THE AUTOCAR

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

EDITED BY H. WALTER STANER.

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THE AUTOCAR.

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"THE AUTOCAR" SUBSCRIPTION RATES.

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Notes.

The British Gordon-Bennett Cars.

It is, indeed, most regrettable that the accident upon the Parade at Douglas during the useless speed trials—for they were useless after what had been done upon the two previous days—should have happened to Earp and his car. We are not disputing the wisdom of holding these speed trials, as they were admittedly to provide the good people of Douglas with a little excitement at their own doors, but so far as the actual trial or tests were concerned they were quite unnecessary. Not only were they unnecessary, but they were understood not to affect the results or the final selections. So far as Earp is personally concerned the matter is open to argument, and it might be shown that he was after all wisely passed over, though considering the way he drove in the eight hours' trial we cannot think that this would be the case. When it comes to the cars themselves, however, there is no doubt that the selecting judges have not taken the wisest course in choosing the cars so soon after the event, without time to communicate with the makers or ascertain their facilities. It was proved that Earp's car was the second fastest vehicle, Edge's being by far the fastest, and as this was the case the contention of the makers that the car was only slightly damaged and could be used satisfactorily in the actual race should have been most carefully enquired into before a final decision was made. The whole thing hinges on the best combination of reliability and great speed.

A car may be moderately fast and quite reliable and yet stand no chance in the race. It must be very fast as well as reliable. This was shown most plainly by the performance of Edge's car, which, even on so tortuous a course as that of the Isle of Man, demonstrated absolutely that the great reserve of power and speed the car possessed was most useful. It might be imagined that a smaller, less powerful, but handier car would be better on such a tricky course, and yet we find that every circuit was done in the shortest time by the most powerful car. It simply means that although the opportunities for making high speed were few, each one made a material difference, and the total of small distances at slightly higher speed meant that the circuit was completed in a shorter total time. As this is the case it is essential that the fastest possible machines should be selected, and Earp's was unquestionably the second fastest. We are leaving sentiment entirely out of the question. Our one desire is that England should win, and therefore we want to see the fastest and most reliable machines represent her in the race. This is the sum of the matter. We have no wish to seem to doubt the good faith of the racing and judging committees, but we do doubt the soundness of their decision. The racing committee has but one member who has ever taken part in a motor race on a racing car, while the judges appointed to select the Gordon-Bennett cars do not include one who has ever handled a racer in open competition. In fact, it is a question whether the majority of the selecting officials have even sat on a racing car.

Not only have these gentlemen no acquaintance with racing from the active side, but they have not attempted to construct or design any racing cars so far as we know. They are all of them engineers or scientists, and that is where the mistake has been made. There is every reason why the engineer and scientist should be strongly represented on the committee of selecting judges, but there should have been two or three men at least who have handled racing cars in open competition and know the points of a racing machine. We feel sure that had this been the case the decision which has aroused so much dissatisfaction would not have been given, as the selectors of the British champion cars do not seem to realise that in a race the man who keeps going the fastest is the winner, and that all other things being equal the most powerful, and consequently the speediest, car is the best. Presumably, however, it is not too late for the hasty decision to be reconsidered, and we believe that no false pride or other paltry motives will prevent the judges from reopening the matter. They may think it weak

and undignified, but there is no doubt they have decided too hastily, and motorists will honour them if they correct their mistake. If they do not the club committee will be bound to take the matter up. The club committee usually adopts the recommendations of the sub-committees it appoints, though it has the power to rescind them.

The Show Question.—Olympia chosen.

At an extraordinary general meeting of the Society of Motor Manufacturers, the question of holding the society's next show in February, 1905, at Olympia, West Kensington, instead of at the Crystal Palace, was considered. After a considerable amount of discussion, the proposal that the society's exhibition for 1905 should be held at Olympia was carried by thirty-eight votes to thirteen. Having regard to the growth of the show, the comparative inaccessibility of the Crystal Palace, which is complicated by its wretched train service, it would appear that the decision of the majority of the society is not unwise, presuming the Crystal Palace Co. cannot legally prevail against them. The change was bound to take place sooner or later, and the question is whether the present is the opportune time. The Crystal Palace Co. will no doubt try the matter in the Law Courts, but the society must be convinced by their legal advisers that the Palace Co. have no case or so drastic a step would not have been taken. Olympia, though lacking the grace and charm of the Palace building, is better suited for an exhibition of the magnitude to which the society's show now promises to grow. Moreover, for show purposes there is no more conveniently situated building in London, both as regards metropolitan and provincial visitors. At the same time, despite its greater accessibility, there is the very serious objection to Olympia that the roads surrounding it are comparatively useless for trials. It may be argued in this respect that it is no worse off than the Paris Salon, and, in fact, all other motor shows; but the strong point of the Crystal Palace has always been its trial trips, and we believe that many visitors will be greatly disappointed to hear that at Olympia trials will be practically a thing of the past. No doubt exhibitors will have cars running outside the exhibition, but level town roads are different from the hilly suburban roads around the Palace. Still more regrettable is the further complication of the show question, as the Crystal Palace Co. intend to hold a show, so that it would appear that there will be three motor car shows next winter. We understand that immediately upon the voting being announced Mr. F. R. Simms tendered his resignation, but was subsequently induced to withdraw it.

Photograph by *R. C. Ryan, Croydon.*

THE ELIMINATING TRIALS. No. 10, the 74 h.p. Wolseley racer, driven by S. Girling, passing the Bungalow Hotel on Snaefell.

USEFUL HINTS AND TIPS.

Cooling Water.

We have of late had many queries as to the cause of overheating of engines. In every instance there has been no doubt whatever that the flow of water was quite up to its velocity and that the circulation was perfectly free. The only solution to such problems is that hard water that is, well-water containing a heavy deposit of mineral salts—has been used in the water-cooling circulation. As a preventive of these troubles one should make a practice of using soft-water only. This can invariably be obtained from the household water-tank, but care should be taken, before pouring it into the radiator or the water tank, as the case may be, that it is well strained to prevent the admission of any particles of foreign matter such as are usually found floating on the surface of rain water.

Puncture Prevention.

The majority of punctures to motor car tyres are caused by nails out of horses' shoes or similar objects. Now it is highly improbable that these are driven right through the cover to the inner tube at once, but that they first stick into the cover and are driven further in at each succeeding revolution of the wheel until the puncture is accomplished. We saw for the first time on the car which the Hon. Leopold Canning drove on his last Continental tour a simple method of preventing such punctures, and one which should prove highly successful. It consisted simply of a piece of curb chain of about the size used on the Parsons non-skids (motor cycle size). A length of this is attached to each side of the dashboard at a point when, if dropped vertically, the chain would meet the ends of the spokes at the rim in rear of the hubs. A sufficient length of chain should be used so that it festoons itself about the tyre. Any puncturing object will assuredly be caught by the chain and extracted before it can do much damage.

Symptoms of run down Battery and loose Contacts.

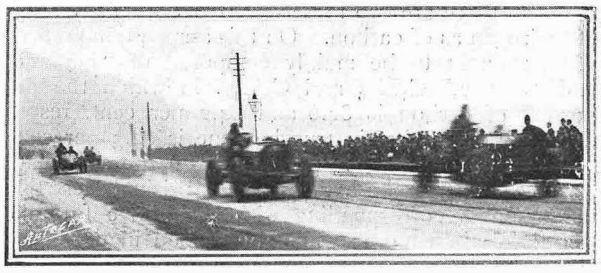
A battery which requires recharging will give sufficient current to work an induction coil for a short period. It will then fail, but will again work after a short rest. Thus, in starting up a motor which runs satisfactorily for a short time and then gradually stops and starts again on turning the starting handle, one is apt to put down the failure to some other cause, such as insufficient or too great a petrol supply, or a bad contact in some part of the circuit. If a spare battery is carried fitted with a two-way switch, this can be immediately detected by switching over to the spare battery, which should always be kept fully charged.

Sparking Plug Troubles.

When misfiring takes place one usually in the first instance examines the sparking plug, which is supposed to be the offender, for deposits of sooty matter or lubricating oil. In a number of cases it will be found that when the soot or oil on the porcelain has been washed off with a little petrol, and the sparking points cleaned with fine emery or glass-paper, a very good spark is seen between the points when the metallic body of the plug is laid on the cylinder and the necessary contacts made. Yet on replacing the plug it is found that the misfiring in this particular cylinder is just as bad as ever. This is a most deceptive and annoying trouble, which will often be caused by a crack in the porcelain, either close to the wire terminal and almost imperceptible, or it may be somewhere inside the body of the plug, and therefore cannot be seen. A good spark is produced in air, but under the compression at working conditions the spark passes from the centre wire through the crack in the porcelain to the metallic body of the plug, as this offers a relatively easier path than that between the points and through the compressed mixture. If the plug is held with the metal body in one hand and the porcelain in the other, and a twisting action backwards and forwards is applied whilst the plug is held close to the ear, a slight grating action will be heard if the break is inside the body of the plug, which should be at once discarded in favour of a sound one. A new porcelain may be fitted to the defective plug if desired. Great care should be exercised in putting in or taking out plugs from the cylinder, as there is every chance that the porcelain may receive a slight tap with a spanner and be broken, it being extremely brittle. This particularly applies in cases where plugs are placed in deep recesses and a box or tube spanner is required for insertion or removal. If the packing in a plug is screwed up too tightly the heat is very likely to cause the porcelain to crack. The stuffing gland only requires tightening up to such an extent as is sufficient to prevent loss of compression in working. To test for bad joints pour a little oil round the joints. Any blowing will be quickly shown by bubbles.

Commutator Troubles.

Referring to a hint on "Commutator Troubles" which was published in *The Autocar* of April 23rd, a correspondent writes: "Having seen your note *re* washing out the commutator of a car like my 12 h.p. Talbot with petrol, I followed your advice, which seemed thoroughly sound. After well squirting out, I thought I would finish up by a dose of petrol while the engine was running. I switched on and started up. Imagine my surprise when in a flash the whole thing was ablaze, and as I have a metal casing under my car the waste petrol in the latter (from the recent squirting out) also caught fire, and it is somewhat lucky that no serious damage was done. Now I don't know why there should have been a spark in the commutator. However, as your advice entirely cured the irregular firing of two cylinders which was puzzling me the experience was not dearly bought. Probably a 'motor expert' would have pulled the whole engine to pieces before detecting this simple thing. I had regularly well oiled the commutator from an ordinary oilcan through the hole in the cover." We very much regret that such an accident should have occurred, but it was presumed that all owners of cars would be aware that a spark of small capacity usually occurred at the break of the contact.



