflict us with such painful regularity more especially every winter when windows are by most people closed with superstitious care. It is to be hoped and believed that in those luminous days public opinion will condemn and punish the creatures who blow their noses over their fellows and provide as unavoidable concomitants to the ordinary business of life chance-ventilated rooms and railway carriages.

On the subject of draughts and colds, the writer well remembers a dictum of the late Sir George Humphrey of Cambridge, when he was a pupil of that distinguished surgeon—that "draughts are very healthy things if you can stand them." To catch a cold or influenza two things are necessary—(1) the presence of the microbe in the air breathed, (2) inability to cope with the microbes on the part of the mechanism that exists in the respiratory tract for their destruction. Hens are normally immune from cholera, but if they have been chilled by having been caused to stand with their feet in cold water for some time they succumb to the effects of the cholera *Vibrio*, the organism of cholera. This mechanism, like the whole body, may be subjected for prolonged periods to contact with a medium

at a temperature very much below its own normal temperature and still preserve its normal temperature so long as the body is strong and healthy. This is due to a mechanism called the "thermogenic" mechanism, by the action of which the body temperature is under such conditions kept up by automatically increased oxydation. And in this connection it may be remarked that it is probable that, other things being equal, it is more difficult to "keep warm" in an atmosphere deficient in oxygen than in pure air of the same temperature. A draught of pure air, even if it chills the air-passages, will not *per se* cause a cold (though it may cause a slight temporary running of the nose, which is not of the nature of an infectious cold), but a cold will be produced if before the respiratory defensive mechanism is again in order microbes obtain a lodgment. If a person has been thoroughly chilled by exposure to the weather in clean air the safest course is to avoid crowded ill-ventilated rooms till one is again warm. The only ordinary atmospheric draught which is *per se* dangerous is a draught of infectious air from inside an ill-ventilated building. (It may here be remarked that for the abdomen and loins to be chilled is extremely dangerous.)

The writer well remembers some years ago when on a bicycling tour how he became soaked with rain up in the mountains and how he rode for some hours till he arrived at an hotel, at which he met a party of friends who had driven over and had arrived dry. Although cold and tired he felt perfectly well. Dinner was nearly ready and after merely making himself tidy he sat down to it with wet feet and clothes in the ill-ventilated dining room. He had not been there five minutes before he began to feel feverish with a throbbing headache, and his pulse and respiration became quickened. One of his friends, with concern written on his face, commented on his flushed, bright-eyed appearance and said he looked as if he was going to have rheumatic fever and advised him to go to bed. Instead of doing so the writer immediately went out of doors, put on an overcoat, and sat under a verandah, whence he looked on very comfortably at the rain and enjoyed a cup of cocoa well sweetened with sugar. Sugar is an important foodstuff and is particularly useful to supply heat to the body in case of exhaustion from muscular effort. In five minutes he felt perfectly well again, and when he felt warm and rested, which he did in about half an hour, he returned to the insanitary dining room and breathed the microbes and dirt with impunity for a couple of hours.

In driving a motor-car many things are done which are of the nature of exercise. I do not refer to such exhilarating pursuits as turning the handle when the carburetter is flooding, or that other wire is broken (not the one we looked at first), or skinning one's knuckles working at some ingenious but occasionally intractable experimental tyre. They furnished their pleasure, mixed with pain, in the early days, but are regarded now by old hands as out of date. I am told that they never occur. But the continuous observation, attention, reflection, and quick formation of judgments and the quick acting upon them which take place in driving a car, and especially a fast car, all mean that bodily machinery is working. A visual image received on the retina occasions nervous impulses which are conveyed to certain parts of the brain, where an impression is registered and impulses sent to other parts of the brain; a sort of consultation may be said to take place between groups of cells that are the physical bases of past experiences, a course of action is decided on, and impulses are transmitted to the cells of that part of the brain concerned with motion, and from there the most amazingly exact impulses are sent in ordered sequence to the muscles. A description of the variety of this mechanism would fill a treatise. It must suffice to say that the intelligent overseeing of the working of an engine combined with the quick change of scene and the varying interests of motor-car driving have effects on the whole nervous mechanism of body and brain whereby healthful rest of the parts more in use in everyday life, and exercise and development of those that may be in danger of deteriorating from disuse, tend most emphatically to produce the *mens sana in corpore sano*. Motoring is in fact a sport, and a sport not involving cruelty; one giving scope for some of the very highest intellectual capacity, and that is capable of giving a training of no mean order in such virtues as caution, courage, resourcefulness, carefulness, quickness, and endurance.

The skin excretes water in varying quantities, by the evaporation of which the temperature of the body is prevented from rising beyond about 98¼ degrees Fahrenheit, at which temperature the bodily machine is adapted to work in health. It also excretes certain waste matters many of which are of a toxic nature and are harmful if they enter the system. Part of the stimulating and reviving influences of motor-car driving are due to an aeration of the skin.

Although the body should be specially warmly clad for motor-car driving, yet it is of importance that the clothing should be as efficiently ventilated as is possible compatible with the purpose it has to serve. Our ordinary garments keep us warm owing to their being made of more or less non-conducting material and also owing to their retaining about us air held in their folds and in their substance. Still air does not readily carry heat away. These do not suffice when we have to face a strong wind for any length of time; and for resisting a gale in cold weather it is absolutely necessary that outside woollen clothing, with its air spaces, there should be a covering which is more or less impermeable to the wind. Yet for motor driving it is best to have this of a more porous construction at the back than in front. A coat which is double-breasted may fulfil this requirement. Garments on the inside of which moisture would be visibly deposited were it not for a woollen or fur lining which may merely soak up the moisture and prevent its being seen are better avoided.

Motor-car driving at a speed "well up to the legal limit" is well suited to the health of many delicate persons and convalescents who are unable to take violent exercise. It is specially suitable to those with consumptive tendency or those actually suffering from phthisis, to cases of sleeplessness, "liverishness" (which is generally caused by errors of diet), in which cases of course the diet should be altered, the ordinary type of bad digestion and loss of appetite, anæmia, some forms of asthma, nearly all cases of the ordinary "cold in the head," and for persons who are suffering from worry and require their thoughts to be carried into pleasing and interesting channels. The delightful sense of perfect control of a great power as a fine car springs forward at the lightest touch and bears its passengers on soft cushions past hill and wood and gleams of flashing water has a tonic and a soothing influence which once experienced is never forgotten.

THAT mighty *chauffeur*, the Shah of Persia, arrived at Contrexeville a week ago to take the waters, the course having been recommended by his doctors. His chief engineer, M. Marnay, left Paris on this account a day or two ago, to put himself at his master's disposal in case his Majesty should decide to explore the Vosges on his car.

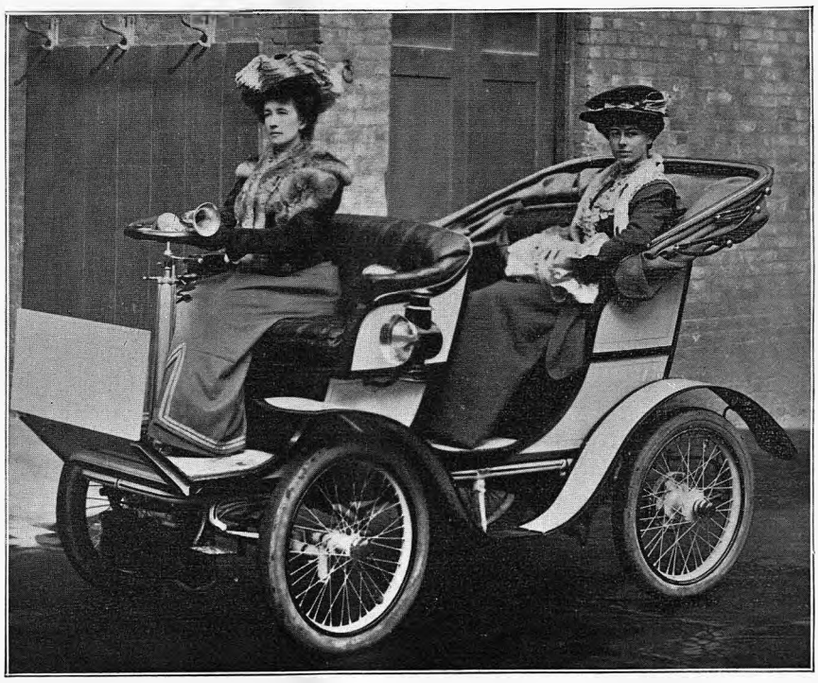
A NEW motor club has just been formed at Blackburn, under the name of the "North-East Lancashire Automobile Club." It has a nucleus of upwards of thirty members. Sir Harry Hornby, Bart., M.P., is the president, and the following are vice-presidents: Messrs. William Birtwistle, J.P., of Blackburn; S. Briggs-Bury, of Accrington; Arthur Cayley, of Salesbury; William Garnett, J.P., of Clitheroe; and Herbert Whiteley, M.P., of Blackburn. The hon. secretary is Mr. Geo. D. Walmsley. The club held its inaugural run to Clitheroe on Saturday.

CARS AND HOW TO DRIVE THEM.

No. III.—THE DE DION-BOUTON. By Roger H. Fuller.

IN point of numbers the firm of De Dion-Bouton et Cie., of Puteaux, Seine, are the largest manufacturers of the modern light automobile, there being over 500 of their voiturettes and light cars now in use in the British Isles, and the firm have sold 26,000 of their motors from ¾ h.p. to 10 h.p. It is, therefore, not surprising that dozens of motor-car manufacturers have adopted the De Dion-Bouton motors for their cars, thereby being undoubtedly assisted over one of the most difficult problems of automobile manufacture. I counted no fewer than fifteen exhibitors at the recent Automobile Club Show who had adopted the De Dion-Bouton motor. The 4½ h.p. voiturette being most widely used, a few words on driving and learning how to manage this type and on the treatment of roadside troubles may prove useful to many beginners. A De Dion is generally admitted to be easiest of all cars to learn, and is very suitable for ladies to manage. A beginner can hardly do much damage to the mechanism by ignorance and incompetence; in fact I have often heard the remark made that the De Dion 4½ h.p. car is almost "fool-proof."

Starting the Motor.—Some critics describe the starting of a De Dion motor as difficult, but if the proper method is adopted nothing could be more simple. Retard the sparking lever as far as possible, and having switched on the current and placed the carburetter lever in a central position, rock the starting handle once or twice, and then with two or three brisk revolutions the motor will start. If it does not do so it is no use winding the handle like that of a barrel organ. Open the compression tap, and if after two revolutions the motor fires, close the compression tap and the motor will certainly start on the next attempt. I am, of course, assuming that the ignition is in proper order, the petrol turned on, and all else in order.



A PRETTY DE DION PHAETON

Dry Batteries.—The genuine De Dion dry battery I have found to be most reliable for these cars up to 2,000 miles, and in some cases up to 4,000 miles. It requires no attention, which is a great advantage in touring, and in replacing any parts, such as plugs, batteries, tremblers, set-screws, &c., it is always best to get the genuine article from the makers.

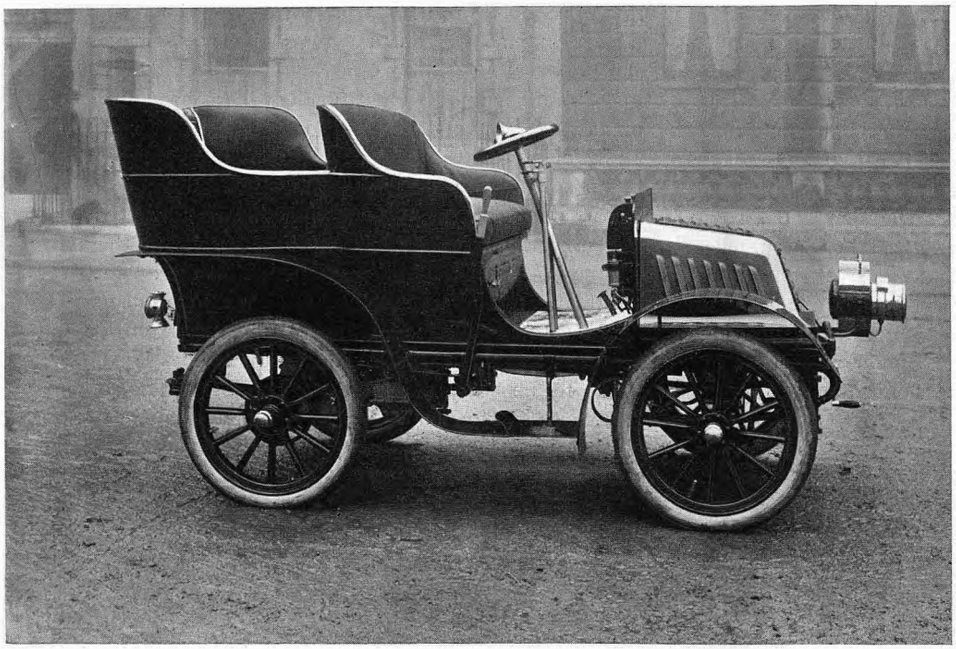
Changing Speed.—In learning to drive proceed at first on low speed with the ignition only slightly advanced and the left foot on the exhaust-valve closer, that is the pedal on the floor of the car. This will tame the motor down for traffic and allow you to proceed at eight or ten miles an hour on the low speed, when, having gained some confidence in steering, you can move the speed-change handle sharply over to the high speed. A little practice will soon make the beginner know when the high speed can be put in, as the ear is very quick to detect if the motor is running at sufficiently high speed. To check the speed of the car the foot pedal should be used almost entirely and the spark lever retarded until the car slows right down. To stop altogether the speed lever must be brought to the out-of-gear position and the brakes applied. By the exhaust-valve pedal and the advance sparking device a great variety of speeds can be obtained, namely, from three to thirty miles per hour, and the revolutions of the motor can be controlled so as to be increased or decreased at will to a nicety. Simplicity is the standard aimed at by the manufacturers, so that the whole arrangement in the hands of a novice cannot come to much grief.