Photograph by *R. C. Ryan, Croydon*

THE ELIMINATING TRIALS. The run back to the starting point which ended in disaster.

THE VALUE OF BENZOL AS A MOTOR FUEL.

THE RESULT OF "THE AUTOCAR" ANALYSES

IN *THE AUTOCAR* OF JANUARY 16TH LAST (PAGE 65) AN ARTICLE APPEARED ON THE ABOVE SUBJECT. IN THAT ARTICLE SOME SURPRISE WAS EXPRESSED THAT NOBODY SEEMED TO HAVE CARRIED OUT, OR HAD PUBLISHED, ANY EXPERIMENTS UPON THE USE OF BENZOL AS A FUEL IN THIS COUNTRY.

There are two good non-technical reasons why petrol is not a satisfactory material for British car owners to consume: First, that broadly speaking it is a foreign product—for the quantities obtained from Burmah and other British possessions are comparatively insignificant; secondly, that its quality tends to deteriorate, while its price advances. If, then, some purely British substitute could be found for petrol, if that substitute could be procured at a proper price, and if the supply should appear capable of meeting any demands made upon it, there would be strong arguments, patriotic and financial, in favour of using that substitute. It was pointed out in the article already mentioned that a possible British rival for petrol does exist in the light, or volatile, spirits distilled from coal-tar; and it was shown that several of the well-known properties of those spirits (*e.g.*, benzol) seem to indicate the suitability of that liquid for employment as a fuel, while others, perhaps, suggest difficulties or objections. Such being the case, it seemed to us that the characteristics of the benzol which is now being put on the British markets were worth studying, that laboratory experiments ought to be instituted in order to ascertain whether benzol itself is likely to repay testing on a larger scale—*i.e.*, in the engine of a properly-equipped car—and whether the impurities of merchantable grades are calculated to be a hindrance. Such experimental work, it may be permissible to state, is costly, and ought rather to be undertaken by the manufacturers of benzol, for if the results are satisfactory a new market is thereby created for the material. This view, however, does not appear to meet universal acceptance, and we therefore put the matter into the hands of Mr. F. H. Leeds, F.I.C., for investigation, instructing him to make some preliminary tests upon the value of benzol as a motor fuel, the results of which are embodied in this article.

The Carbon in Benzol.

In the first place, it is frequently argued that benzol would not work well as a fuel, because the proportion of carbon it contains is so much higher than that present in petrol, that deposition of carbon in the cylinder is almost certain to occur. Writers always realise that petrol is a mixture of a good many substances, but those substances are frequently imagined all to belong to what the chemist calls the "paraffins," in which there are two more than twice as many atoms of hydrogen as of carbon. On this assumption petrol is often thought to be mainly composed of "heptane" and "octane," C_7H_{16} and C_8H_{18}, in which the proportion of carbon is 84.0 and 84.2 per cent. respectively; whereas that in true benzene is 92.3 per cent., and that in toluene 91.3 per cent. But the analysis of petrol shows that the hydrogen is surprisingly less than the amounts corresponding with the above formulæ, and the carbon more; while the carbon in the benzol is below the theoretical quantity. Thus, instead of there being a difference of seven or eight points in the carbon content of the two spirits, it is under five. In fact, there is two per cent. less carbon in 90.s benzol than is often stated, and one per cent. more in petrol; while petrol is much further in composition from hydrogen—the ideal gaseous fuel—than is usually alleged. Hence the force of one argument against benzol (carbon deposits) is greatly weakened.

The Vaporising of Benzol.

In the second place, it is commonly believed that benzol would be troublesome to vaporise, for benzene boils at 178° F., toluene at 232° F., and xylene at 282° F. (strictly speaking there are three of these xylenes with different boiling points); whereas petrol is known to be very volatile. But the figures of the report show that, although a little over the first ten per cent. is more volatile in the case of petrol, the next eighty per cent. is much less volatile, and, indeed, the whole of the benzol distils at a temperature 60° F. below that needed to vaporise all the petrol. This again proves that benzol would work better in a carburetter than is imagined; but the figures do not tell us everything, because we want to know what quantities of heat are required to volatilise given weights of both fuels. As these spirits are not simple chemical individuals, such useful data relating to them in this connection as vapour tension, specific heat, and energy of gaseity are not to be found in the books.

Proportions of Air required vary.

In the third place, the wide "range of boiling points" exhibited by petrol draws attention to a very marked superiority of benzol. By "range of boiling points" is meant the distance, measured in degrees of the thermometer, between the temperature at which the first drop distils and that at which the last passes over. Both benzol and petrol consist of a mixture of hydrocarbons, the constituents of each belonging to what the chemist terms a homologous series. The individuals in each series are very similar in their physical properties, but differ chemically from their next neighbours by a constant difference, and this difference means in practice that each individual requires a different proportion of air to consume its vapour perfectly. Neglecting, as we have a fair right to do, for the moment the small quantity of impurities corresponding with the sulphur of the benzol, the coal-tar hydrocarbon consists at the worst of a mixture of three liquids differing from one another in percentage composition. These are: Benzene C_6H_6, toluene C_7H_8, and xylene C_8H_{10}. Now, to oxidise or burn completely one part by volume of benzene vapour, 7.5 parts by volume of oxygen are needed; and to oxidise one part of xylene vapour, 10.5 volumes of oxygen are requisite. In a parallel fashion, overlooking the fact that petrol is not simply a mixture of "paraffins," the boiling points of the sample tested show that it contains hydrocarbons differing from their predecessors by the quantity CH_2 from about hexane C_6H_{14} to about undecane $C_{11}H_{24}$. To oxidise one part by volume of the vapour evolved by the former nine and a half parts of oxygen are needed, but seventeen parts are necessary to burn up one part by volume of the latter. Correcting these

figures for the nitrogen, etc., of the atmosphere, one volume of benzol vapour requires from 36 to 50.5 volumes of air to consume it perfectly, but one volume of petrol vapour requires from 45.5 to 82.

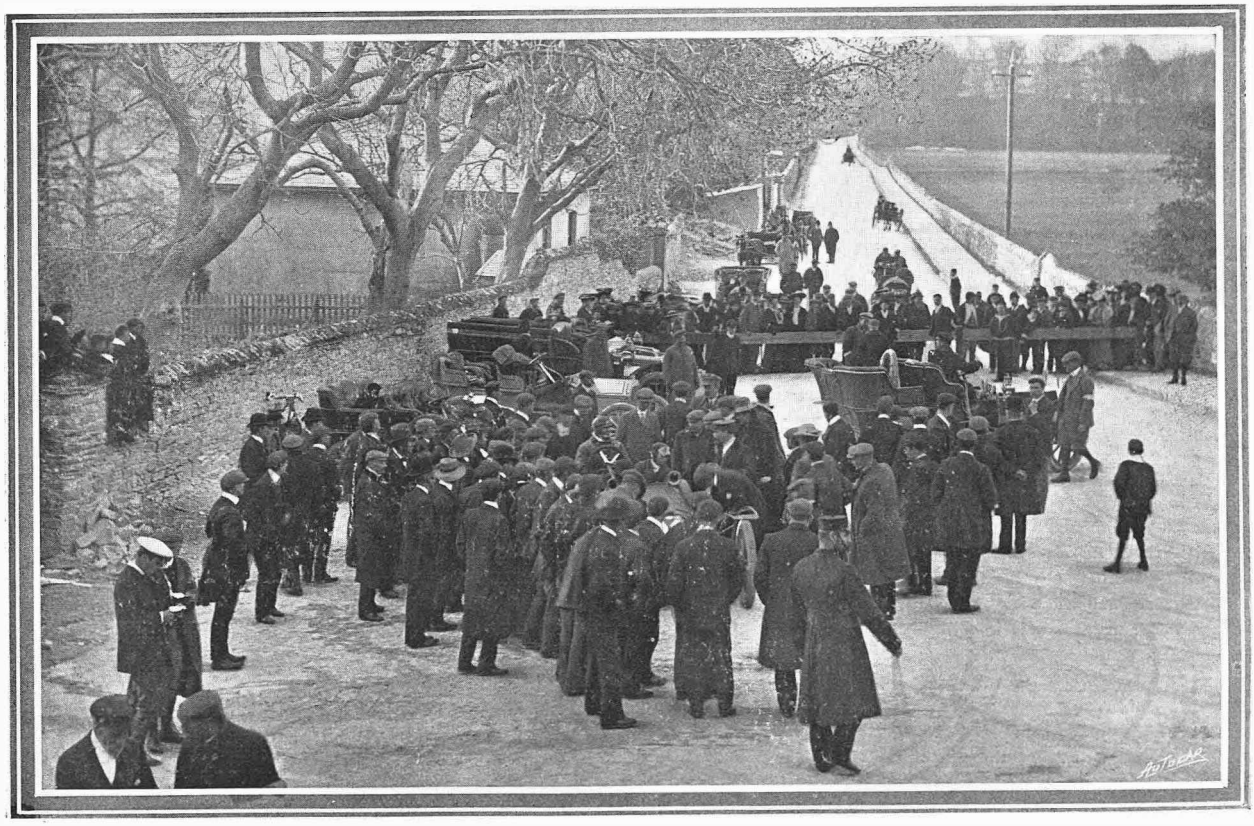
The Carburetter.

The practical bearings of this difference are as follows: Suppose in a carburetter of ordinary type the current of air excites preferential vaporisation of the most volatile constituent, the proportions by volume of air to spirit vapour in the mixture constantly increase—or ought to increase, if a deficiency or an equally objectionable excess is to be avoided. If modern petrol is used as the fuel, that proportion of air must gradually rise from 45 : 1 to 82 : 1—*i.e.*, to roughly double the original amount; but if benzol be employed the corresponding proportions can only vary from 36 : 1 to 51 : 1—an increment of approximately one-third. In other words, errors or carelessness in manipulating the carburetter are far less likely to waste fuel by imperfect combustion or to waste heat by excess of air when benzol is used; or, to put the thing in another way, a carburetter charged with benzol should require less attention after its first adjustment.

The preliminary experiments to which the two fuels have been subjected do not answer the question whether, and if so to what extent, preferential vaporisation of the lightest constituents does occur in a carburetter. This is a matter that invites study; but arguing from the analogous operation of making "air-gas," it is probable that some such separation does take place. In any case, however, there is a greater probability of fractional volatilisation occurring in a petrol carburetter, and a certainty of its being more noticeable and inconvenient (in the manner just pointed out), (*a*) because petrol contains a larger number of individual constituents, and (*b*) because the difference in boiling point between the first and the last is greater than is found in benzol. Before passing to another matter, it is desirable to repeat that volatility is not to be measured by boiling point alone. Toluene is nearly as volatile as benzene, although it boils 54° F. higher; toluene is much more volatile than water, which boils 20° F. below it.

Minor Matters.

In the fourth place, one or two minor matters are noticeable. A tank of given size weighs more when full of benzol, the difference being in the ratio 72 : 83; but when fully charged, that tank contains more stored energy. The energy stored in a given weight of benzol is less, but that of a given bulk, more. Whether a certain tank full of benzol would carry a car as far or farther is a question which cannot yet be answered, because we lack information as to the "efficiency" of benzol in an explosion engine. The "efficiency" of petrol, or proportion of its heat of combustion which is recovered as useful work, is known to be low, much lower than that of alcohol, for example; and the reason given is that compression cannot be carried far enough to secure better results without danger of premature ignition. It is not desirable to speculate largely, but it may be suggested that, limit of compression apart, benzol ought to be more efficient than petrol, because acetylene (which has the same percentage composition) is more efficient than petrol, and because a continuous production of the most advantageous mixture of air and vapour would be easier to arrange for. Very probably the inevitable products of the imperfect combustion of benzol will possess a less offensive odour than those derived from petrol. To



Photograph by *Keig Douglas*

THE ELIMINATING TRIALS A crowd surrounding Mr. Jarrott's car at the conclusion of the long distance run.

some extent, however, this may depend on the amount of sulphur in the coal tar spirit.

The Objections to Benzol.

The objections to the use of benzol have now to be reviewed. By far the most important is the sulphur it contains. This impurity presumably exists in the coal tar hydrocarbon, partly as carbon bisulphide and partly as thiophen. In all probability the sulphur would be oxidised in the cylinder of an engine into one or other of its oxides, and, being highly acid bodies, they might corrode parts of the engine. Some sulphur is permissible in an engine fuel, for London coal gas may legally contain up to twenty grains per hundred cubic feet as the annual average, and does, according to Haldane, generally contain twelve. But since calculation shows that measured under British standard conditions 100 grammes of liquid benzene yield 30 litres of vapour, that vapour must contain 0.052 gramme of sulphur per litre, or 2,270 grains per 100 cubic feet. *i.e.*, from about 100 to 200 times as much sulphur as coal gas. In actual working, however, benzol could not be so bad as these figures represent, because in the cylinder the benzol vapour would have to be diluted with at least thirty-six times its volume of air, whereas coal gas only requires about 5.5 volumes to secure perfect oxidation.

There are grounds for believing that the sample of 90.s benzol examined was fairly typical of the make of to-day, although perhaps more highly rectified grades are purer in respect of sulphur. We, however, do not want pure benzene, for two reasons: (1) Because of its liability to freeze, and (2) because it is nowadays more expensive than toluene. Data are still lacking as to the effect of the sulphur. It is perfectly conceivable, some chemists would say probable, that the high temperature of the cylinder and valves should prevent the sulphur-acids from acting as injuriously as they would in the cold. Be this as it may, the final sentence of the last paragraph indicates that we might temporarily give the distillers as a limit five or six times the amount of sulphur in the vaporised spirit as in London coal gas—say, from 0.7 to one grain per cubic foot of vapour, which is from 0.05 to 0.07 per cent. in the liquid. If prolonged experiment should show that the sulphur is not harmful, this limit may go. It must be clearly understood that the sulphur can be removed from benzol, and that the operation is by no means costly. Experienced chemists would do it for about one penny per gallon; and this extra amount over the present price would be perfectly supportable by motor car owners, even those who run their cars for business.

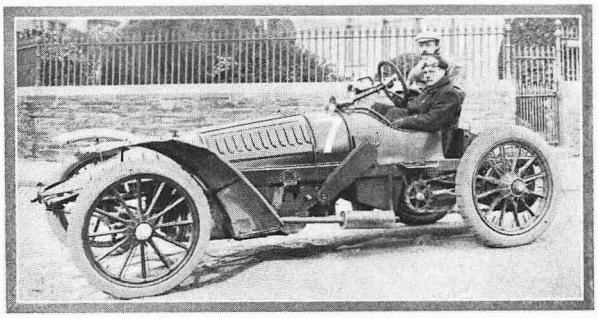
Photograph by *R. C. Ryan, Croydon.*

THE ELIMINATING TRIALS Mr. Mark Mayhew on the Snaefell Road, the winding nature of which is well illustrated in this photographic reproduction.

So far as can be gathered from the data in the books, benzol would vaporise less freely than petrol, for its vapour tension is only about one-seventh. Apparently it should behave something like alcohol, for if the vapour tension of imperfectly rectified benzene is at all less than that of industrial alcohol, the latent heat of its vapour is also less. (Precise figures cannot be given for the reasons already mentioned.) Nevertheless, since alcohol works well enough in a properly designed engine fitted with a suitable carburetter, benzol should do the same. In comparison with one suited to petrol, the perfect benzol carburetter would have to expose larger surfaces of the liquid to the air, and possibly, either the benzol or the air might have to be warmed. Since there is a good deal of waste heat about an explosion engine, not much difficulty should be experienced in attending to this. At present it is hardly safe to say anything very definite about the design of a benzol carburetter. Whether the jet should be larger or smaller than one intended for petrol must depend to a considerable extent upon the degree of efficiency which benzol exhibits in actual work. The theoretical proportion of air needed to oxidise it completely may be taken at about the mean of the figures previously quoted, say 43 : 1 by volume of vapour; but whether nearly that or a much larger quantity of air should be admitted will depend on the sulphur question, for if the sulphur be proved corrosive its ill effects might be capable of neutralisation by diluting the explosive mixture with an excess of air and nitrogen too small to bring about an undue sacrifice of economy.

It has lately come to our knowledge that experiments have been tried with benzol as a fuel in an ordinary petrol car in this country. Details cannot be published, because the opportunity of making the tests quantitative was thrown away. It is, however, possible to state that the liquid acted fairly well, vaporising with less freedom than petrol (especially in cold weather) in the manner that might be expected. The sulphur problem was not touched, because the actual spirit was benzene of unknown degree of impurity. It is therefore perfectly clear that 90.s benzol should be studied exhaustively by motor engineers, tests being made to determine its efficiency; that is to say, the consumption per b.h.p., the influence of the sulphur and the maximum limit for that impurity. Alternatively, the work might be carried out upon what the market knows as pure toluene (which does not freeze at common temperatures).

In conclusion, there appears to be some uncertainty whether the increase in specific gravity, and consequent decrease in volatility, shown by petrol of late years, have their origin in a real deficiency in the supply or in purely market operations. The supply does not seem likely to be very expansive, because the new sources of crude petroleum periodically discovered are new wells replacing exhausted ones rather than entirely new fields, and because not all grades of raw petroleum yield much and good spirit. The production of spirit may be increased by constantly leaving in it more and more less volatile matter. This has been done recently, and it is not acceptable to the consumer; indeed, it is one of the arguments in favour of using benzol. On the other hand, there is little or no reason to fear an appreciable increase in the price of benzol, even if it should be largely employed by motor car owners. At the moment, there are benzol plants standing idle, which a small rise in the selling price would bring into action. Moreover, there is every reason to foresee an increase in production of coal tar—the material from which benzol and toluol are obtained—and there is no conspicuous reason to foretell a corresponding growth in the demand for coal tar spirits unless they are taken up as engine fuels. As the greater economy of the



Photograph by *Argent Archer.*

Mr. Campbell Muir at the helm of the Wolseley car which he drove in the trials.

large stationary gas engine over the boiler and steam engine is borne into the minds of manufacturers, a smaller proportion of coal will be burnt in furnaces and a larger proportion "gasified." When coal is burnt the tar is destroyed, but whenever gas is made from coal—ordinary illuminating gas or power gas—some tar is produced, and in that tar is more or less benzol. Wider interests than those of the mere motor car owner are involved here. If more coal were converted into gas and less burnt as such, more sulphate of ammonia would be available for agricultural purposes, more tar products of all kinds (carbolic acid, benzol, etc.) would be on the market, the atmosphere of manufacturing towns would be cleaner, and, as a nation, we should be less guilty of wasting one of our most important and unreplaceable assets than we are at present.

Samples of 90.s benzol can no doubt be obtained from any of the tar works scattered over the country, and in large towns the dealers who supply chemical laboratories would probably hold a small stock. On the whole, it is most desirable to try 90.s benzol, or the most volatile spirit which is not chemically pure benzene. To make the tests really useful, however, the proportion of sulphur in the benzol should be known or ascertained, its freedom in vaporising observed, and the consumption per unit of work done noted.

The Results of Analysis.

	Petrol.	Benzol.
Specific gravity at 60° F.	0.7225	0.8830
Calorific value—		
Calories per kilog.	10,782	9759
Calories per litre	7790	8617
Vapour density (mean)	48.9	40.2
Mean molecular weight (by calculation)	97.8	80.4
Ultimate composition—		
Carbon	85.17 per cent.	90.07 per cent.
Hydrogen	14.85 ,,	8.03 ,, ,,
Sulphur		1.56 ,, ,,
Oxygen and loss		0.34 ,, ,,
	100.02	100.00

Range of boiling points (in degrees Centigrade)—

	Petrol.	Benzol.
Began to distil at	58	92
10 per cent. below	86	95
45 ,, ,, ,,	131	100
35 ,, ,, ,,	131	109
10 ,, ,, ,,	177	145

100 per cent. below.

A SHORT TRIP IN ITALY.