For Cross-country Use.—The 4½ h.p. voiturette for two or even three persons is speedy, its hill-climbing powers are hard to beat, and it is preferred by many who cannot afford a more costly car; it gives satisfaction to its many users, being inexpensive, easy to obtain, and not costly in maintenance charges. Fifty pounds a year, including tyres, will be found to be the average yearly cost. I have found touring in remote parts of the country on these voiturettes for two persons and some luggage preferable to using a big car. You can bang the little car about over gullies, patches of stones, up mountain paths, through streams, mud, across grass fields, &c., and as the 4½ h.p. weighs but 8 cwt. you get no tyre troubles to speak of. Nails cause ninety per cent. of the punctures.

Regarding the new 8 h.p. light car which is now seen about in considerable numbers, the motor is now placed in front, and is as simple in every respect as the 4½ h.p., and the same instructions apply in regard to driving, changing speed, &c. A pump with a four-way cock is provided for lubrication of the motor, speed-change, differential gear, and tank, but apart from this several grease-caps and oil-holes require the attention of the beginner. The motor is easy to start by holding down the protruding button on the dome over the inlet valve and releasing suddenly on the upward stroke of the starting handle.

Wooden wheels and 85 mm. tyres replace the wire wheels on the 4½ h.p. Personally I like wire wheels on all light cars under 10 cwt., for you can on them replace broken

spokes easily. Very powerful brakes are provided, which require proper attention and adjustment, as they will hold the car on any hill, preventing it from running back. Sprags are useless. If the car fails to mount a stiff hill slip in the low speed and put on the brakes; this will hold it on any gradient. Learn to understand all parts of the car yourself; be guided by your own experience and common-sense.



AN 8 H.P. DE DION

Do not try experiments; you will probably find that your particular fad has been already tried by the makers and abandoned.

BRITISH v. FOREIGN LOCOMOTIVE PRACTICE.

IT is with somewhat of dismay that one is forced to a realisation of the fact that Great Britain—once standing alone—has been gradually losing her supremacy to American and Continental practice so far as locomotive speed is concerned. Of late years, in particular, France has been making an unmistakable upward stride, and has now established herself in the front rank. Only lately there has been announced a record in her record of express train service (perhaps the best in the world) which speaks for much. The celebrated Paris-Calais run is scheduled to accomplish the distance of 184½ miles in three hours, notwithstanding the four minutes' halt at Amiens and the great "slowing down" in passing through Calais town to the pier, this train, having an average speed of 61½ miles per hour, being undoubtedly the fastest long-distance train on either continent, exceeding by seven the celebrated Empire State Express, the fastest long-distance train in America.

The forty-five express runs of the Nord Railway at average speeds of over fifty miles an hour pan out as follows:—

25 (of the 45)	at over	52	miles	an hour.
14	„	„ 53	„	
11	„	„ 54	„	
8	„	„ 55	„	
5	„	„ 56	„	
3	„	„ 57	„	
1	„	„ 60·5	„	

In Great Britain at this distance we have unfortunately nothing whatever to compare with this, nor in fact a single regular train timed as fast as fifty-six miles an hour, and only six (of which three are on the Caledonian, two on the Great Northern, and one on the North-Eastern) timed at fifty-five. As is generally known, there is practically but one system in France, namely the compound kind designed by M. de Glehn, the Administrateur Directeur of the Société Alsacienne de Construction Mécaniques, this varying in a few minor details and dimensions to suit the different lines, but being the standard type on every French main line. The four-cylinder compound engines of the ten-wheeled six-coupled type (as employed on the Chemin de Fer du Nord) have enormous boilers with 1,950 sq. ft. of heating surface and a grate area of 24·4 sq. ft., high-pressure cylinders of 13·8, low-pressure cylinders of 21·6, with a piston stroke of 25·2.

The whole secret of their power of achievement lies in the fact of their larger heating surface, which is invaluable for hill work, the high average, be it noted, being attained not by work on the level or on falling gradients, but on the fast running up gradients. It is precisely here that we differ from French practice. With an equal load behind their engines our continental neighbours take the up gradients at a high pace whilst we invariably slow down. This is entirely due to their employment of the large boiler. As abroad bridge and tunnel gauge is higher than in Britain it has been found possible to construct engines having up to 2,500 ft. of heating surface.

In Great Britain there exists on this point much difference of opinion among locomotive engineers, as also on the question of compounding, which we do not here propose to discuss. Although so long ago as 1847 Sir Daniel Gooch gave his celebrated broad gauge engines 1,952 sq. ft. of heating surface the retrograde movement which appears to have ensued would seem only to be checked in quite recent years.

That of late there has been a tendency to the larger heating surface is undeniable, but this has been mainly owing to the remarkable results achieved on the Lancashire and Yorkshire and by the four-cylinder compounds of MM. de Glehn and du Bousquet above mentioned. Mr. Dean's latest Great Western types have vast boilers with a computed heating surface of 1,500–1,600 ft., but as these engines have the corrugated Serve tubes, a special method of estimation is rendered requisite.

It is pleasant to note that on his "720" type (London and South-Western) 1,750 sq. ft. of heating surface are allowed by Mr. Drummond, whilst Mr. Aspinall's famous "1,400" of the Lancashire and Yorkshire has no less than 2,052 sq. ft. It is also understood that Mr. Dean (of the Great Western) is likely, in the near future, to turn out some specimens which will eclipse his previous record in connection with boiler capacities. Taking into consideration the consumption of coal and lubricants with the question of durability, it may emphatically be stated that the British locomotive still holds her own in everything save the one thing, which is fast on the road to rectification.

THE two-cylindered Brush car was incorrectly described as a voiturette in our last issue. This is not so, the car in question belonging to the "light-car" class, with the 7 h.p. Panhard and others.

CARS AT STAFFORD HOUSE.

STAFFORD HOUSE cannot be classed as a country house in the same way as Holland House, though the surrounding uninhabited area is larger. The difference lies in the fact that St. James's Park and the Green Park are open to the public and jointly form one of the "lungs" of London—green spaces with trees, but not nearly enough developed for the purposes of recreation and amusement for the general public.

Stafford House was originally intended for a royal building, for about one hundred years ago the Duke of York, son of King George III., made up his mind to build a new house, and he eventually decided to build on the ground on which Stafford House now stands a palace which should rival if not surpass the older palace of St. James's which lies next door. The original design of the house has been somewhat altered, as one sees it to-day, from the original plans of Wyatt, who built a good many houses about that time. Before the completion of the building his Royal Highness died, and his affairs were discovered to be in such a bad state that the selling of Stafford House was found to be unavoidable. And then it was that the first Duke of Sutherland took over the unfinished building and completed the house, making some alterations in the design, and thus it passed into the hands of the Leveson-Gower family.

The second Duke of Sutherland, finding the accommodation insufficient, added another floor, but except for slight internal alterations there has been no further change made since that time. The freehold of the ground belongs to the Crown, and in less than thirty years the lease falls in, and yet another magnificent London house will be at the disposal of the King. So long as royalty itself does not live there, no more fitting tenant can be imagined than the present occupant.

The duke has always had a passion for engineering, and besides being a director of the London and North-Western and the Highland Railways, the Shropshire United Railways, and the Birmingham Canal Navigation Company, he is often seen on the footplate of a locomotive, and whether on board his yacht in the Solent or amongst the Highlands, mechanical matters have always a great charm for him. At the present moment his stud of cars consists of three Panhards—two 12 h.p. and one 8 h.p. One of these cars was purchased some two years ago, and the others at various intervals since. As a master of foxhounds in Staffordshire his grace constantly uses one of these cars to convey him to distant meets; equally at Dunrobin, in the far north, the cars are used for expeditions to the west coast of Scotland and for shooting and fishing parties. I should imagine that probably Sutherlandshire is the most northerly point of latitude in which a Panhard is used. In the far south we know that these cars are in use in Egypt and Algeria, and it is no mean testimony to a system of mechanical locomotion which, by the way, is used by many other good makers, that it should work equally well close to the tropics and also within a few hundred miles of the arctic circle.

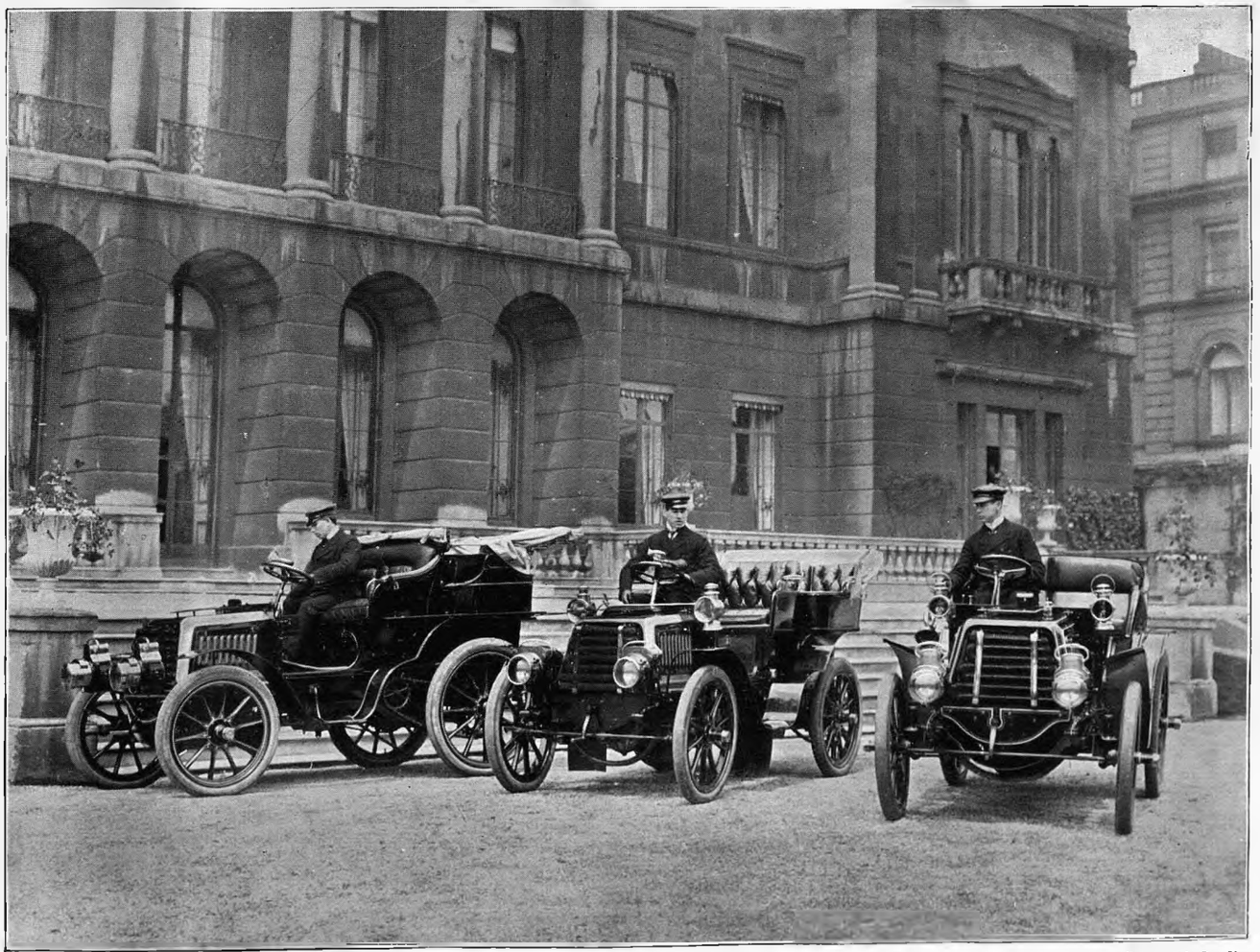


Photo. by] [*The Biograph Studio*

THREE PANHARD CARS IN FRONT OF STAFFORD HOUSE

Photo. by] [*H. N. King*

STAFFORD HOUSE: RECEPTION ROOM

There is a tale, which at any rate is *ben trovato*, that her late Majesty Queen Victoria, when visiting Stafford House, said to the late Duchess of Sutherland, "I come from my house to your palace," a remark which perhaps was more true about Buckingham Palace in those days than now, when it has been so entirely renovated, and in such good taste, by his Majesty's orders. But it should be remembered that whereas Stafford House among its trees is seen to its best advantage when driving past in the Mall, or even from St. James's Park or the Green Park, the view of Buckingham Palace from the same point of view is somewhat gloomy and formal. On the other hand, from the gardens of Buckingham Palace the royal residence is full of dignity, and gives an impression to the eye of spaciousness and comfort. But except on rare occasions when you may be honoured by being his Majesty's guest, this side of Buckingham Palace is never seen.