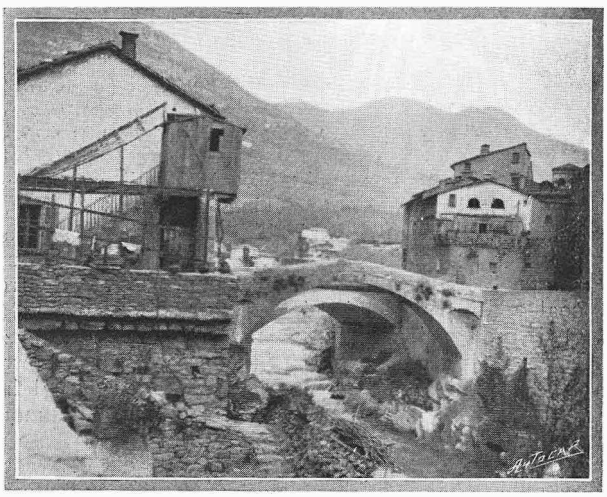
By Sir E. C. Boehm, Bart., F.R.G.S.

The Formalities to be gone through.

As so many people now take their cars to the Riviera, it might interest a few who might contemplate visiting Italy to know what has to be gone through.

Information can generally be obtained from the secretary of the Automobile Club at Nice, who allows members of the English Automobile Club to make use of its house and garage for three or four days.

From Nice you follow a winding up and down road by the sea, with superb views around Monte Carlo,



The French-Italian frontier at Breil.

Monaco, and Mentone, where it is necessary to stop at the Gendarmerie, and obtain a paper, costing a few sous, describing your car; you then proceed to the French "Douane," where you present the paper and get it signed. This enables you to enter France again without paying any duty, and is good for one year. A little further on one arrives at the Italian Douane, where it is necessary to deposit 110 francs in French gold; your car has a seal put on it, and you receive a voluminous sheet of paper. You are then free to continue your journey in Italy.

Genoa.

The first town one comes to of importance is Ventimiglia, and you bowl along with the sea in sight the whole way, through numerous villages and small towns until your arrival in Genoa. The suburbs of Genoa are simply awful, narrow, interlarded with tramway lines, thick mud, and stones, drains, pavés, and ditches everywhere. Genoa itself is hilly, very crowded, and not a town well suited for autocars. Petrol in Italy costs one franc per litre (five litres = one gallon), and it is not always particularly good. One has to be careful to have a good supply on hand, as in the smaller towns it is not easily got, although at chemists' shops one can sometimes procure it, but they ask you a high price, as they gingerly dole it out drop by drop from huge glass bottles.

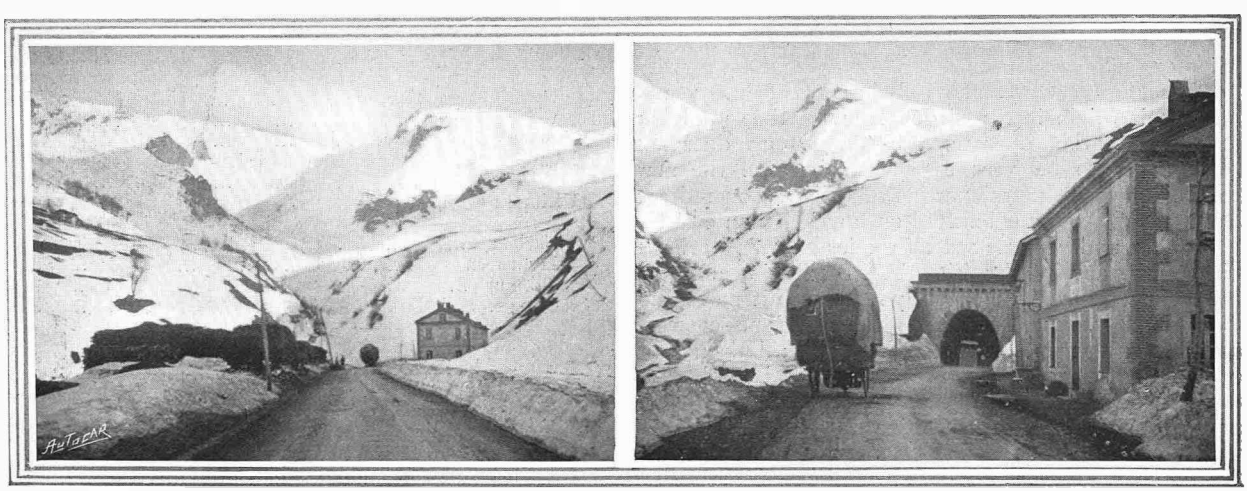
It takes almost an hour to get out of the suburbs of Genoa, with its entanglement of small dependencies and crawling carts and greasy tramlines, and then a long ascent begins, albeit a fair road, through several small towns, till one once more gets on the level.

Italian Roads.

The dust is awful, and the roads are strewn with large loose stones, deep tracks run along either side, and one has to be perpetually on the look-out for ruts and holes; this, in fact, was our experience of all the roads we travelled on in Italy, except those near the French boundary, where no doubt the force of example makes them rather more self-respecting. In time no doubt the road question will be taken up, and the Italian roads may become worth motoring on, and although I only write of the roads I traversed myself, I was always told that five kilometres further on "the roads become splendid." We used to go on our five, ten, fifteen, and fifty with a peaceful hope that each turn might bring about something new, but always the same dust, loose stones, and ruts without a break.

The Care of the Car.

In stopping at different places for luncheon, care has to be taken not to leave your car outside anywhere unattended, as it is immediately besieged by a lot of brats from seven to seventeen years of age, who amuse



The tunnel of Tenda, a roadway cut through the Alps at a height of 5,630 feet above sea level. The photographs were taken by the author of this article

themselves by writing vulgarisms and drawing faces in the dust on your panels, examining boxes, lamps, etc., and the only effectual way of stopping these cheeky little brutes is to catch, "nimport," anyone, as my mechanician used to say, and give him a good sound box on the ear, when the rest stand round at a respectful distance, counterfeiting abstraction of mind.

At last we saw lights dotted about in various directions, and we knew that we were nearing Milan. This gave us fresh courage, and touching the accelerator the car gave a shake, pulled itself together, and dashed along until we were in the outskirts of this fine old town with its beautiful cathedral. Here there is a good garage, but prices of things seem high, and we were glad once more to be jolting (as there is not much gliding or so-called sleighing to be done) on our way due west to Turin.

The road is perfectly flat, with trees on either side, and fields, and peasants' carts crawl along with the drivers fast asleep. No side whatsoever is kept, and the majority of the people that we met in the country seem to depend entirely on their horses, mules, or donkeys; in many instances the carts stop in the middle of the roads, the men curse one generously, and then climb down, rush frantically to their creature's head as if it were just going to commence to buck, kick, and run away, whereas in reality, it is difficult to make it wink an eyelid.

In Turin.

At Turin we put up at the Hotel Suisse. One saw more motors here than in Milan or Genoa, as the inhabitants appeared to take a more thoughtful and intelligent interest in the things than we should have thought them capable of, judging from the same class one met elsewhere.

We were sorry to leave this charming old town on the Po, which we did rather too late, stopping for luncheon at Carmagnola, a nice well-kept town, where the inhabitants seemed most polite, and did not stare at the car as at some unclean thing. On and on we went till the snow-clad Maritime Alps came into view, and the car seemed to purr and snort as it realised what was expected of it. At Cunea, a large military town, on a hill, at the edge of the Alps, commanding magnificent views of the surrounding lowlands, we filled up with "benzina" as they call it, had a general oiling up, tightening of nuts, etc., spun through a village or two, and found ourselves steadily mounting the Alps and surrounded by snow and mountains, with the green valley beneath, with its nestling villages getting flatter as it seemed to expand, at every fresh glimpse we caught of it. Soon collars were turned up, thick gloves put on, and we found ourselves rushing along between great walls of snow banked along either side of the road. In places it had fallen down and we had to charge through it, this serving nicely to cool our tyres. At last the Tunnel of Tenda was in sight, lamps were lighted, and care had to be taken not to skid. Water was dripping from the roof, and strange noises were re-echoing along the walls as we steadily ran along on the low speed. Once more in the fresh air, the snow had all disappeared, and amidst some of the finest mountain scenery I have ever seen, we slid down hill till we

A typical Italian road between Milan and Turin.

reached the Italian frontier at Tenda, and on again into France, presenting our papers, and stopping for the night at a village Bregueil, at a cosy little French inn, entirely surrounded by these magnificent mountains. Early the next morning we again popped into a portion of Italy, had the seal on our car set afresh, and arrived shortly at Ventimiglia and the Italian Douane, where we collected our deposit of 110 francs, returned in French money, and proceeded on again to the French Customs, who nodded graciously at us with their usual *bonhomie*, and were glad once more to be spinning along the fine French roads, having completed our little tour in Italy without any incident to the car worthy of note.

Photographs by *E. Levick, New York.*

AMERICAN AUTOMOBILISTS. A huge procession of pleasure and commercial autocars was lately carried out in New York under very bad climatic conditions, as will be seen by the above illustrations, which depict some of the vehicles of both classes lined up in the Fifth Avenue. One can hardly envy the drivers of the heavy vehicles their elevated positions, though they had a distinct score in the matter of hoods and tarpaulin aprons.

SOME MORS IMPROVEMENTS.

The name of Mors as a constructor of autocars is well known throughout the automobile world, and the designs which emanate from and are executed by this firm are not without copyists, though we might at once say that some of the designing is very much questioned by competent engineers, particularly with regard to the change-speed gear. However, the cars prove eminently satisfactory in the hands of the average user, and it is the performances of the car in which the prospective buyer is most interested.

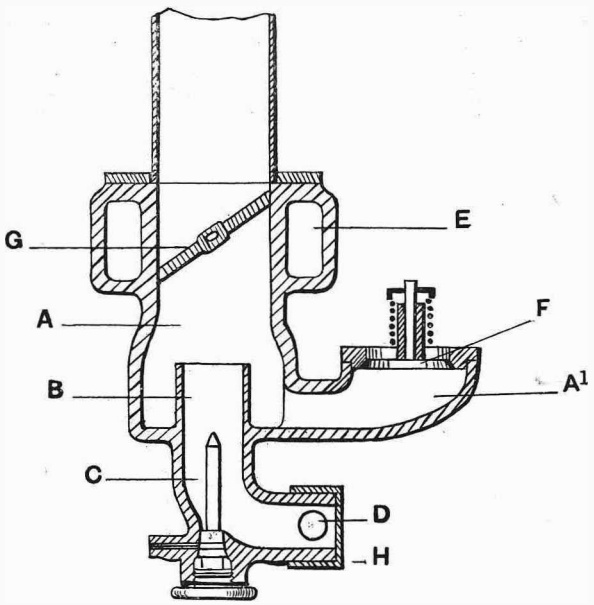


Fig. 1.—The Mors carburetter.