Photo. by] [*the Biograph Studio*

THE DUCHESS OF SUTHERLAND AND LADY ROSEMARY LEVESON-GOWER

The garden at

Photo. by] STAFFORD HOUSE: THE PICTURE GALLERY *[H. N. King*

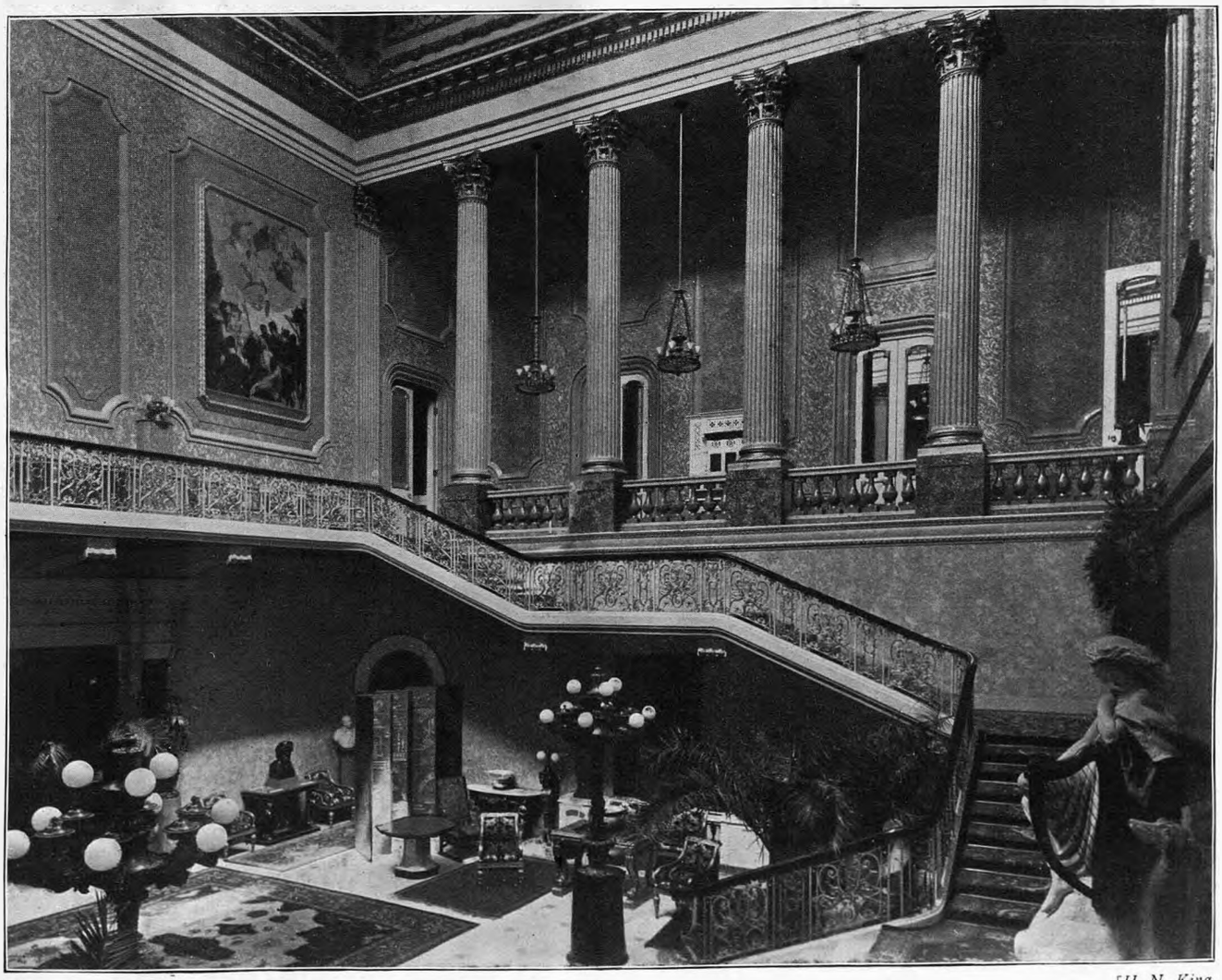


Photo. by] STAFFORD HOUSE: GALLERY AND GRAND STAIRCASE *[H. N. King*

Stafford House, though not to be compared in point of area with the royal garden, is beautiful of its kind. It is well wooded, and what with the outlook on the Green Park to the west, and its own garden to the south, the view from Stafford House may be described as one of the most charming in London. In the very centre of London, and with the busy traffic of the Mall surging by within 100 yards, the hum of the great city is never absent from your ears, suggesting strenuous life, and the never ceasing competition which is always creating and killing for the good of the race.

Whenever there is money to be raised for worthy objects, whether it be for the benefit of Scottish industries, for the good of the poor of the metropolis, or for rescuing the storm-tossed mariner by means of life-boats, the duke and duchess are ever ready to afford generous help by lending Stafford House. The duke's devotion to the duties of his high position is well known. No one takes a keener interest in the welfare of his tenants and his estate, or is more assiduous in doing everything that can be done for their advancement, material and moral. And the duchess not only fills her position as one of the leaders of English society with infinite grace and womanly charm, but is besides one of the most beautiful women of our day, and possesses literary merit of uncommon kind. She has written a record of her tour round the world, and stories of Sicilian and Scotch life also come from her pen. She is also a keen student of politics, and both she and the duke have leanings to what in one age is called "Socialism," in the next "Reform," and finally "Progressive Conservatism."

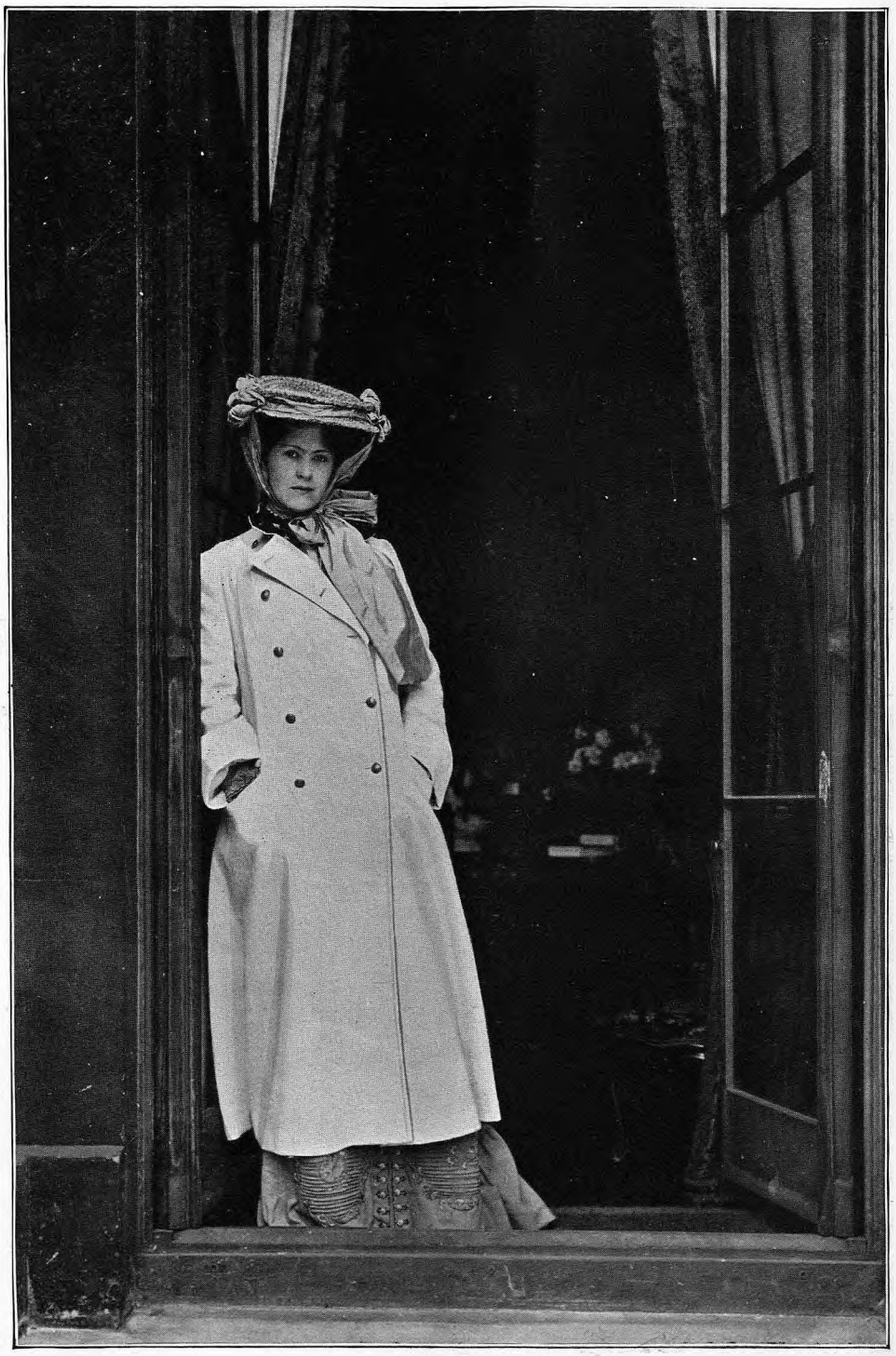


Photo. by] [*the Biograph Studio*

THE DUCHESS OF SUTHERLAND AT A WINDOW ON THE TERRACE

We give in this number a charming picture of the duchess with her little daughter, the Lady Rosemary Leveson-Gower. When this little lady is grown up, motors will most probably be not the exception but the rule on the streets of London, and this photograph may be of historical interest, showing how totally different and out of date were the cars constructed in the year 1902 to the eye of the observer of 1920. But the firm of Panhard were never yet far behind as pioneers, and will probably be represented in the stud at Stafford House at that time just as they are to-day. It is curious to reflect that, to the mind of a child born since 1894, motor-cars must seem quite ordinary vehicles, just as omnibuses and cabs have been to our generation. The little ones of to-day will not see anything novel in their use, but simply witness a great increase in their development.

In the interior of Stafford House can be found as many art treasures as anywhere in Great Britain. Murillo and Vandyck are represented in the red drawing room, and examples of Sir Joshua and Gainsborough hang upon the walls. The great hall through which you enter the house, with its famous staircase, has, perhaps, hardly an equal. The height is that of the house itself, while the breadth of the staircase is such that ten people could easily walk abreast without fear of being uncomfortably crowded.

I must add here one word of praise as to the condition of the duke's cars; they were clean—really clean—and showed evidence of first-class superintendence. His grace's drivers are to be congratulated, and I can honestly say that three cars better turned out I have hardly ever seen.

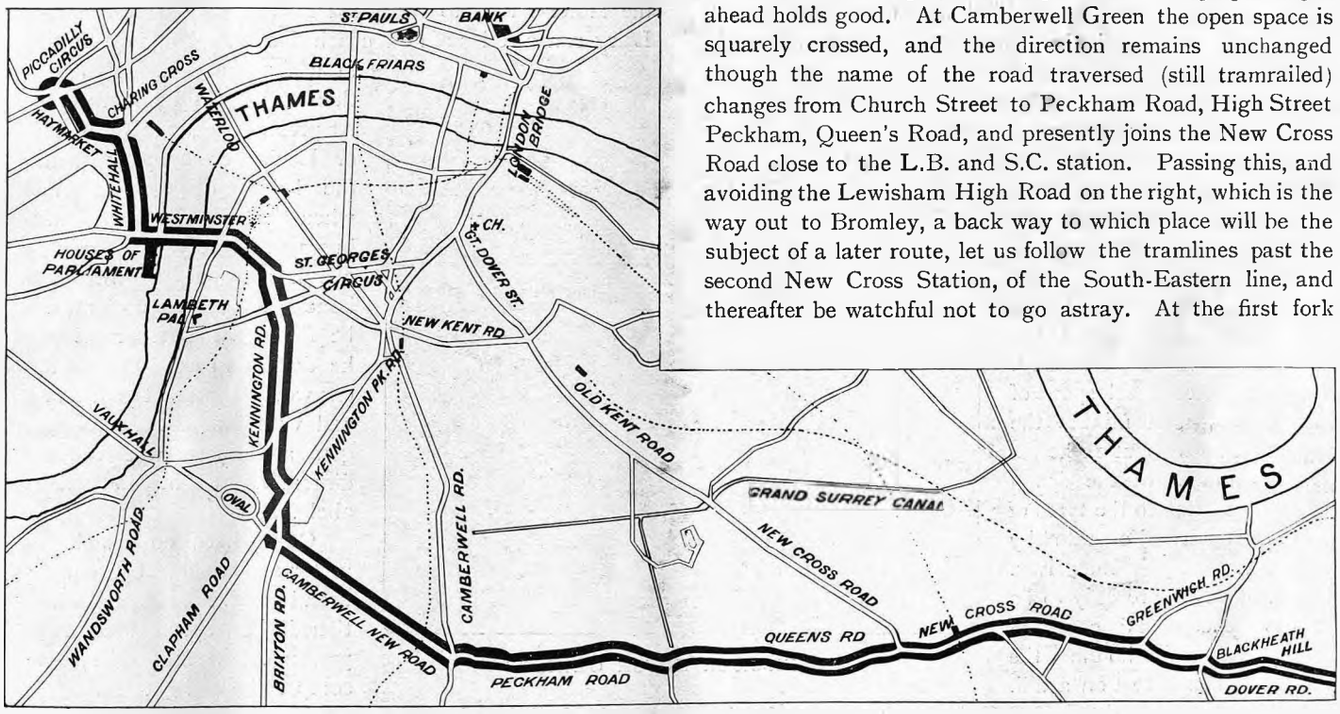
The duchess herself drives to a certain degree, and tells me that she is taking up motoring more seriously every day. If she does so there will be another fair *chauffeuse* to be added to the growing list of intelligent and beautiful women who have taken up this new form of sport, finding it as attractive as any of their former amusements, if not more so. But it will have to be a more than usually beautiful car which will be worthy of her grace, and a fitting setting to her charming personality.

J. S. M.

THE BEST WAYS OUT OF LONDON.

No. V.—TO THE DOVER ROAD.

THE road to Dover is one of the most ancient and well-worn highways in this country. The pilgrimages to Canterbury alone would suffice to invest it with a special historical interest, but even earlier associations cling to it, as a large section of it lies on the line of military road founded by the Romans on the earlier British tracks. The road to London from the Kentish shore, and from London away to the north-west, crossing the Thames hard by the present London Bridge, was the chief highway of the land, the line of march of all invaders. A fragment of this ancient Watling Street remains to this day so named in the City. It is a narrow thoroughfare, no longer in the main line of traffic, and to direct an enquirer for the road to Dover to look for Watling Street and keep straight on would be a ludicrous anachronism. From London Bridge Great Dover Street is reached by taking the uninviting Borough High Street as far as the conspicuous landmark of St. George's Church on the left hand, a tricky corner to the left immediately beyond the church being the only critical point to look out for, and thereafter it is a perfectly direct run, tramlined and unmistakable, by the Old Kent Road to New Cross. The New Kent Road joins in on the right hand as a direct route from Westminster, but the most suitable way for motoring from our accepted starting point, Piccadilly Circus, is to avoid the Old and the New Kent Roads, and not to join the trunk road till New Cross. It is obviously out of the question to go to the City and cross London Bridge, and the New Kent Road only avoids some of the Walworth district. The suggested way, darkened at the edges in the accompanying map, is, it must be confessed, not attractive, but it is decidedly not so bad as the celebrated south-eastern outlet immortalised by Chevalier. The difficulty in dealing with the Dover road is that there is no "trick" way of great desirableness. One cannot find a back way to the north of the road, as the river prevents such deviation, and unless an immense circuit to the south is taken one has to endure a choice of evils, and the least evil way is to go by Camberwell Green. The route from Piccadilly Circus at first follows that already delineated for reaching the Brighton road. By Regent Street, Cockspur Street, and Whitehall, Westminster Bridge is reached and crossed, and the Kennington Road taken to Kennington Park, where one turns to the right for but a few yards, taking the first fork to the left, and almost immediately after the Camberwell New Road is followed with a sharp turn to the left, the road straight on at this point being the Brixton Road, and the way out to Croydon and Brighton. When once in the line of the Camberwell New Road, which is broad and straight, the simple rule of forging straight ahead holds good. At Camberwell Green the open space is squarely crossed, and the direction remains unchanged though the name of the road traversed (still tramrailed) changes from Church Street to Peckham Road, High Street Peckham, Queen's Road, and presently joins the New Cross Road close to the L.B. and S.C. station. Passing this, and avoiding the Lewisham High Road on the right, which is the way out to Bromley, a back way to which place will be the subject of a later route, let us follow the tramlines past the second New Cross Station, of the South-Eastern line, and thereafter be watchful not to go astray. At the first fork beyond the station the lines are followed to the right. At the next fork, at the end of a narrow stretch, the tramlines go left to Greenwich, but the route for us goes to the right by Blackheath Road, up Blackheath Hill to Shooter's Hill Road, and so across Blackheath, till the south side of Woolwich Common is passed and Shooter's Hill is climbed to the 400 ft. contour level, and the old high road to Dover by Dartford, Gravesend, Rochester, Sittingbourne, and Canterbury lies unmistakably ahead. This route, as far as Canterbury, serves also for Margate, Ramsgate, and the other resorts of the Isle of Thanet.



THE BEST WAY TO BLACKHEATH

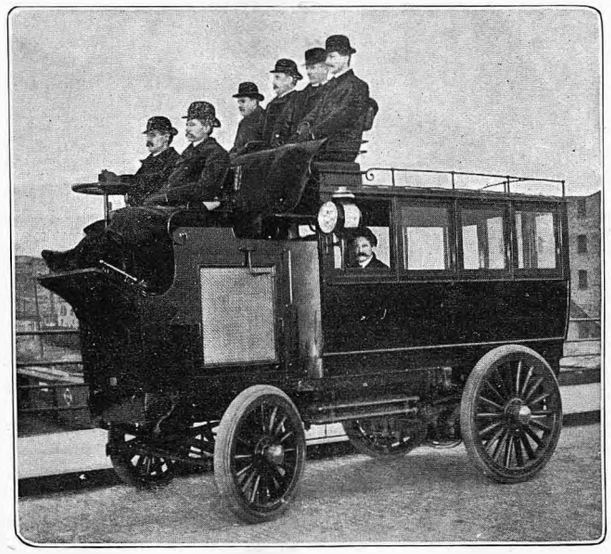
THE German Emperor and Empress have just inspected the alcohol motor ploughs used on their private estate of Cadinen, and the Emperor invested the director of the Oberwesel motor factory, who was present to explain the system to their Majesties, with the Royal Crown Order. This is probably the first case of a motor-man being thus distinguished.

NO less than eleven motor vehicles, all of the Gardner-Serpollet type, are in constant use at the Russian Court. Several of the grand dukes, when placing their orders, declared themselves to be in such a terrific hurry for the cars that the firm, unable to supply immediately, was compelled to buy back several autocars from other customers in order to meet the urgent demands of the Russian autocrats.

A NEW MOTOR OMNIBUS.

AT last—the risen prices of fodder having driven our various omnibus companies almost frantic—it would seem that the electric motor omnibus is to receive a fair trial. An experimental vehicle has recently been brought over from America and is now to be seen at the show rooms of Messrs. Thrupp and Maberley of Oxford Street. The process of the Fischer Motor Vehicle Company is entirely novel and is the result of some years of experimenting with the combination of an electric motor driven by a petrol engine. The design is covered by patents throughout the world. The omnibus which we illustrate has now been in constant use for over five months, and it is interesting to learn that beyond the replacing of one of the tyres, which got out of place in New York, not a dollar's worth of expenditure has been required. This private omnibus has accommodation for seventeen passengers (twelve inside, one beside and four behind the driver), and it will be observed that the body is excellently built, upholstered, and finished, being lighted inside by incandescent electric lamps.

The petrol engine (mounted across the frame beneath the driver's seat) is of the three-cylinder vertical type, the controlling arrangements for regulating the speed and power consisting of levers by which the time of ignition and the explosive mixture can be varied. Running at a normal speed of 600 revolutions a minute the engine develops about 10 horse-power. Brakes of the spoon pattern are fitted to the tyres of the rear wheels and operated by a hand lever beside the driver. These, however, are only to be used in exceptional cases of emergency or for holding the omnibus when at rest on a hill. It is rumoured that the L.G.O.C. have given an order for an omnibus having capacity for thirty passengers and a ten-mile speed. Should this experimental vehicle prove a success—and there is no reason it should not—the system will be adopted for the whole of their traffic, effecting an enormous saving to the company on their present cost of 9d. a mile.



THE FISCHER MOTOR OMNIBUS

Negotiations, it is said, are also under way in several of the northern cities for the introduction of the Fischer goods-vans for railway deliveries and other heavy work. Great efficiency in hill-ascent, and economy with a perfect regularity and reliability, are the leading claims in regard to the syndicate's machines. A recent test run was highly successful, the vehicle ascending Campden Hill—part of which has a gradient of one in eleven—at a current at no time exceeding fifteen ampères.

MARK TWAIN once, when travelling on a slow train, advised the conductor to take the cowcatcher off the front of the engine and fix it on the back of the train, as he was quite sure they would never overtake anything, but some cow might walk on board at the back and bite the passengers. When our legislators fixed the speed at twelve miles an hour they were convinced that at that speed we should never overtake anything, but to prevent our being run into by horse-drawn machines they ordered that we should show a red light at the back.

THE MOTOR IN THE HIGHLANDS.

IN no part of the British Isles might the motor be employed with greater advantage than in the Highlands of Scotland. A few years ago little was heard of in the north but demands for light railways. The sole and quite sufficient outcome of this agitation is the line to Dornoch which was opened the other day. The object of the light railway schemes was to facilitate the fish traffic from the west coast, but this purpose has now been served by the Highland extension to Kyle of Lochalsh and the West Highland extension to Mallaig.

The need for a good service of motor-cars still exists. What is wanted is a service of luggage and passenger cars to connect the outlying districts with the railways and steamers. A striking example of the opening there is for the motor-car is to be found in Sutherlandshire. From Lairg run a series of mail coach lines that could be served in a far more useful manner than at present by motor-cars. At present the drive to Scourie or Lochinver is by no means the height of comfort, and when the "gig" is heaped with luggage, as very often occurs, one has to put up with sore bones. Of course, no fault can be found with the proprietor; he does his best. The motor-car would shorten the journey, and with one car for passengers and another for luggage discomfort might be wholly abolished.

Other lines on which the motor-car would be equally useful might also be mentioned. Except in summer the passenger traffic would be comparatively light, though it would doubtless increase even in winter with the greater facilities, but for goods there is no limit to the business that might be created. If the railway companies and steamer proprietors would co-operate the motor-car might be made the means for regenerating the Highlands. It would put new markets within reach of the Gael. If there were means for disposing of their goods the people would soon take up small culture, dairy work and poultry farming.

This is an aspect of the Highland problem which has received too little attention. The Duchess of Sutherland and Mr. Carnegie are starting a technical school in Sutherlandshire which should be of great benefit, but what most of all is wanted is that the people on the soil should be taught to make the most of their opportunities. At present there is no incentive to the people to leave the old grooves. The motor-car might create that incentive.

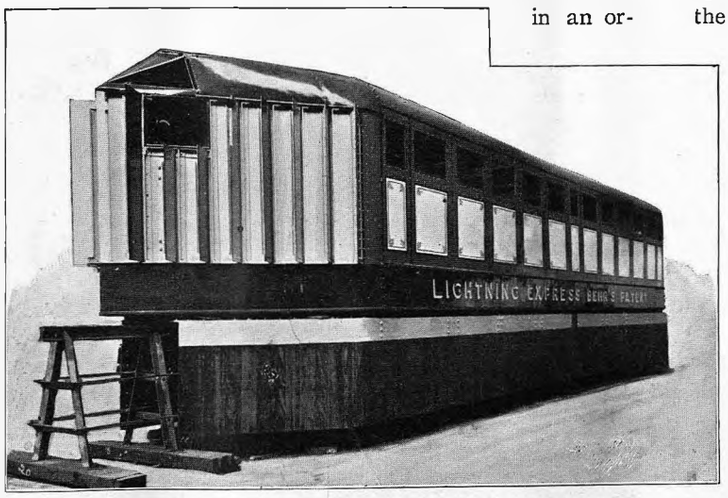
THE mayors of sundry French towns are making their regulations for the speed of motor-cars. The Mayor of Lyons has authorised twelve miles an hour on the quays and in the less frequented streets, the speed to be reduced to three miles an hour or even less in busy places, crossings of streets, and more dangerous spots. At Soissons the mayor allows six miles an hour, while at Pont-à-Mousson the maximum speed permitted is three and a half miles an hour. Motorists will have to keep a sharp look-out behind, or they will be overtaken and run into by people who are walking in a hurry.

THE MONO-RAIL:

BY GEORGE MONTAGU, M.P.

(*Continued from page 122.*)

PERHAPS it will be well at this stage to describe the construction of the mono-rail. The actual erection is composed of a series of steel trestles with a spread of 3 ft 6 in. fixed into a steel plate, which itself is embedded in an ordinary wooden sleeper, the height of these trestles being about 4 ft. 6 in. from the ground. The mono-rail itself is keyed in the ordinary way on the top of this apex-like structure. Let it be understood that what I am now describing applies only to the Liverpool and Manchester Electric Railway. As to how far this will remain the standard type it is not possible to say at present, and, in fact, since the proposals which were laid before the committee of 1901 various strengthenings have had to be made, in compliance with the regulations of the Board of Trade, who have fixed the maximum speed at 110 miles per hour. The mono-rail itself is to be as much as 130 lbs. to the yard, and also the steel supports have had to be strengthened and the sleepers made deeper. The trestles are connected by cross ties and also by rails, which run horizontally one below the other, two on each side, forming two guide rails upon which wheels flanged on the under side run horizontally in connection with the structure of the carriage.