A, mixing chamber
B, air passage past jet
C, jet
D, air inlet holes
E, hot water jacket
F, extra air valve
G, butterfly throttle valve
H, cap for regulating opening of holes D

We are able to give herewith several illustrations of the latest detail improvements of the Mors productions. Fig. 1 is a section of the carburetter mixing chamber, showing the throttle and extra air valve. The air is drawn in below the jet through the holes D, the area of these openings being regulated by the cap H. C is the petrol jet in connection, as usual, with a float chamber. B is the restricted air passage about the jet, and A is the mixing chamber. G is simply a butterfly throttle valve, the surrounding pipe being water-jacketed at E, hot water from the cylinders flowing through this jacket. F is the extra air valve, which lifts from the suction of the motor, so admitting pure air to correct the mixture and obtain the automatic action.

Fig. 2 shows the control and the various connections, with the operating mechanism of the car. D is the throttle valve, normally kept almost closed by the spring A. D has a cord attached, which passes over a small pulley M, and has its other end attached to the lever C. This lever is pivoted at its extreme end to the steering box, and is jointed to a central rod which traverses the steering-pillar and has a lever working over a notched quadrant attached to the spokes of the steering wheel. Moving this lever clockwise causes the rod in the centre of the pillar to depress the lever C, and so tighten the cord K, thus opening the throttle D against the action of the spring A. There is also connection between the throttle and an accelerator pedal F, communication being given by a second cord L. In addition to these adjustable throttle devices, there is a third operated from the clutch pedal of the car. The pulley M over which the throttle cord passes is mounted in an arm E at right-angles to the clutch pedal and fixed to it. Thus

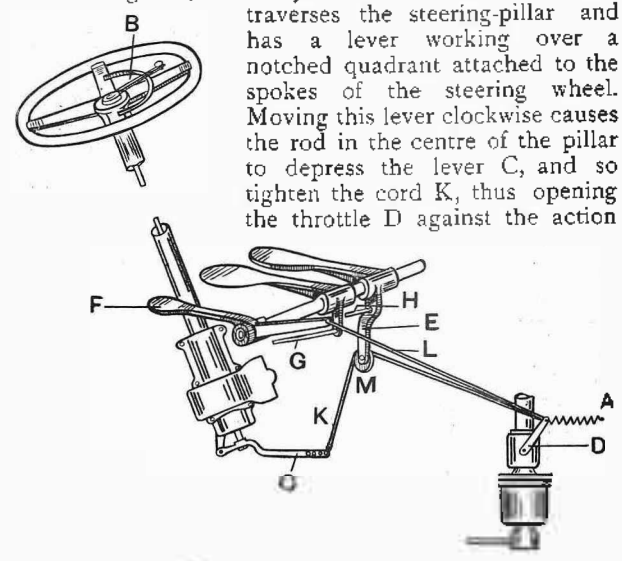


Fig. 2.—The control arrangement.

A, throttle control spring
B, throttle control lever
C, actuating lever
D, throttle valve spindle
E, arm or clutch pedal
F, accelerator pedal
G, brake rod
H, clutch fork rod
K, cord from actuating lever C to throttle
L, cord from accelerator pedal
M, roller in arm on clutch pedal over which cord K passes

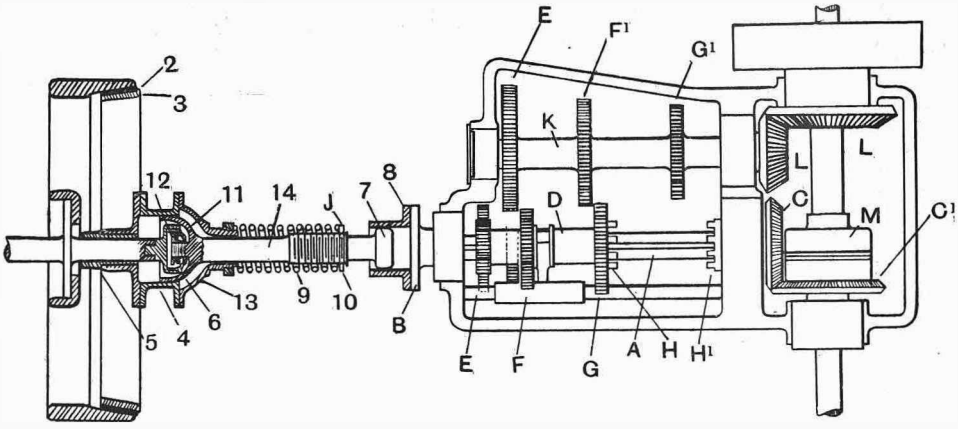


Fig. 3.—The Mors change speed gear.

A, squared primary shaft
B, coupling
C C1, top speed bevel wheels
D, sliding sleeve
E E, first-speed wheels
F F1, second-speed wheels
G G1, third-speed wheels
H H1, fourth-speed clutches.
K, secondary shaft.
L L, bevel wheels transmitting drive for the first three speeds
M, differential case
2, flywheel
3, clutch cone
4, box for flexible joint
5, bearing on engineshaft
6, flexible joint
7, flexible joint
8, coupling to gear box
9, clutch spring
10, adjusting nut
11, cup of thimble ball bearing
12, cone of thimble ball bearing
13, hollow distance piece
14, intermediate shaft

when the clutch is home the pulley fulfils simply its guiding purpose, but when the clutch is out and the pedal depressed it is moved radially, with the result that the cord K is slackened, the spring A returning the throttle to its extreme position, and preventing the engine from racing. H and G are the clutch and brake rods respectively.

Fig. 3 is the latest type of Mors gear, differing but little from that employed on the previous year's cars except in small detail. Although this gear has been described and illustrated before in *The Autocar*, its arrangements will doubtless prove interesting to our readers, particularly as the drawing shows the system from the clutch backward. The parts of the clutch and striking gear are numbered; those of the change-speed mechanism are lettered. 2 is the flywheel portion of the clutch. 3 is the male cone, carried on the flanged bearing 5, running on an extension of the engineshaft, and having the annular double collar ring 4 attached, this ring receiving the clutch striking fork. The outer face of this ring has the hollow distance-piece 13 bolted to it, and the other face of this distance-piece serves as a bearing for the clutch spring. Within the ring 4 the joint 6 fits, being rotated with it, but, by reason of its formation, capable of some angular movement. This joint is formed in one with the shaft 14, the other end of which is butted, squared, and cambered at 7 to fit in the box 8. This shaft is screwed for a part of its length, and on this screwed portion the lock-nuts 10 for adjusting the clutch spring 9 are located. The thrust of the clutch is taken up by the ball bearing interposed between the distance-shaft 14 and the end of the engineshaft, the cone being indicated by 12 and the cup by 11. This bearing is so constructed that it does not restrict slight angular motion on the part of the shaft 14.

The Change-speed Gear.—The primary-shaft is at A, and has a flange B at its clutch end, this flange carrying the squared box 8. At its other end the shaft runs in a thimble bearing formed in the shaft portion of the bevel gear C gearing with the wheel C^1 on the differential gear box M. The shaft A is squared, and on the square portion a sleeve D slides, carrying on it the wheels E, F, and G, meshing in turn with the wheels E^1, F^1, and G^1, mounted on the layshaft K. This shaft K has also a bevel gear L on its extremity, with which it is rigidly fixed. The bevel L meshes with the bevel wheel L^1, also mounted on an extension of the differential gear casing. E and E^1 are the low-speed wheels, F and F^1 the second, and G and G^1 the third. For these speeds and also for the reverse, which is thrown in by an intermediary pinion, the drive is carried from the shaft A to the layshaft K, through the bevel wheels L and L^1, to the countershaft, but for the fourth or high speed the two positive clutches H and H^1, seen on the sleeve D and the shaft of the bevel wheel C respectively, are engaged by a further motion of the sleeve, the drive then being direct through the wheels C and C^1, the shaft A running at the same speed as the engine. It will be noticed that the wheels C and L mesh right and left-handedly with their fellows, so that the motion of the layshaft K is corrected again in the transmission from L to L^1.

THE PARLIAMENTARY GOLF TOURNAMENT. The Premier leaving the Granville Hotel, Ramsgate, to take part in the golf tournament. The hotel was chosen as the headquarters *pro tem.* Many members had their own cars at hand to convey them to the Sandwich links, while others took advantage of the private cars which the hotel management, with commendable enterprise, supplied for the occasion. It is hardly necessary to state that the car illustrated is Mr. Balfour's latest six-cylinder Napier.

CASUAL COMMENTS. By A. J. Wilson.

"Wilful" Obstruction.

The typical Englishman's blood is popularly supposed to rise to a temperature exceeding 212° Fahr. at the tales we continually hear of the overbearing tyranny of petty officials in such semi-civilised countries as Russia and Turkey; but in their own exceedingly restricted sphere some Metropolitan magistrates occasionally exhibit a spirit of intolerant prejudice and a determination to misuse the power vested in their hands, which in its way is just as bad. A short time ago, for example, one of these worthies fined me, on the unsupported evidence of a single policeman anxious to distinguish himself, and in defiance of the disinterested testimony of seven independent witnesses to the contrary, for the alleged offence of committing "wilful obstruction" by visiting a shop in a London street and letting my motor car wait outside for me a matter of twelve to fifteen minutes. The policeman exaggerated the period to thirty minutes, but the magistrate said it did not matter if it was thirty minutes or one minute—the mere fact of the car standing still a single moment constituted a technical obstruction—and so I was fined for a "technical" obstruction, although the summons was for "wilful" obstruction, such a consideration as the definition of the word "wilful" being too trivial a circumstance to be considered for a moment. The magistrate repeatedly invited my solicitor to appeal upon the point of law, and my solicitor consequently did so; but, to our amazement, the magistrate then announced that he should refuse to state a case for appeal, as there was no point of law involved. Apparently, in the interim, he had looked up his authorities and found what a blunder he had made, and expected that his decision would be sure to be upset upon appeal: so, to save his *amour impropre*, he refused to state a case. I sometimes pass through the same street, and invariably see a number of horse-drawn vehicles of various kinds standing outside shops therein for periods varying, within my own knowledge, to an hour and a half, but I have never been able to ascertain that such horse-drawn vehicles have ever been interfered with for creating obstruction—wilful, technical, or otherwise.