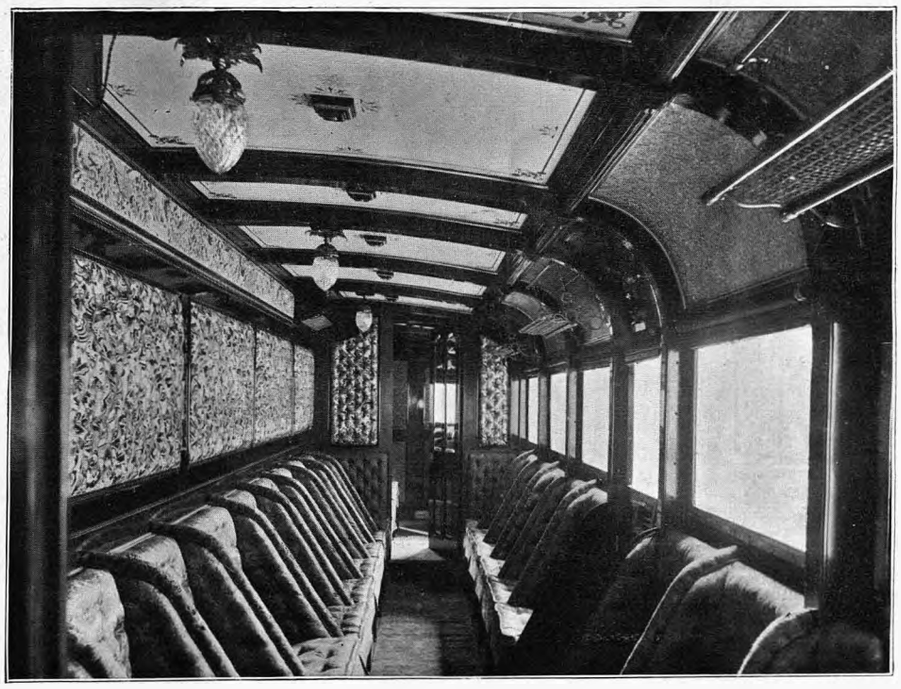


MONO-RAIL CAR USED AT BRUSSELS

The principal feature of the system is that the car is built, as it were, around the apex-like steel structure. The centre of gravity is to be as was fixed by the Lords Committee in 1900, 12 in. below the rail. The uses of the guide rails are to bear centrifugal forces acting on the curve, and also wind pressure. The wheels of the car which run on the mono-rail are to be flanged on either side. Adjustable springs of no more expansion than will be sufficient to uphold the car when the action of centrifugal force causes it to tilt and produces a tendency of the wheels on the mono-rail to mount the rail, are fixed to the guide wheels. The heavy weights of the car, such as the motors, driving chains, and so forth, will be placed below the floor of the car on either side of the apex-like structure, this being of sufficient weight to keep the centre of gravity well below the rail.

Thus we see that in comparing the bi-rail with the mono-rail as to stability the principle is very much the same as in loading a donkey, in the former case by placing its burden upon its back, or in the latter by hanging panniers on either side. It has been decided to use chain-driving instead of direct driving upon the axles. The electricity will be picked up from rails on either side of the steel structure by wheels running upon them connected with the car.

The signal which it is proposed to use is of an entirely novel character and of a wonderfully perfect kind. On the Liverpool and Manchester Railway it is proposed to have blocks seven miles apart, a distance which it will be seen is necessary when a pace of 110 miles an hour is maintained, this giving an interval of time of rather more than three minutes and a half between each car. The signals will be worked from boxes, but they will be of a different character from those to which we are accustomed. In fact it will not be necessary for them to be seen at all, for this reason: that on the roof of the car is a triangular shaped projection which, should a signal stand against the train, will be struck by it. This will start bells ringing in the driver's cabin in front of the car, power being at the same time cut off, and should he not apply the brakes immediately they will be automatically applied, because as the circuit closes the current passes to the brake.



INTERIOR OF THE BRUSSELS CAR

The duties of the signalman, inasmuch as his attention will not be disturbed by shunting operations on the proposed railway (which, it must be remembered, is merely a point-

to-point railway without intermediate stoppages), will be entirely concentrated upon watching in the cabin for "line clear" or "line blocked," and to telephone that as a double and additional precaution to the cabin in front and the cabin behind. Should that message not appear at the proper time he will know that there has been an accident, and all the signal-boxes on the line will be immediately communicated with. The ordinary perfect block system, it will thus be seen, is made additionally perfect by the automatic arrangement proposed, so that in the event of any accident to the driver the car will be stopped.

The brake power it is proposed to use is also of a very perfect kind. There will be three brakes, the Westinghouse high speed or pneumatic brake, which will be used in ordinary conditions; an additional electric brake, which will be employed in emergencies; and a third, which is somewhat of a novelty. It is called the electric pneumatic brake, in the sense in which it is used on tramways, viz., where the electric magnet is used for the purpose of pushing brake blocks on to the rails and making a friction brake. But in this instance it is a brake which uses the electric magnetic waves of the magnet to pull on to the rails. This magnetic pull is independent of the weight of the train or of the adhesion, and it is only limited by the power of resistance of the rail to which it is applied. The force which can be applied in this brake is so great that, if it was fully used, the line would be dislocated. It would only be used in very grave emergencies to prevent possible collisions, which, under the perfect system, would probably mean that it would never be required at all.

Photo. by] [*Ward & Downey*

MR. F. B. BEHR, THE INVENTOR OF THE ELECTRIC MONO-RAIL SYSTEM

THE Automobile Club of America is certainly on the high road to becoming one of the richest in the world, for only just recently it admitted four billionaires to its membership, not to mention such small fry as the mere owners of millions, of whom it has a goodly collection.

PERHAPS the first of the Indian princes now in London for the coronation to enjoy a motor drive was his Highness the Maharajah of Kolhapur, who was to be seen one day last week on a Daimler.

A GREAT automobile exhibition is in course of preparation at Hamburg, to be held in the Vélodrome Rotherbaum from October 3rd to 12th, and the intention of those organising the show is to give it as much publicity as possible. All particulars may be obtained by addressing the secretary of the committee at the Vélodrome Rotherbaum, Hamburg. An international exhibition is also announced for September 28th next, to take place in the Palais de l'Exposition at Athens, and for that purpose a special annexe has been built for the display of the automobile exhibits. Already, it is said, several German and Italian makers have promised to send cars. The Austrian Automobile Club has also announced an international exhibition to be held at Vienna in March of next year.

MOTORING IN IRELAND.

BY HERCULES LANGRISHE, J.P.

MOTORING in Ireland has its advantages and disadvantages. The country is beautiful—in places—and the roads, from the writer's point of view, who, I may tell you, has the honour to be an Irishman, are moderate, taking them all round, and some are almost good. There is no reason in the world why the highways should not rival even those of the sister island, but they do not, for the simple reason that such a modern improvement as the steam-roller has only just made its appearance in the distressful country, and that only in very few places.

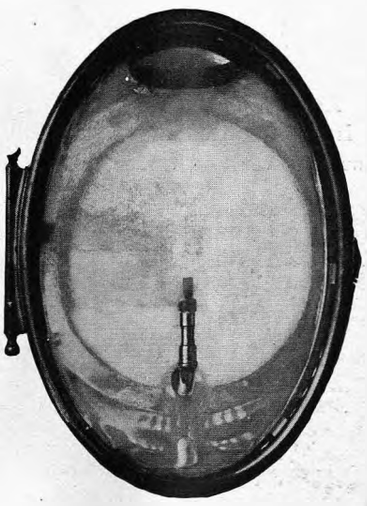
I have driven many thousands of miles in Ireland, and I must say that whoever engineered the main roads of that country knew his business. It is a remarkable fact that a moderate-powered motor-car can be driven in Ireland hundreds of miles without having to touch the first speed, except for starting purposes; hills there are and many of them, but the roads are laid out in such a manner that you can get over them without going up them. The surface of the main thoroughfares, however, is shocking; they are kept in "repair" by small contractors who patch the roads with rough stones at any time when it is most convenient to them, and not at all if inconvenient.

Another drawback to the dear old country is that there always seems to me to be ten times as much traffic in Ireland as there is in England. The inevitable old lady with her ass-cart—she is always there; if not on this stretch she will be round the corner, and then look out! And I hope your brakes are in good order, for she always pulls the wrong rein, and if the ass happens to be approaching, remember he can, like the old-fashioned Panhard, run backwards as fast as forwards, and is sure to cross you. But having heard the worst of it, I can assure the haughty Saxon that if he cares to cross the Channel and spend ten days or a fortnight touring in Ireland he will enjoy himself.

I think the following little story may amuse one or two readers. It happened in the year 1898. A friend of mine, one of the first motor drivers in Ireland, was driving a party of friends in the Co. Waterford. They halted at a place called Commeragh, which is a mountain village seldom visited by any except the inhabitants thereof. Of course, a crowd collected, and the spokesman of the crowd assured the audience in emphatic Irish terms that it was a great yoke that could run along the road without a "harse" at all, and so on, ending up by saying, "And I tell yer what it is, I declare to heaven one of them yokes hasn't been seen in the village of Commeragh for forty-five years."

A NOVEL LAMP.

AN indispensable accessory to every well-fitted motor touring vehicle is a powerful head lamp, serving as it does to indicate in due time obstructions, inequalities and turnings in the road, and also to give to bicyclists and the drivers of horse-drawn carriages fair warning as to the class of vehicle which is approaching them. Acetylene gas lamps are most generally used by automobilists, but many of this type are ill-adapted for the purpose for which they are designed owing to their weight, liability to rattle, poorly constructed fastenings, and inaccessibility for cleaning purposes. The new lamp of which we are able to give illustrations (through the courtesy of the Automobile Agency, Long Acre), has been designed specially for the firm of Blériot to overcome the faults apparent in the older types of lamps.



FRONT VIEW

It will be obvious at once that the external shape of the new lamp is not only an improvement from an æsthetic point of view, but also that, being free from corners and projections, it can so easily be kept smart and clean. The hinge on the door at the front is a casting, made very long and strong, and secured by six large rivets as well as being soldered, whilst the pin which passes through it, and upon which the door swings, is tapered so that it cannot possibly get slack and rattle. The old spring catch, which did indifferent duty as a fastening, is now superseded by a small and powerful spring claw which cannot get out of order. The reflector is of a concave elliptical form, and is very accessible, whilst the glass front is made of very strong plate-glass.

SIDE VIEW

The burner is of the ordinary pattern, but, whilst using only the same amount of acetylene as the old type, it is claimed to give twice the illuminating power. The gas generator box is of novel form, being slightly wedge-shaped, and the container is so constructed that it is impossible for it to move about, however great the vibration. The gas itself is passed through an improved filter made of cane, which prevents any possibility of the burners becoming choked. The complete lamp weighs less by 4 lb. than the older pattern, and is $4\frac{1}{2}$ in. shorter from back to front. Altogether it marks a great advance in the art of motor lamp construction.

COSTUMES AND CHATTER.

My Dear Diana,—We are all waiting on the tiptoe of expectation for the great events which, by the time you read this letter, will be taking place. The summer is slipping away in the most unaccountable and jerky fashion, and the cold weather leaves us quite unprepared for those social events we always associate with the long, hot, dreamy days of June. I am not going to Ascot, but if I were I should certainly not invest in anything but the severely practical.

Our American cousins have not come over here in the flocks in which we expected them, but I hear that they really are arriving at last. Apropos of Americans, Kitty writes from New York that the motor hansom is all the rage there. All I can say is, that I hope it will not be long in becoming the same here.

If you are not properly gowned for your motor expeditions I am sure you cannot blame me, for if you buy one half of the gowns I describe to you your wardrobe must indeed be full; in fact, I see so many upon your behalf that I verily believe they will haunt me in my dreams, and I shall soon see nothing but an endless procession of motor capes, coats, and toques passing before my mental vision as I sleep.

At Lewis and Allenby's.—My last visit has been to Lewis and Allenby and a very charming one it was. Large as their premises are they have lately been considerably added to, and a series of the most delightful rooms is the result. These rooms are more like those we might find in some charming country house than in a London place of business—low ceilings, white-panelled, with dull green or red carpets and dainty window draperies. They are inexpressibly soothing and delightful to the tired senses of weary sight-seers and shoppers. The new suite of rooms terminates in a tea-room decorated in the same quaint and picturesque manner.

Now for the clothes! Again I commence with the all-important motor wrap. Imagine it this time in red silk, single-breasted, with dolman sleeves and three dainty little capes. This wrap covers the entire dress and is relieved at the throat by a collar of white silk. Those fair ones, and they are many, to whom red is extremely becoming should order one of these wraps, which are also made to order in any colour.

Photo. by] [*Lafayette*

MISS MAB PAUL ON A 9 H.P. NAPIER

Coat of Cheviot.—Nothing could be more practical than the next coat I saw, made in cheviot, having full pleats in front. The back is also full, allowing plenty of room for easy movement, and this coat would be especially useful to any lady driving her own car. The fulness at the back was held in by a band which could be loosened at will.

Smart Rug.—I next saw a most delightful rug of dark blue silk lined with wool, and on the dark blue was a bold appliqué line of white. Such a rug as I have just

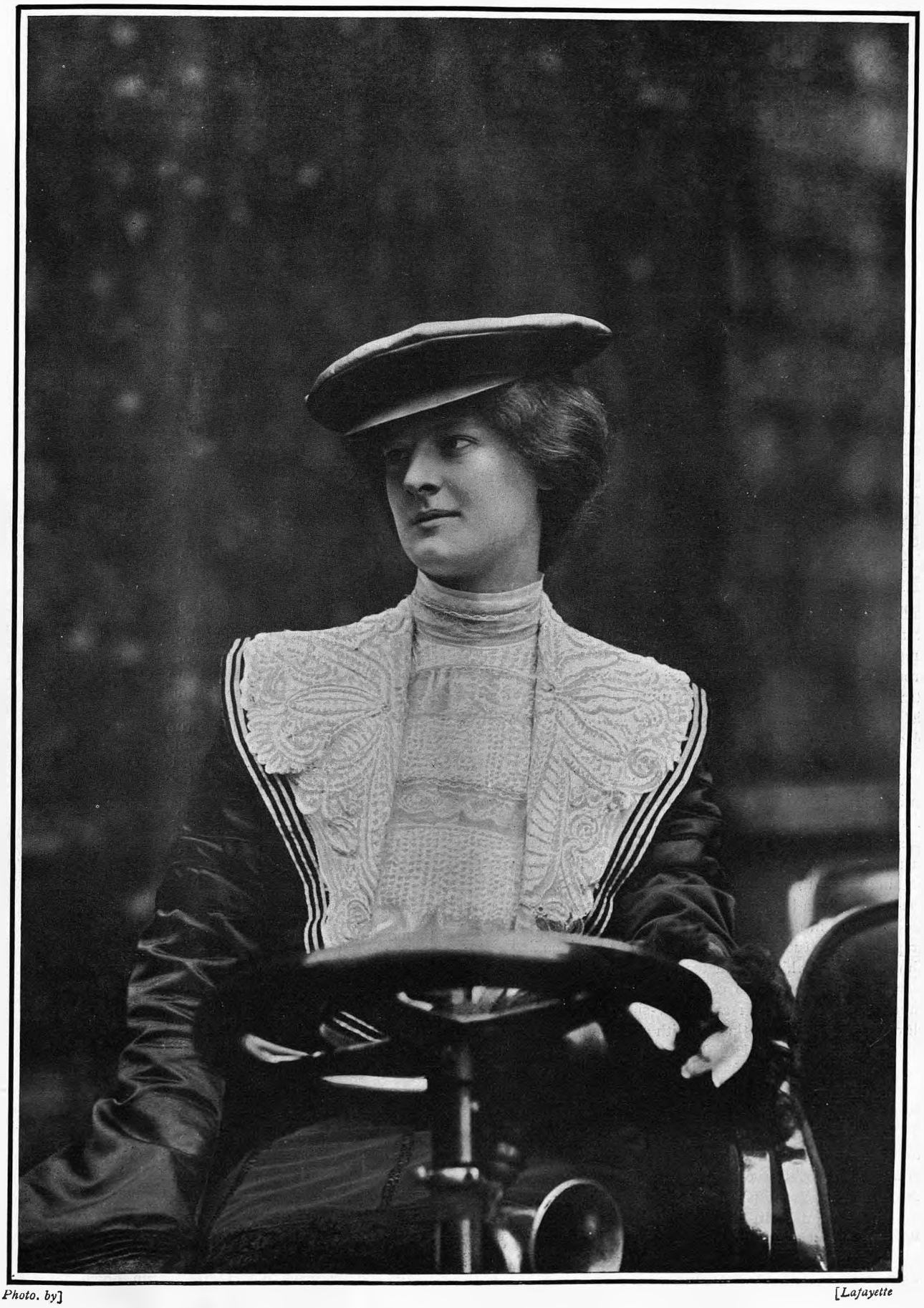


Photo. by] *[Lafayette*

MISS MAB PAUL

described would be well suited to wrap round the wearer of the following dress, a dark navy blue serge trimmed with Russian braid. The skirt is cut all in one, and the bolero bodice has a high-shaped and folded belt of check silk, edged again with a border of tartan silk. This mingling of the two kinds of silk is very bold, but in conjunction with the quiet tones of the dress it is exceedingly smart. There is hardly an inch of this dainty little bolero which is not covered with the Russian braid, through which glimpses of the tartan are again seen. The inner vest is of batiste, and batiste is again repeated in the gauntlet sleeves. What a charming dress to wear when motoring on a smart occasion, say driving over to lunch at an adjacent country house.

Pale Blue Cloth Costume.—You always look so well in blue, dear Diana, that I must tell you of a delightful gown in pale blue cloth. This gown broke away from the conformity of the usual plain narrow skirt, as it had a panelled front and full pleated back. The cloth was edged with flat silk braid, and a lovely bolero was worn with this skirt, also heavily trimmed with the same flat braiding, finishing off the swathed bodice in loops and tasselled ends. The sleeves were of the kind known as gigot sleeves, and were quite enormously wide at the elbow. Now I am sure you are longing for both these gowns, and I will also tell you of

A Zibelline Cloth Wrap, strapped with leather and having those delightful Japanese sleeves which seem so popular. The buttons which really fasten this long wrap do not show, and the only ones which are visible are one or two fancy pearl buttons down the side.

Some Pretty Toques. — In Lewis and Allenby's millinery department I saw the following toques. No. 1 was of brown Jedda straw, trimmed with soft blue and green ribbon; a wreath of forget-me-nots was wreathed around the brim. The second one was also of blue Jedda straw. The trimming of it was most quaint, for it consisted entirely of straw twisted in the shape of bows with black velvet centres.

For any fair motorist in mourning the following toque would be extremely useful. It is made of soft black straw, turban-shaped, and with shoulder wings set widely apart as a trimming. Ere leaving Lewis and Allenby's my glance was arrested by a tea-gown. Now these delightful garments, as you would doubtless point out to me, have nothing to say to motoring, yet are they not the very things to slip on after a long day's outing on the car, and so I may include them in my description. Picture to yourself a grey crêpe de chine, tucked from waist to knee, and ending in a simple flounce, which graduates up the back. The bodice is swathed with crêpe de chine, and has an inner vest of tambour lace, ending in a deep V-shaped opening at the throat. A high, soft satin belt with a charming baby sash completes this delightful *negligée*.

Miss Mab Paul, whose charming photograph accompanies this letter, is acting most delightfully in Mr. George Hawtrey's clever play, *Lord of His House*, lately produced at the Comedy. She is very tall, and carries her height with the utmost grace. In our illustration she wears a simple dress and a yachting cap of dark red leather, but on the stage, in her present part, she is wearing a succession of delightful gowns. In the first act, a garden scene, she wears a simple shirt and skirt, and later on, for tennis, adopts one of the Panama hats which are still so popular. In act two Miss Paul appears in a cycling dress, a bolero and skirt of tweed, with a dainty sailor hat ornamented by a big bow in front; while in the third act she is gowned in shimmering black, with a transparent lace chemisette, and perhaps this dress suits her best of all.—Yours ever,

THE GODDESS IN THE CAR.

AMERICAN WOMEN AS DRIVERS.

WHETHER women may be trusted to drive automobiles remains an inexhaustible subject, so much more difficult to decide as long as daily occurrences throw some doubt on the fitness of men in this respect. Some time it will become self-evident that women are better fit to drive automobiles, which never require muscular effort beyond a certain limit well within the strength of any adult person, than to drive horses, that are liable to become frenzied and are then amenable only to those of great muscular power and determination. It is now somewhat generally acknowledged that, whatever be the limitations of the average woman's presence of mind, an automobile is safer in her hands than in those of a male companion who admires her and is anxious to find out if the admiration is mutual. The most important factor of safety in women's machinemanship lies doubtless in the fact that only vigorous, self-reliant women will undertake to guide an automobile, and that their relatives will provide them with more complete instruction in the art of driving a machine than they usually think necessary for themselves.

In Chicago, where a public examination and a licence are required of automobile drivers, most women who come to take the examination are accompanied by male escorts. The applicant for licence goes first to the Health Department, where the health test is imposed. This examination is to determine chiefly whether the applicant has a weak heart, and whether she may be colour-blind. Colour-blindness may be a most serious defect after dark, when a swung bridge showing a red light might be mistaken for the green safety light and bring disaster. As for a weak heart, every automobile driver can testify as to the shock that may come to the most unsuspecting and iron-nerved of men who drive these machines through the crush and jam of down-town. The disposition of women in an emergency to faint and let a machine run where it will is one of the serious aspects of a weak heart, and this in women has made the heart test of first importance.

When a woman has passed the Health Department's test she appears at the office of the city electrician at the appointed hour to take the mechanical examination. In such case she gives in the type of automobile which she is to run, whether it is to be steam, gasolene or electrical. Perhaps she may take the examination for all classes of machines, but it will be required of her that she name the kind of machine that she is to run, and the licence will be issued for that kind of machine only. If for any reason she chooses to change to any other style of automobile, she may have another licence on application, at which time she will surrender the old one.

Of the thirty-five women who hold automobile licences in Chicago, about half are single women, and almost without exception all are young. The majority of these conduct electric and steam vehicles. In New York, however, a strong tendency has been indicated of late toward the gasolene machine. The Oldsmobile is frequently seen driven by women, the Packard counts more than one devoted *chauffeuse* among its admirers, and recently the large imported French machines have found a genial reception after it was realised that their snorting sounds at low speed are no indication of ferocity. Chief among these fair operators of large machines is Miss Eleanor N. Thomas, who has just returned from a 500 miles tour, starting from Boston, on which she guided a 12 h.p. Packard machine, taking three days for covering the distance. With her were Mr. and Mrs. R. Livingston Beekman. Mrs. T. H. Griffin is mentioned as another *chauffeuse* who skilfully operates a Panhard machine, in this case a 16 h.p. vehicle, ordinarily driven by her husband. Locomobiles and Toledo steam vehicles, as well as Columbia electric carriages, are seen under the guidance of women every day in the most crowded thoroughfares of the metropolis and in all other large cities, and it is now only a question of a short time before the sensible automobile will be considered much safer in a woman's hand than a horse, if for no other reason than that given by Sarah Bernhardt, who detests automobiles, but purchased and used one because, as she remarked, "she would rather drive one than be run down by one."—*Automobile Topics.*

A cheap line! The firm of Millot Brothers, of Gray, France, have just completed a car having an 8 h.p. four-cylinder motor and four speeds, which is to sell at 5,000 francs, the carriage body included.

THE RIPLEY ROAD OUTRAGE.

EXEMPLARY SENTENCE.

THE circumstances described in our last issue concerning the abominable outrage on Mr. Campbell Muir had their sequel on Saturday at the Guildford County Police Court, when George Hoskins, butcher, of Ripley, was charged with having assaulted Esdaile Campbell Muir on June 15th. There was a full bench of magistrates, including Colonel Weston (chairman), Sir William Chance, Mr. F. E. Eastwood, Colonel Phayre, Lieut.-Colonel Treadcroft, and Messrs. W. W. Hemming, E. Ellis, W. R. Pullman, E. R. Fisher Rowe, R. Mangles, and H. A. Powell. Mr. R. D. Muir (Treasury counsel), instructed by Messrs. Lewis and Lewis, appeared to prosecute, and Hoskins was defended by Mr. Gilbert White.

Mr. R. D. Muir said that the assault was committed under circumstances which gave no excuse at all to the defendant. Mr. Campbell Muir was driving a motor-car with Lady Cecil Scott Montagu from Mr. Alfred Harmsworth's house at Sutton Place. When about two miles from Ripley the way was blocked by a cart, and Mr. Muir slowed down. After getting past the cart he saw the defendant and two other men on the footpath, and when the car got within twenty yards of them the defendant stepped into the road apparently with the intention of making the car stop. Mr. Muir was going quite slowly and did not pull up; the defendant thereupon stepped out of the way. As the car was passing, the defendant, without a word being said, struck Mr. Muir a most violent blow across the mouth with a stick, only missing Lady Cecil's face by about two inches. Mr. Muir was knocked almost out of his senses and left quite incapable of controlling the car, which for fifty or one hundred yards had to take care of itself. What the consequences might have been had there been any persons in the road it was easy to imagine. Mr. Muir stopped the car as soon as he could pull himself together and turned it round; the defendant and his companions, seeing this, bolted off through a wood. Mr. Muir stopped at a cottage to make enquiries. His face was then streaming with blood, his handkerchief was full of it, and it was actually running down on to the steering wheel. He then drove on to Ripley and informed Police-Sergeant Jarrett of the occurrence. He was taken back on the car to the scene of the outrage, and from further inquiries concluded that he knew one of the men concerned, and proceeded to a farm owned by the defendant, who was found there, and said, "It's this way, sergeant; I thought the gentleman was going to drive over me, and I struck the blow in self-defence." How a blow was going to stop the car he did not explain. The defendant had put on an overcoat and buttoned it up at the neck, but was positively identified both by Mr. Muir and Lady Cecil. Subsequently a summons was served upon the defendant, who then remarked to Sergeant Jarrett that he "did not mean to strike the gentleman at all, but held his stick up for him to stop." Later on he wrote a letter to Mr. Muir, in which the following occurred:—"I humbly apologise for my behaviour towards you on the 15th instant. I really did not know for the minute what I was about." Continuing, counsel said that this appeared to be one of those absolutely savage and unprovoked assaults made from time to time on persons who happened to use any new sort of locomotion. Formerly it was the bicycles, now it was the motors. Some people seemed to think that motorists were *feræ naturæ* who could be shot at by anybody. He hoped the bench would give such a sentence to the defendant as would not only be a lesson to him for this cowardly and unprovoked assault, but also to those who were inclined to act as he had done.

Mr. Campbell Muir bore out the statement of counsel. With regard to the blow, he said that the defendant deliberately poised himself and struck as hard as he could. One of the witness's teeth was knocked out and his cheek was cut open. He bled a good deal, and for about half a minute was quite dazed.

Lady Cecil Scott Montagu gave corroborative testimony. The blow was so severe that she was afraid that Mr. Muir would faint, but he pulled himself together. When she saw the defendant at the farm she said, "What a cowardly brute you are to hit a man like that." He made no reply.

Sergeant Jarrett said that from the way in which Mr. Muir's face was cut and the blood spilt on the car the blow must have been a very severe one. When the defendant was served with the summons he said, "I know I was wrong in striking him, but I put up my stick to stop him from running over me."

The Chairman: Did this man appear to have been drinking on the day of the assault?

Witness: No, sir; he was perfectly sober.

For the defence Mr. White said that the prosecution had endeavoured to make far more of the assault than there was any occasion for. The fact was that the car was going between twelve and twenty miles an hour when it approached the men, and this was not a serious assault but a pure accident.

The defendant gave evidence on his own behalf. He swore that he was standing in the gutter all the time, and did not get in front of the car. He put up his stick to save himself. He and his companions walked away across a field when the car stopped.

Mr. R. A. Muir: Your view is that you were not to blame in the least?

Witness: Not in the least.