Another Form of Obstruction.

The difficulties surrounding the problem of traffic in the streets of London have been pretty fully ventilated in the press for some time past, but one very important feature that continually impresses itself upon my attention has hardly received the notice it deserves. I allude to the apparently ineradicable habit of the drivers in charge of slow-moving horsed vehicles of driving in the middle of the road and refusing to give way to the left when they hear faster traffic endeavouring to pass them. It is not only the very slow-moving traffic—the heavy waggons that are drawn at a slow walking pace—that offend in this regard, but, particularly in the nearer suburbs, the omnibus drivers have acquired the practice of keeping along the middle of the road, with their wheels on the tramway lines, even when the street between the tramlines and the kerb is absolutely empty as far as the eye can reach. The consequence is that faster traffic is compelled to pass the 'bus on the wrong side, although this has become such a recognised practice that such vehicles as hansom cabs adopt it as a matter of course, and up to recently I never troubled about the technical illegality of so doing; but the regulations of the Local Government Board make it an offence for a motor to be driven on the wrong side of another vehicle. What the omnibuses do, the tradesmen's lads are imitating, and I recently took occasion to write to a prominent firm of London tradesmen complaining that the lad in charge of one of their carts had for a long distance refused to pull over to the left, although he heard me blowing my horn, and that he even turned round and signalled to me with his hand to pass him on the wrong side, which I refused to do; and when at last I found a sufficiently clear passage to pass him on the proper side he appeared so angry at my refusing to go on the wrong side that he pulled his horse further to the right and endeavoured to block my passage. The firm of tradesmen realised the reasonableness of my complaint, and wrote apologetically, assuring me that they had suitably reprimanded the driver. I commend this course

Photograph by *Rowden Bros.*

THE ELIMINATING TRIALS. How a racing car is taken round a sharp bend in the road. The driver and mechanician instinctively lean inward as one does when rounding a corner on a bicycle. Studied closely, this illustration is full of interest.

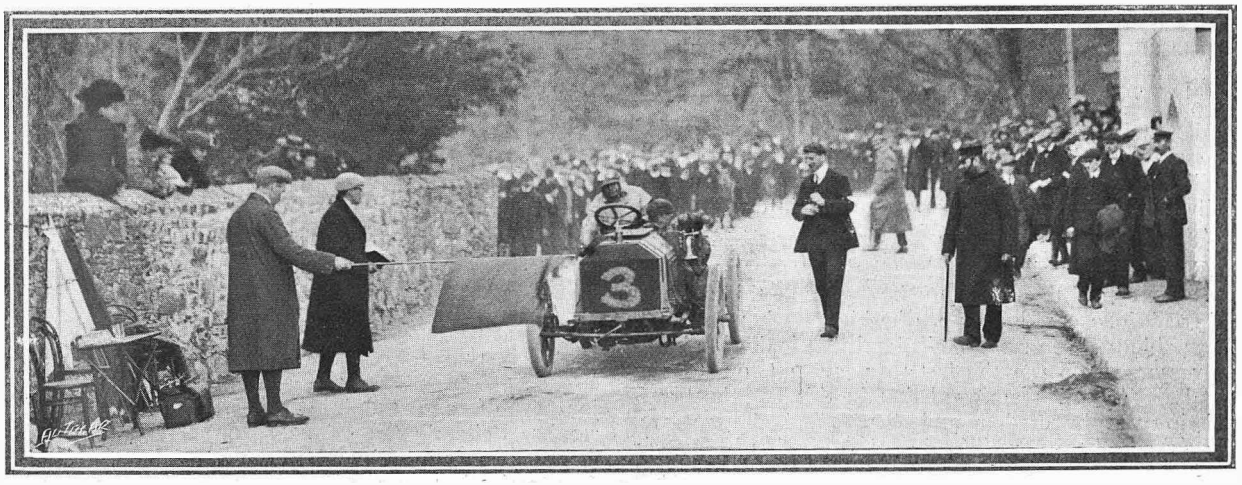
of action to any other motorist whose way is impeded by drivers who either negligently or mischievously obstruct them.

More County Council Red Tape.

Another example in proof of what I have already written regarding the London County Council's inheritance of the traditions of Dickens's "Circumlocution Office" was afforded me recently, when, having bought a new car late one evening, I wished to start to drive it to the Isle of Man the next morning. I had thoughtfully provided myself with a stock of the London County Council's forms of application for registration and drivers' licenses to supply to friends who frequently enquire for information; so I duly filled up one of these forms with a description of my new car, and in the guilefulness of my heart entrusted it to my young lady secretary, who entered into the spirit of the thing by being on the doorstep at Spring Gardens at five minutes to ten the next morning, considerably to the alarm, astonishment, and indignation of the clerical staff in Room 87. The idea of anyone "wanting to know, you know," created an impression of modified anarchy among the clerks, who explained that the number would be sent to me in two days; and when my determined young emissary explained that I was at that moment waiting to have the numbers painted on my car, and wanted to start immediately, they plaintively enquired why should the routine of the office be upset in such an unconstitutional manner? I have no doubt—as I had, in fact, anticipated—that if the application had been made by a mere male thing, the cast-iron traditions at Spring Gardens would have been triumphant; but there is no gainsaying the fell determination of a young woman with a good business training, and the argument that followed was short, concise, and to the point, with the result that in five minutes my secretaryess was in a cab speeding away to 156, Shaftesbury Avenue, armed with the mystic symbol A 5240, where Messrs. Parish and Chapple set their expert signwriters to work on the plates they had already scored out with the orthodox dimensions, and whilst one workman painted in the outlines of the figures, another filled in the white paint, and in probably the shortest time on record my newly-acquired banner was proudly floating on the breeze, so to speak, and I was gaily speeding on my way towards Mona.

Out of the Frying-pan—

I never reached Mona! My desire to make the acquaintance of the Manxes and the Minxes had to go ungratified. Why? Ask of the wandering winds—with as much chance of getting a satisfactory answer as asking the makers of my new car why they expected the halves of the differential box to hold together by nutted bolts made, apparently, of pewter. Sundry premonitory scraping sounds under the tonneau were eventually traced to this cause, but it was not until I had run just 150 miles that the car gently came to a stop with the engine racing. It was the first time I had ever had occasion to investigate the interior of a live axle box, and for the benefit of any reader who may find himself similarly situated and tempted to take down the axle by the roadside, I cannot too strongly advise, in the words of *Punch's* advice to parties about to marry, "Don't!" It took me, aided by an intelligent village blacksmith, five hours to get at the interior of my box of tricks, and when I had extracted the broken particles of eight bolts from which the nutted ends had unanimously sheared there was nothing to be done but to push the car to the railway station.



Photograph by *Argent Archer.*

Mr. Hargreaves finishing his third time round the course at Quarter Bridge. He is seen in the act of applying the brakes.

Into the Fire!

The stationmaster required me to remove all petrol from the car before he would accept it; so I wheeled the derelict into the centre of a wide coalyard and opened the drain cap to allow the petrol to trickle into an iron bowl which a porter brought for the purpose. As the last train was nearly due, the porter suggested that if I would like to go into the hotel for a wash he would look after the petrol. Adopting this suggestion, I had just cleansed the worst of the black grease from my hands when a boy came running in to tell me that my car was on fire! I made no comment. I felt that my vocabulary was all too meagre for the necessities of the situation. The porter, it transpired, had gone into the station "for a minute," and in his absence some colossal ass must have thrown a match down on to the petrol-splashed ground. Having bought the car in a hurry, I had, of course, not insured it. So I cast a sympathetic thought upon the prophet Joh, and went home. I quite realise now the importance of commencing early when making preparations for a journey with a new car, so as to allow plenty of time for coping with unexpected contingencies.

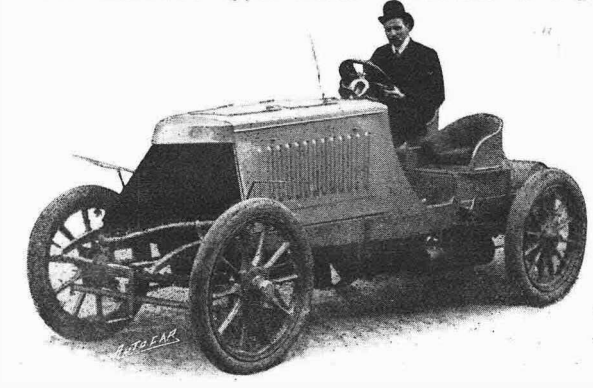
CONTINENTAL NOTES AND NEWS.

The French Eliminating Trials.

Of all the eliminating trials which are being held in the different countries, undoubtedly the most important are those held in France, where by far the largest number of cars are competing. There is more at stake for the French makers than for those of other nations, because there is no doubt the car which is victorious will hold the French automobile market. This is why the eliminating trials in France are followed with interest and excitement by the whole country, and most especially in sporting circles. All eyes are turned at present towards the French Ardennes, where the battle on which so much depends is being fought, and where the result of so much skill and work will be put to the test. The meteor-like vehicles which will come up to the starting-post, driven by skilled and courageous drivers, and furnished with the best mechanicians that can be chosen, have been discussed everywhere. We have already published a list of the drivers. At one time the organisers were almost obliged to add a new neutralisation—that is to say, at a point at Bouvellemont, where a little local railway crosses the road going to Baalons. No one knows where the difficulty arose or why it disappeared, but it cropped up like a bogey at the last moment, and, fortunately, ended in smoke. The course has already three neutralised areas and a stoppage, and had a fifth stoppage been added the race would have become a farce or at most a reliability trial—one might almost say, a kind of circuit railway with stations all along at equal intervals.