Mr. Muir: Then why did you write to Mr. Muir humbly apologising for your behaviour, and expressing your deepest regret?

The defendant made no answer, and the chairman said that the bench must draw their own conclusions.

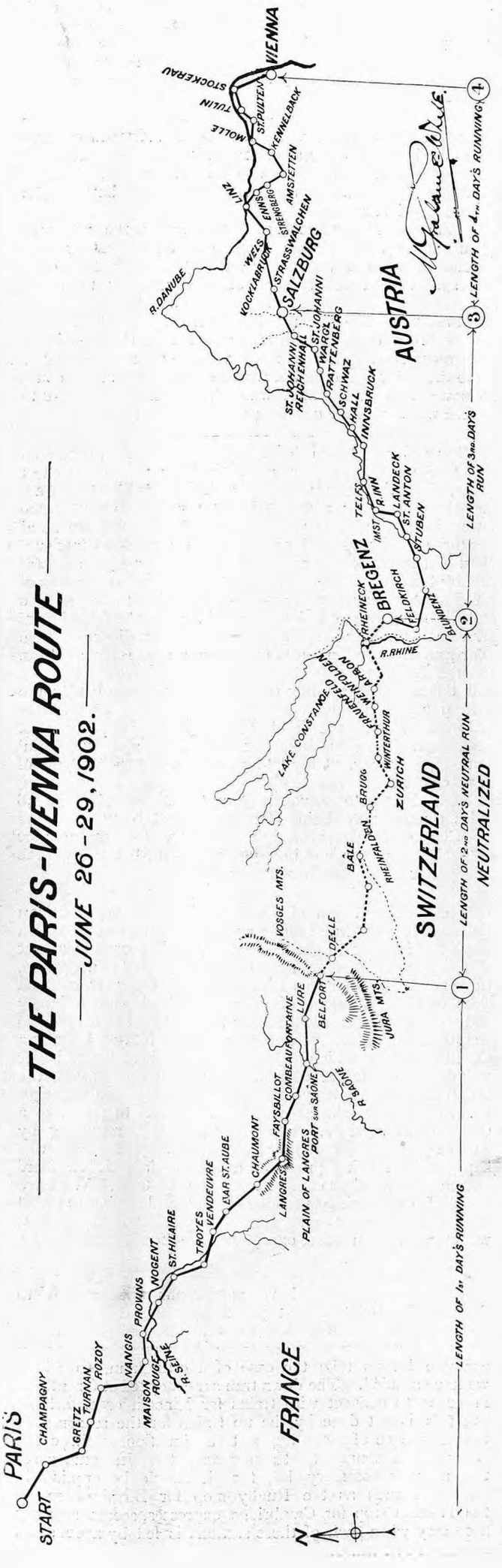
Walter Mellon and James Hoskins, the two men who were with the defendant at the time in question, also stated that he put up his stick in self-defence.

Mr. Muir (to Hoskins): Will you explain how it could defend him?

Witness: I really could not say.

At the conclusion of the evidence the magistrates consulted together, and the chairman said: "George Hoskins, we are all of opinion that this was a most uncalled for and brutal assault. It is one of those cases which ought to be sent to the assizes or the sessions, where the punishment would be severer than we could give. We have looked into the evidence, and it seems to all of us that there is nothing in the world to be said in your favour. We send you to prison for one month's hard labour."

Notice of appeal was given.



THE PARIS-VIENNA RACE.

LATEST DETAILS.

THIS great race, which starts to-morrow from Paris and finishes on Sunday evening next at Vienna, has attracted, up to the time of closing the official list, no fewer than 208 entries. The four days' journeys are clearly shown on the accompanying plan, that portion of the course which is shown by a dotted line being the neutralised section, set down for the second day's trip, which will be of a processional character, until racing recommences at Bregenz, after emerging from Swiss territory. This point of recommencement of high speed coincides with the change of the rule of the road, for in Austria the same regulation holds good as in England, that one keeps to the left of approaching traffic, whereas in all other European countries this practice is reversed. Special shortened formalities have been arranged for the racing vehicles at the customs offices in order that the frontiers may be passed with but a moment's delay for the purposes of identification. Among the excitements of a race which will provide a thrill at every corner, not the least startling experiences will be the jumping of the hundreds of *caniveaux*, or cross channels, which, like miniature fords, cross the road and scar its surface almost as badly as railway crossings, and with even greater risk when they are swollen with heavy rains. Numerous leapings may be expected also at the many small bridges, colloquially known as donkey-backs, which, with a steep run up, endue a fast car with powers of aerial flight for a brief moment, and the descent may or may not be on the road. It was on one of these hump-backed bridges that the only English representative came to grief in the Paris-Berlin race last year. May the Englishmen's luck be better on this occasion!

A FINE RUN.

A REMARKABLE feat was performed on Thursday last by a 10 h.p. Décauville car, which accomplished a non-stop run from the General Post Office, Edinburgh, to the Motor Car Company's depôt in Shaftesbury Avenue. Such a run of 400 miles of consecutive travelling is quite without precedent either on the road or on the rail, for the best expresses between London and Edinburgh change engines at York and at Newcastle. The Décauville made the trip without the least symptom of trouble. No adjustments were necessary, nor any replenishments of the petrol supply, for the car carried sufficient for the whole trip. The level railway crossings were all opened in the nick of time, and, by careful driving through the towns and villages, no stops were necessitated by the exigencies of traffic, nor was the run marred by any difficulties with the tyres. Mr. F. T. Bidlake acted as observer, and the driving was done in relays by two of the Motor Car Company's experts, who alternately drove and slept in the tonneau.

THE third meeting of the members of the Aero Club took place at Ranelagh on Saturday afternoon, when three balloons made an ascent in the presence of a large number of spectators, the majority of whom were ladies. The balloons had to be dragged from the 8 in. main half-way up the ground, as owing to the recent heavy rains it was extremely wet under foot. The first balloon to go off was Mr. Frank H. Butler's "Graphic" (45,000 ft.), the passengers being Miss Vera Butler (who has already made eight ascents), the Hon. C. S. Rolls, Mr. C. F. Pollock, and Mr. Butler. Mr. Leslie Bucknall's balloon, "Vivienne" (35,000 ft.), contained also Mr. Ernest Bucknall and Mr. Arthur Spencer, whilst the "City of York" balloon (53,000 ft.) had Mr. E. Pitman, Mr. J. Talbot Clifton, and Mr. Percival Spencer. The "Graphic" and "Vivienne" both descended at Rainham, Essex, at about twenty minutes to seven, each touching ground in the same field. An unusual proportion of the visitors on this occasion journeyed to and from the club by motor-car.

THE Motor Power Company, Ld., have just supplied the Duke of Connaught with a 9 h.p. Napier car. This car will be particularly used during the coronation time for inspecting the various bodies of troops spread over a large area. The company desire us to notify that their address is now 14, New Burlington Street, and not 14, Regent Street.

RAILWAY JOTTINGS:

MORE ACCELERATIONS.

TWO curious errors occurred in the paragraph entitled "Some Fast Miles" in last week's issue which must have been patent to all readers interested in the subject. It was stated that a good place for timing on the North-Western was after passing "Trent"; this should of course read "Tring"; and in the next sentence "Great Northern" should read "Great Western," Wootton Bassett being, of course, on the latter railway.

Another instance of the curious practice to which we alluded in our last issue, with regard to the unnecessary stopping of fast trains which branch from the main line at the junction, occurs at Hitchin in connection with the Great Northern expresses to Cambridge. Hitchin is admirably served as it is, and that three or four of the seven fast trains each way should not run through to Cambridge without stopping is a matter to be regretted. Yet another instance on this line is apparent. Owing to the Great Central extension line in London, Sheffield expresses now run *via* Nottingham instead of Retford. As a proof of what has been said as to one of the reasons for this practice perhaps being the facing junction, it may be pointed out that the 11.4 a.m. up express from Nottingham does not stop at Grantham; neither does the 4 o'clock; but the corresponding down trains, the 10.20 a.m. and the 5.30 p.m., both find it necessary to stop at Grantham, and the former at Peterborough as well. If the up trains can be run right through without stopping the same surely could be done by the down.

It was not until this month that all the stops were eliminated from one of the Birmingham expresses, but we entirely fail to see why the other express trains of this service should not be treated in the same way, and why those of the new service to Manchester, splendid as it is, if they can run as far as Stafford or Crewe without stopping, should not be able to run the additional 30 or 55 miles respectively without stopping at these stations. If the water troughs on the main line make a run to Crewe or Stafford possible, it is difficult to see why the additional miles to Manchester should not be run by the same engine.

On the Northern Railway of France there are several accelerations for June. In connection with the new service *via* Boulogne leaving London (Charing Cross) at 2.20 p.m. and on the return journey Paris at 4 p.m., the Paris-Boulogne portion is run both ways in 2 hrs. 50 min., or at an average speed of 55·6 miles per hour. This is likely to be frequently exceeded when the boats arrive late at Boulogne, just as the company have undertaken, should a mail train arrive late in Paris from the south, to run their trains to Calais at 60 miles an hour for the whole distance.

Attention has been already called in a previous issue to this splendid service, which is faster than anything we know of in England with the exception of the Manchester expresses on the North-Western and the Leeds expresses on the Great Northern, which run it very close even if they do not equal it. Of the other fast-timed trains on the Northern Railway of France, the train in connection with the 9 a.m. from Charing Cross performs the distance from Calais to Paris at a speed of 52·8 miles per hour, and another train which leaves Calais at 12.50 a.m. runs to Amiens in 1 hr. 57 min., or at a speed of 53·2 miles an hour. The up trains are better still, the 9.45 a.m., which runs through to Calais without a stop, averaging 55·5 an hour, and another which leaves Amiens at 1.4 p.m. reaching Calais (Ville) at 2.55, averaging 55·1 miles an hour.

Now let us turn for a moment to the performance of the South-Eastern and Chatham Railway's expresses which run in connection with this splendid service of the Great Northern of France. The best train, or we should rather say the least bad one, which is the 9.5 a.m. from Cannon Street to Dover, accomplishes the journey at the rate of 44·7 miles an hour. The 2.20 p.m. in connection with the new service *via* Folkestone takes 100 minutes for the 71½ miles, at a speed of 42·9 miles an hour, while the 10 a.m. Ostend express from Charing Cross averages 41·7 miles an hour. It really is little short of absurd, when one takes into consideration the splendid express engines which are in use both on the old South-Eastern main line and on the old London, Chatham, and Dover line, that a speed of at the very least 50 miles an hour should not be attained. Our own experience on the Sevenoaks-Tunbridge-Ashford portion has shown that it usually takes 40 minutes to reach Sevenoaks, a distance of 22 miles. Taking into consideration the difficulty of the road, it being a stiff climb from Hither Green to Knockholt and again from Dunton Green to Sevenoaks tunnel, 33 minutes would be ample allowance up to the latter point, and if the remaining 49¾ miles could be covered in 57 minutes, which they certainly ought to be, the whole journey could be performed in 1½ hours.

It is a pity that some of the boat trains are still run on the Chatham line, since it is particularly unsuited to fast trains. The line is a veritable switchback the whole way, and the loss of time which inevitably has to take place owing to the bad curves which exist between Strood and Chatham go far to spoil anything like a possible fast run. Most of the expresses to Ramsgate and Margate are still run by the little old-fashioned 6 ft. 6 in. coupled engines of Mr. Pickersgill's, which have only 150 lb. steam pressure and ridiculously small boiler power, and when foreigners arrive at Dover and find such engines in readiness to take expresses to London there is an excuse for their laughter. On the Brighton line the boat trains to Newhaven are still taken either by the 6 ft. 6 in. front-coupled or the 6 ft. 9 in. single engines of Mr. Stroudley's which were designed to haul the light trains of many years ago. Still these little engines of Mr. Pickersgill's do wonderful work in their way. Only last week No. 435 took a train of 225 tons behind the tender from Herne Hill (running through slowly) to Faversham in 62 minutes for the 48 miles, three minutes being of necessity lost between Strood and Chatham. This is not in reality a bad run for an engine of that small power, and in any case it is far better than the runs performed by the boat trains.

The amalgamation of the South-Eastern and Chatham Railways has produced many curious results, two of which may be of interest to our readers. The first case was that of No. 479, which we noticed the other day at Faversham. In general design it was something like the 7 ft. coupled class of express engine of Mr. Stirling's, having chimney and coupled wheels, with leading bogie of that class, but no Ramsbottom valve. It was in all probability originally a Chatham engine, which had been rebuilt with a larger boiler and dome and larger wheels. The other curiosity on the South-Eastern Railway is that apparently you are not expected, if you take a second-class ticket, to travel in a second-class carriage. The other morning, returning by an early train on the Dover-Canterbury section, this happened. Having procured a second-class ticket, there were no second-class compartments on the train. We have heard of people taking first-class tickets and having to travel third, but such a case as the one we have alluded to does not, we imagine, often arise, except on the South-Eastern and Chatham Railway.

Since writing the above paragraphs with regard to the stopping of trains at junctions it has been pointed out to us that the reason for this practice is in many cases the running of other trains in connection. As an example let us take the case of Nottingham, to which we have alluded. The down trains are stopped at Grantham in order to connect with trains for Lincoln or elsewhere, but this is not done by the up trains for the reason that the confluence of many trains at the junction might cause delay if the connecting trains were late. In some cases this may be necessary, but that it should be applied in all cases, such as the Rugby stop for Birmingham, or the Hitchin stop for Cambridge expresses, seems scarcely necessary when each of those stations is fed by a constant stream of fast trains.

ROAD REPORTS:

WHAT THE SURVEYORS SAY.

AS already announced, we have been endeavouring to arrange for the publication of authoritative information concerning the state of the roads throughout the country, as at the present time there is no official department corresponding to the Weather Bureau where authentic news can be obtained concerning local conditions. Already considerable help has been promised by many of the county surveyors of England and Wales, whose friendly co-operation will enable our readers to be made aware of what work is being done upon the main roads. It is impossible, and indeed quite useless, to describe the conditions of the roads in the meteorological sense, and the published road books very fully particularise the details of gradients and indicate to a large extent the chief places where danger exists owing to some permanent feature of the road. Our information will deal with temporary conditions, such as the laying of new metal, the repair of bridges, obstructions due to the laying or repair of gas and water mains, deviations necessitated by railway construction, and in short any operations that bring about a temporary abnormal condition. From a very large number of replies the following extracts may be taken as typical, and in addition to definite promises of assistance we have received many provisional acknowledgments with a promise of later attention to the matter. By thus establishing direct communication between the highway authorities and the users of the road we hope to be able to render our readers a special service in the way of weekly warnings where roads are under repair.

Bedfordshire.—We have no roads now under repair or subject to obstruction from our operations. Generally speaking they are declared good, although isolated lengths near farm homesteads are uneven, not yet having recovered after the usual winter work of the farmer. I am quite willing to give you weekly any points that need avoiding.—W. H. Leete, Surveyor.

Buckinghamshire.—I will with pleasure fill up returns showing which of my roads are under extensive repair (steam rolling, &c.), but these must not be taken to mean that there may not be a few places where in winter time, owing to sudden failure of road foundation or other cause, it is found necessary to lay beds of stone. Emergencies excepted, *all* our stones are steam rolled.—R. J. Thomas, Surveyor.

Carmarthen.—Road under repair: Llanelly to Carmarthen through Pembrey and Kidwelly, length 104 yards; nature, widening road at Pwll (Pwll is 1½ miles to the west of Llanelly); to be finished almost directly. This summer I purpose building a new bridge at a place called Gwyryng on the road leading from Carmarthen to Lampeter. The accommodation for public traffic during construction will be narrow and rather dangerous. All the roads are in a good state of repair, but there are small patches of gravel which have not yet been rolled in on the road between Carmarthen and Lampeter.—Daniel Phillips, Surveyor.

Carnarvon.—I am wishful enough to afford you every information I can which would be of interest to automobilists.—E. Evans, Surveyor.

Cumberland.—I shall have great pleasure in complying with your request. In my opinion the future of agriculture depends on the development of mechanical haulage on our highways, and all silly restrictions ought to be removed by Parliament to let our mechanical engineer have a free hand. I can safely say motors can come on any of our main roads at any time, as where the roads are wide enough to allow of it we repair one half the width of the road at a time, and we then have the roller hard on the heels of the newly-laid-on metal, and on the narrow roads there will never be more than fifty yards unrolled, and this is covered with binding as soon as the metal is spread on the road. I can send you a return any time that we are putting metal on; this is always done in spring and summer and we are busy now.—Geo. Jas. Bell, Surveyor.

Derbyshire.—In reply to your letter I am making arrangements to send you a weekly list of the roads in this county not fit for motoring.—J. Somes Story, Surveyor.

Writing later Mr. Story reports that the following lengths of roads are undergoing repair: The Ashbourne to Belper road, between Hulland and Ashbourne; the Bakewell and Buxton road, near Taddington; the Derby and Chesterfield road, between Pentrich and South Wingfield and between Clay Cross and Tupton; the Chapel-en-le-Frith and Whaley Bridge Road.

Essex.—I shall be glad to give you all the information I can about the main roads.—Percy J. Sheldon, Surveyor.

Gloucestershire.—Gloucester to Tewkesbury is under repair for a length of one mile, a sewer trench is being laid, and the road level is being raised. The repair will be finished about the end of the month.—Robert Phillips, Surveyor.

Herefordshire.—I shall be happy to do anything I can to assist you in the matter of notifying roads under repair.—Alfred Dryland, Surveyor.

Monmouthshire.—Road under repair from Chepstow to Monmouth (by Trelleck). Road bad owing to extraordinary traffic; two or three miles in length. Probably six months before completion of repairs. The road from Chepstow to Monmouth by Trelleck is very hilly and rarely used for through traffic. The Chepstow to Monmouth road by Tintern is of easy gradient and in first-rate order. The remaining main roads of this county are in good condition and free from stones.—William Tanner, Surveyor.

Nottinghamshire.—I should be pleased to oblige you in any way, but I think the way the work is done in this county obviates the necessity of any reference being made in the way you suggest. I use a motor myself and quite appreciate your point.—E. P. Hooley, Surveyor.

Staffordshire.—I shall be very pleased to do what I can.—James Moncur, Surveyor.

Sussex.—I shall have much pleasure in doing all I can to assist you by giving information on the conditions of the roads in this county for the benefit of automobilists and others.—F. J. Wood, Surveyor.

Warwickshire.—I am in receipt of your letter, and whilst desirous of helping you I am afraid you scarcely appreciate the difficulties there are in the way of supplying you with the information you require. There are nearly 500 miles of main roads in this county, some portions of which are more or less constantly under repair.—John Willmot, Surveyor.

Yorkshire.—If I can be of any assistance in making your journal a success I shall be very glad to contribute such information as may be useful.—A. Creer, Surveyor.

In a report of the show of actresses' dogs which was held the other day a daily paper refers to Miss Kitty Carson's Gentle Jack as being a terror to motors. Exactly how he terrifies motors it is difficult to imagine, but we have a considerable misgiving that in one of his scaring exploits he will make a mistake and come to an untimely end.

Most large towns in England and Scotland have now motor-car agencies at which repairs can be effected, but there is something to be said for the suggestion that the Automobile Club should issue a map showing the position of places to which the motorist can resort for assistance in case of a breakdown. It would be a troublesome task, however, and perhaps by the time that the map was ready motor-cars would be so far perfected and simplified that the need for such a map would largely have ceased. A few spare parts on the car will probably be all that the motorist will require for anything save an occurrence so rare as not to be worth specially providing against.

OUR CORRESPONDENTS' PAGE.

THE BEST WAY TO CLEAN CARS.

Sir,—I notice Mr. Wood's letter on the above subject in your issue of June 11th. In justification of my opinion I can only say that I have for three or four years always used a *little* paraffin or petrol in the water to sponge over my car before leathering. Of course the leathering removes all wet or traces of paraffin. This process does not kill good varnish; in fact, in my opinion it improves it. Personally I prefer paraffin to petrol, and I quite agree with you that it should always be used sparingly. I should imagine that Mr. Wood's process of removing grease is only practicable when time is of no consequence.

I do not think it is economy to endeavour to make the paint-work on a car last for two or three years as Mr. Wood appears to do. After twelve or eighteen months the paint on most of the joints in the framework will have cracked, and this applies with still more force to the wheels where the spokes enter the felloes and hubs. The wet is bound to find its way in through these crevices, to the serious detriment of the woodwork generally, whereas a few pounds spent on paint and varnish will keep everything in good and sound condition and be the means of saving money in the long run.—Yours truly,

E. Keynes Purchase.

THE BEST MATERIALS.

Sir,—In reply to "Patriot's" letter in your issue of the 4th inst., my best answer would be to ask him to carefully examine the cars now manufactured by the most important English makers. I think he will find that nearly every one (if not every one) is using some foreign material in their construction. I have spoken to most of them and find that foreign-made axles are general, while numerous other parts are frequently introduced of foreign material. Another important point is this: Cars made by English manufacturers out of English material are, I believe, without exception heavier per b.h.p. than those of French or German make, owing to the fact that it is impossible for them to cut down the weight of vital parts to the extent that the French do because of the difficulty of obtaining the right material.

The retort to this will be that the English make their cars to run for years and the French cars fall to pieces in a few months. This, however, is contrary to the facts of the case and is untrue. I also am of opinion that the lighter the car the less wear and tear will there be, while the cost of upkeep in tyres is enormously increased by excessive weight. Any practical motorist who has owned cars of different weights giving the same speed will appreciate my meaning. "Patriot" says that "asking why our manufacturers do not use the best material is not evidence that it is not available." This is true, though I fear "Patriot" thereby throws considerable reflection on our English manufacturers. If the material is obtainable then it seems a pity that the manufacturers cannot have it brought to their notice.

I hope "Patriot" does not mean to imply by his *nom de plume* that he thinks me unpatriotic. On the contrary, I am looking forward with the greatest delight to the day when we can proudly boast that England leads the way once more; but now I feel sure "Patriot" will agree we want value for money, and I would ask him to look round and show me a car that can compare with a 10 h.p. Panhard for lightness, durability, speed, sweetness of running, and perfect immunity from breakdown. I have no wish to advertise any particular make of car, and should much regret if in my enthusiasm I should unwittingly say anything to hurt the feelings of our English friends. They are daily advancing and improving their cars, and some day we may see them at Bexhill win a majority of prizes. At the last Bexhill meeting there were sixteen races for cars, fifteen of which were won by foreign and only one by English cars.—Yours faithfully,

J. Ernest Hutton

8, Walpole Street, S.W.

ANSWERS TO CORRESPONDENTS.

J. H. B. (Staplehurst).—We are replying to your enquiry by letter.

W. H. B. (near Stockport).—We do not think you could improve upon the Rex car for your purpose unless you are prepared to pay a higher price.

A. H. (Ipswich).—Of the two cars you name we should certainly prefer the Baby Peugeot, and the cost of upkeep should not exceed £8 to £10, exclusive of petrol, provided the car is properly driven.

P. M'G. (Guildford).—The car depicted on page 115 of our last issue was supplied by the Roadway Autocar Company, Burwood Place, Edgware Road, W., who are the English agents for the Mors car.

H. T. Crane (49, Fleet Street, E.C.).—You could hire a small car by the year, with driver, petrol, &c., all found, at an inclusive price of £150 yearly from the Piccadilly Motor and Cycle Depôt, 200, Piccadilly, W.

H. W. Sambidge (Edgbaston).—You could not do better than call on the Motor Manufacturing Company of Coventry, or write to the Brush Engineering Company, 66, Great Russell Street, London. Either of these firms could supply you with a reliable car of a type to suit you and at a moderate price.

J. F. Hammond (Wilmslow).—Has an 8 h.p. voiturette (single cylinder) but is not satisfied with its hill-climbing qualities. Wants a two-cylinder 12 h.p. car with governed engine.—The car most likely to meet your requirements in point of speed, carrying capacity, and power is the 9 h.p. Napier, which develops about 10½ b.h.p. Its excellent hill-climbing powers are well known.

R. M. H. (Wetherley Gardens, South Kensington).—Taking the points you name we should place the cars in the following order: Gladiator, Georges Richard, Panhard, Clement, Décauville, Deschamps. For the small light carriages the live axle, when properly made, is a most suitable form of transmission, but for the heavier vehicles we should certainly advise chain transmission.

Rev. M. (Buxton).—We think a Locomobile steam car would be very suitable for your district, and a 4½ h.p. of this make would be sufficiently powerful for your work, as the nominal 4½ h.p. probably gives nearly 8 indicated h.p. Yes, a motor-car can be driven through snow 3 or 4 in. deep, but you will probably have difficulty on steep hills, especially those on which the snow has been beaten down hard by other traffic.

G. A. (Newbury).—In reply to your questions: (1) Yes, we can recommend the Brush car as being of good workmanship, simple and easy to keep in order. (2) They have double-acting brakes and are good hill-climbers. (3) Yes, they are as good as the other make of car you mention. The steam car you name has a good and compact engine and is quite easy to manipulate, but we cannot give an opinion as to its reliability. It has been running too short a time.

R. B. Micklethwait (Barnsley).—You will hardly obtain a car to carry you at the speed you name for £250, but if you like the Serpollet type of car we are quite sure it would satisfy you, provided you made yourself thoroughly acquainted with the proper method of driving it. In a hilly country such as yours steam power would enable you to make a good average speed and you would have none of the annoying necessity for those frequent changes of gear which are the bane of driving in a hilly district.

Motor (North Devon).—Wants a car to carry four people for use in North Devon over hilly roads with bad surface, but makes it a *sine quâ non* that good speed up hill shall be maintained.—Either the 9 h.p. Daimler or a 9 h.p. Napier would fulfil all these requirements. With regard to the use of solid or pneumatic tyres, we should advise you to have two sets of wheels, one set fitted with pneumatic tyres for use when your roads are in good condition, and another solid-tyred set for use during the season when, as you say, your roads are covered with loose stones.

H. T. Wheeler (High Wycombe).—We should recommend you to make your choice between the Locomobile and the White Steam Car, but you would need to use pneumatic tyres with either of these makes, whereas the description of your roads leads us to think solids would be preferable. Have you considered the Benz car? It is exceedingly reliable and can be obtained at about the price you name. With regard to condensers, we believe the Clarkson is the most satisfactory, and it is very light. Many thanks for kind congratulations.

Novice (West Bromwich).—Wants a voiturette to carry two people, and which can be started from the driver's seat, price about £80 to £90.—Some of the Darracq cars could be started from the seat, but "Novice" would find that the ordinary practice of starting with the handle in the front of the car is exceedingly easy and gives no trouble whatever after a little practice. As regards price, best value will certainly be obtained by purchasing a second-hand car, and you cannot do better than write for lists from Messrs. Friswell, Ltd., 48, Holborn Viaduct, E.C., or of F. F. Wellington, 36, St. George's Square, Regent's Park, N.W.