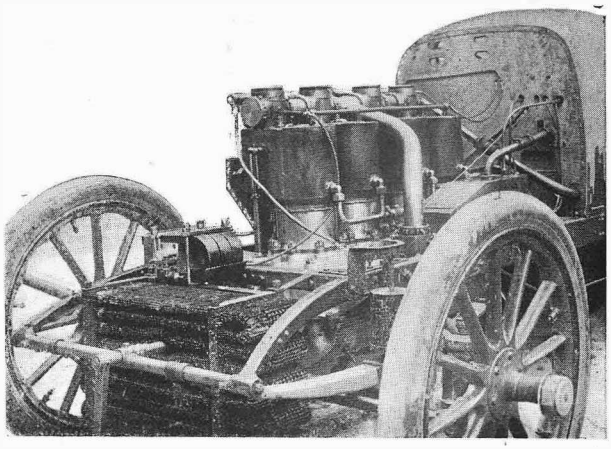
The Panhard-Levassor Gordon-Bennett Racer.

We have described nearly all the competing cars, and there is little more to be said on this subject. There is one car, however, of which we have not yet been able to give many details, and that is the Panhard-Levassor, which was the last to come out on to the roads. We only mentioned that in this car the transmission was by cardan and live axle. There are, however, other novelties in the Panhard-Levassor racing car. The motor has not been changed, except that it is larger and gives more power. It is, however, furnished with steel cylinders and copper water-jackets. The ignition is accomplished by means of a magneto of the Eisemann type, which distributes a high-



Mr. Henry Farman at the wheel of his racing Panhard et Levassor car. The new form of radiator tubing is of special interest.

tension current to sparking plugs placed in each cylinder. Accumulators or dry cells are also supplied lest the magneto should fail. The radiator is placed in front, and is just like a cow-catcher in shape. It closes the bonnet at the front, and has two little pockets at the top and bottom, in which the spare supply of water is contained. The car has a short wheelbase. The petrol tank is attached to the chassis, and, therefore, is lower than the carburetter, necessitating the use of a pressure feed. The carburetter is placed very high



The engine of the new racing Mors. Note the type of radiator and the position of the magneto ignition.

up near the valves. There are three speeds and reverse, the reverse motion being operated by an independent lever.

The Tourist Competition of the A.C. of Touraine.

This competition commenced last week with a trial of the starting of motors. The trial attracted much attention, and the spectators were greatly amused to see each competitor, as the word was given him, rushing to seize his starting handle and get the motor started in the quickest time possible. As soon as the competition was over the cars started for their first journey of one hundred miles, with the following results: Pellegrin (De Dion-Bouton) left Tours at 6.20 in the morning, arrived at 10.8; Delahaye I. left at 6.22, arrived at 11.38; Massion (De Dion-Bouton) left at 6.23, arrived at 11.10; Boyer left at 6.24, arrived at 10.46; Delaugère I. left at 6.25, arrived at 9.23; Delaugère left at 6.27, arrived at 3.50 in the evening (does not start again in the evening trial); Brouhot I. left at 6.28, arrived at 9.29; Delahaye II. left at 6.30, arrived at 11.41; Brouhot II. left at 6.31, arrived at 9.37; Cormier (De Dion-Bouton) left at 6.32, arrived at 11.41; Vivinus left at 6.34, arrived at 10.40; De Boisse (Dennis-de-Boisse) left at 6.35, arrived at 9.52; Arlès left at 6.36, arrived at 10.50; Boyer left at 6.38, arrived at 1.59 next morning (does not start again); Delaugère II. left at 6.56, arrived at 10.39; Barré II. left at 6.57, arrived at 10.16; Hérald I. left at 6.59, arrived at 10.26; Peugeot (E. Reneaux) left at 7 o'clock, arrived at 11 o'clock; Hérald II. left at 7.2, arrived at 11.55; Boyer left at 7.4, arrived at 10.59; Chenu left at 7.7, arrived at 10.24.

The second journey was over a distance of fifty-eight miles, and the following were the results: Pellegrin (De Dion-Bouton) left at 11.29, arrived at 2.3; Delahaye I. left at 1.4, arrived at 4.20; Massion (De Dion-Bouton II.) left at 12.52, arrived at 3.43; Boyer I. left at 12.22, arrived at 3.8; Delaugère I. left at 10.57, arrived at 12.56; Brouhot I. left at 11 o'clock, arrived at 12.56; Brouhot II. left at 11.9, arrived at 1.4; Vivinus left at 12.23, arrived at 3.29; Dela-

haye II. left at 1.17, arrived at 4.17; Aries left at 12.37, arrived at 3.18; Barré II. left at 11.41, arrived at 1.53; Delaugère II. left at 12.30, arrived at 3.3; Hérald I. left at 12.27, arrived at 3.10; Hérald II. left at 1.30, arrived at 3.57; Peugeot (E. Reneaux) left at 12.41, arrived at 3.15; Boyer III. left at 12.46, arrived at 2.6; Cormier (De Dion-Bouton) left at 1.27, arrived at 5.31.

The Hill-climb Trials at Vienna.

Last week there was a hill-climbing trial on the Exelberg, which is the classic haunt for Vienna automobile hill-climbers. The competition took place in connection with the alcohol exhibition which has been held at Vienna. The winning car is manufactured in Austria by Arnold Spitz, whose name one has heard of continually in connection with Mercedes cars. The car was, indeed, supplied with a 60 h.p. Mercedes motor. The driver of the victorious car was Hieronymus. The winner beat the world's record for this hill-climb. The hill is 2½ miles in length. The following are the complete results of the competition:

VOITURETTES.

Fritz Opel (Opel-Darracq), 4m. 46⅘s.

HEAVY CARS.

First: Hieronymus (Arnold Spitz, with a 60 h.p. Mercedes motor), 4m. 29⅘s.
Second: Mantner (40 h.p. Mercedes).
Third: Trummer (Regent).

Competition for Speed-measuring Instruments.

The A.C.F. is always prepared to organise competitions which will be useful and facilitate the future of the automobile movement. Amongst the apparatus likely to be employed by automobilists there must certainly be classed instruments for measuring the speed at which one is going and the distance which one has covered, and in order to aid in the perfection of such apparatus the A.C.F. is organising in connection with the trials of heavy vehicles a competition for apparatus for measuring speed and also for recording distances covered. The trials will take place over a distance of not more than 625 miles, and will commence on the 22nd of August and end on the 2nd of September. Each firm supplying an apparatus will also be required to supply a car on which this apparatus will be fixed. On the car will be an observer, who will record the behaviour of the apparatus. The jury will have the following details placed before them:

(1.) Report of the precision of the indications furnished by the apparatus.

(2.) The adaptability of the apparatus.

(3.) The regularity of working of the apparatus, and the solidity and trustworthiness of its parts.

(4.) The weight and price of the apparatus fixed in place.

Automobile Statistics.

From year to year the automobile in France continues to increase and to take a larger and more important position. A glance at the statistics which have just been published will prove this to a certainty. These statistics from the point of view of the automobile industry are particularly interesting. In the Department of the Seine alone 3,586 automobiles have come up for taxation against 2,717, which was the number last year. These figures show that there has been an increase of 869 vehicles, a very fair increase, it must be admitted, when one remembers that there are few automobile manufacturers who can turn out such a quantity of machines in one year.

We give below a comparative table showing how the totals are made up:

Automobiles.	1903.	1904.
More than two passengers	1,522	2,116
More than two passengers at half rates	495	736
One or two passengers	489	484
One or two passengers at half rates ...	211	250
	2,717	3,586

It can, therefore, be seen that cars for one or two passengers are in less number this year than last.

A Competition of Forecasts.

The Clément-Gladiator Co. has organised a competition to forecast the winner of the French eliminating trials, and the result has been a vote in the proportion of nine out of ten in favour of Rigolly.

The Taunus Race for the Gordon-Bennett Cup.

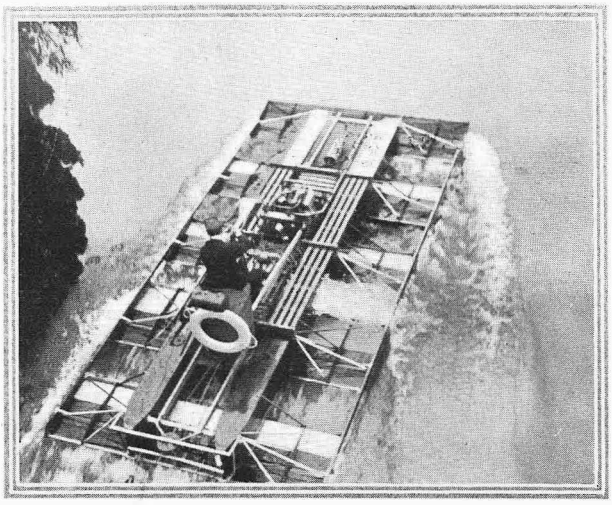
Is it not a sign of the times that the Emperor of Germany, who is such a fervent sportsman, should have decided that the day on which the Gordon-Bennett Cup will be run in Germany shall be a public holiday? Schools, Government offices, municipalities, etc., will be closed for the day in the districts of Wiesbaden and Homburg.

One of the Bayard-Clement cars which competed in the French Eliminating Trials

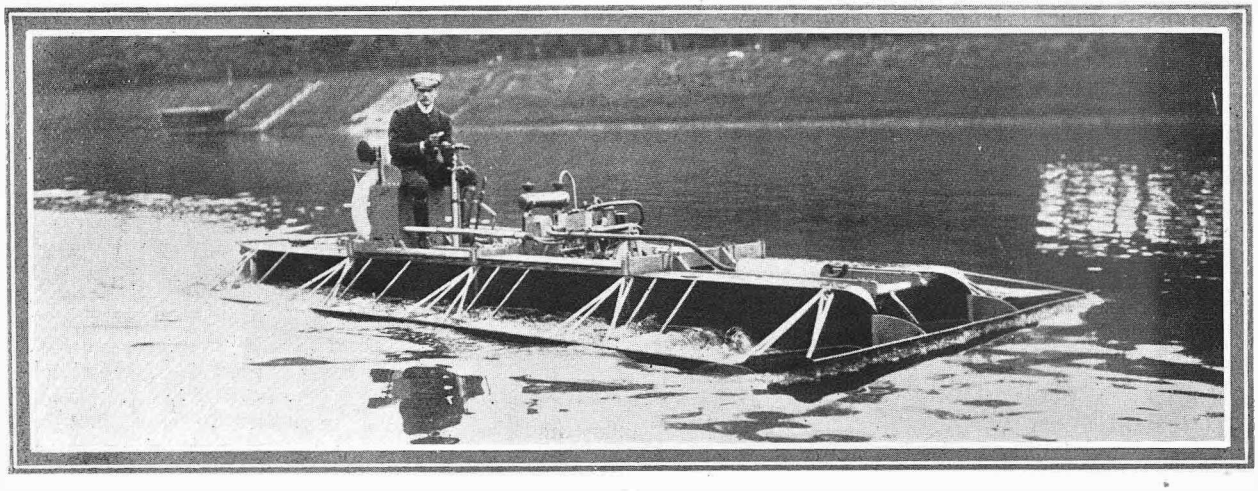
Continental Notes and News.

A New Type of Motor Boat.

Some interesting experiments were made last week in a little tributary of the Seine at Puteaux with what is called a sliding boat. The experiments were eminently successful. The sliding boat (of which we publish photographs) is nearly 20ft. in length and 9ft. 9in. in breadth; it is of rectangular form, and on the underside are fixed inclined planes, the angles of which increase from stem to stern. When the boat is at rest in the water, it floats in the ordinary manner on the surface of the water, but as soon as the propeller is set to work the front of the boat lifts completely out of the water, as may be seen by examining the illustrations, and the boat slips or glides over the surface of the water. This experimental boat, which meets with much less water resistance than the ordinary form of boat, was able to glide over the surface of the water at a speed of eighteen and threequarter miles an hour with a 14 h.p. De Dion and Bouton motor. It was officially timed to do the kilometre with the current in 2m. 6s., and against the current in 2m. 16s.—that is to say, at an average time of 2m. 11s. for the kilometre. An ordinary automobile launch of the same length, with a racing hull and with a 14 h.p. motor, cannot do more than about eight and threequarter miles an hour, so that the new boat (which has been constructed by Count Lambert and the firm of De Dion and Bouton) is a distinct advance. For some time past experiments have been in course of preparation, although nothing has been said on the subject by those concerned until they were sure of achieving success. Now they are going to make more complete experiments based on the experience gained, and there seems to be quite a future for this new principle.



A plan view of the new motor boat.



A novel motor launch which is constructed to skim over rather than float in the water.

In *The Autocar* of April 16th, page 539, we gave an illustration of an American competitor for the Gordon-Bennett representation, giving the name of the car as the Haynes-Apperson. Several of our Transatlantic readers have called our attention to the fact that the car in question is a Peerless, which we now learn is the car used in last year's Gordon-Bennett race.

* * *

It will be interesting to some of our readers to know that a cinematograph film of the pedrail tractor is now on view every afternoon at the Polytechnic Institute, Regent Street. It is a supplementary attraction to "Our Navy." It will be remembered that the pedrail is a traction engine with feet, which possesses an extraordinary facility for running on ground which would be absolutely impossible for any ordinary wheeled vehicle.

The German authorities are laying themselves out to make things very easy and pleasant for automobilists who contemplate visiting Germany with their cars during the period of the Gordon-Bennett race. By applying to the secretary of the Automobile Club of Great Britain and Ireland, 119, Piccadilly, whether members of the Automobile Club or not, automobilists can obtain a form from the club which will, when filled up and returned, ensure them a circular plaque bearing a number, which will permit their entry into Germany without paying duty, and will serve as registration and licence during their stay in the Fatherland. The price of the plaque is 1s. 9d. post free, and those who contemplate a visit with their car should apply by wire, as to-day (Friday) is the last day on which they can be obtained.

CORRESPONDENCE.

EDITORIAL NOTICES.

No letters from members of the motor industry will be published when they deal with subjects which may be regarded as advertisements for the writers' or their business interests. At the same time as many of the most practical suggestions come from those engaged in the motor industry, their letters will be inserted when possible, though the names of the firms they represent may be expunged, and the initials of the writers substituted.

Letters of a personal nature will be withheld.

The Editor, although accepting no responsibility for the opinions expressed by correspondents, reserves the right to publish a portion of a letter, and to omit any part which he does not consider interesting or essential.

All communications under a nom de plume should be accompanied by the name and address of the writer, not necessarily for publication, but to assure the Editor as to good faith.

Enquirers who ask for the experiences of private owners with specified cars, parts, or accessories, are requested to enclose a stamped addressed envelope, so that replies which space will not permit us to publish may be forwarded to them. Circulars or letters from interested parties will not be forwarded.

TYRES AND TRIALS.

[8767.]—The non-stop drive of 2,000 miles has certainly shown, to the wonderment of "Slow but Sure" [8750] and others, that persons outside an asylum think it worth while to attempt such feats. It has also shown that the most expert drivers may be hung up on the road for hours pending the arrival of fresh pneumatic tyres from London, and that half a dozen tyres were all rendered useless on the trip. A striking advertisement of the efficiency and reliability of the pneumatic tyre for the motor car. Though there may possibly still be some persons of opinion that "the amount of failure is not out of proportion to the work done," there may possibly be others who are still of opinion that, for professional and business purposes, the pneumatic tyre is "not worth its weight in straw." HARRY LUPTON.

[8768.]—In last week's *Autocar* there is a slight mistake in the account of the trials at the Ramsey control. Your contributor says: "Stocks and Earp ran through all day without any troubles to the original sets of Dunlop tyres." Very few people noticed that Earp had Palmer tyres, and I attribute the splendid times he made in all the trials to the fast running qualities of these tyres, as his engine was not nearly so powerful as most of the others. The tyres kept very cool, showing that there is less friction, and that the theory of their construction is right. His accident will be a great loss to the Palmer Co. unless the Races Committee order their tyres to be used on one of the other cars. It is a great triumph for the Palmer Co. at the first trial at high speeds. I have no interest in the Palmer Co., but I hope their tyres will take as high a place for motor cars as they have done for cycles.

B 104.

THE TYRE QUESTION.

[8769.]—The tyre question is, I think, a most important one to every owner of a car shod with pneumatic tyres. Various statements have been made from time to time by the makers regarding the durability of their tyres, but all users agree that much remains to be done to produce a satisfactory tyre, although some have done much better than others.

After the last Gordon-Bennett race your readers were treated to a considerable correspondence by interested persons in an attempt to vindicate certain tyres which failed to run through the contest.

Several events have recently taken place in which these tyres have figured largely, and from which valuable lessons are to be learned by the observant.

Mr. Cecil Edge a few weeks since attempted a non-stop run of 2,000 miles, but the account of the tyre troubles experienced is miserable reading. All the illustrations which have appeared clearly show the car to have been fitted with Dunlop non-slipping tyres (although for obvious reasons the fact has not been advertised). The makers of the car and the tyres are but members of one family group, and we may rest assured that none know better than the builder of the car of the merits or otherwise of the tyres in question, and business reasons would ensure the car being sent on its journey fitted with a set of new tyres. Yet it is recorded that the tyres not only failed to run a paltry 2,000 miles at a touring speed, but that all the spare covers had been used and burst, etc., long before the above named distance was completed.

Yet another instance comes before us in the recent eliminating trials, where again the illustrations picture nearly all the competing cars fitted with the same non-slipping tyres, which the reports of the trials tell us flew off the rims, jumped walls, and took flying leaps from the wheels into trees, and generally did everything except properly fulfil the purpose for which they were made. We may perhaps be told that these extraordinary antics were due to their superior resiliency.

But what is the lesson taught by these poor results? Is it that the tyres are not up to the standard they are represented to be, and that the motorist gets but a poor return in mileage for the high prices charged? Is it that it shows an inability to equal the Continental productions, and also has this any connection with the extraordinary decision of the Automobile Club not to count tyre troubles against the cars?

To a close follower of automobile events and doings many such matters bear a significance not in accordance with a true sporting spirit, but savour of the workings of party interests. Such trade influence might be adduced *ad nauseam*.

Even though a car can be run 2,000 miles without stopping the engine, of what use will that car be in the forthcoming Gordon-Bennett race if the tyre cannot be kept on the wheel? In spite of the view of the club, I maintain that the reliability of the tyres is of equal importance with the machinery of the car. HERBERT ELLIS.

[8770.]—As an amateur just beginning motoring, and thereby getting into conversation with others interested, it appears to me that the great bugbear is as to the experience one will have with pneumatic tyres. The fear of continual expense must deter many from commencing this fascinating pleasure, and the fact that the question is a serious one is amply borne out by your columns. In nearly all accounts of trial runs there is the same story of trouble with tyres. For instance, in your issue of May 7th there is an account of the 2,000 miles run by Mr. C. Edge, in which occurs the following significant passages:

"When on the summit of Shap Fells, midway between Kendal and Penrith, the *last* available Dunlop cover gave out, and one of the unhappy and chagrined trio set out to tramp four miles over that desolate moor to the nearest railway station."

"The concluding stages of the run to Brighton, Worthing, and London were remarkable only for such *minor* incidents as a *couple* of punctures and a burst tyre cover."

The italics are mine. The word last in the above passage would seem to point to other tyre troubles not recorded, but even if this is not so, the fact remains that in the run of 2,068 miles there were two punctures and two bursts. This in my opinion is sufficient to frighten any amateur who has a limited pocket and has to do without a chauffeur.

It would be very helpful to one in my position if some of your readers would give their experiences with tyres, and also any hints as to how to drive a car so as to avoid as far as possible all damage to tyres and to do away with the risks of being stranded in the middle of a moor with no chances of being able to get special telegrams through in the middle of the night for new tyres. Is there no tyre cover that will obviate this danger? I trust this letter will call forth some valuable hints, which I can assure the writers will be very acceptable. NOVICE.

[A most valuable tyre tip was given in *The Autocar* of April 23rd, page 543.—ED.]

MUD THROWING.

[8771.]—I notice in a recent issue of *The Autocar* that the police have arranged a trap at the village of Hoak, in Hampshire. On a recent Sunday, whilst coming through this village in a car, I received a volley of lumps of mud from behind a hedge on the side of the road. One of the pieces just missed the face of a lady who was in the car, catching me in the chest. I should have thought it would have been better if the police would put a stop to this sort of thing rather than hide behind hedges motor trapping, where no doubt they were on this occasion as although I looked for a policeman to report the matter to, I could not find one. H. B. N.

TAR-MAC FOR ROAD MAKING.

[8772.]—I was much interested in the article on the above subject in your issue of May 7th. But I was a little disappointed that so few details were given. For instance, you mention that Tar-mac costs altogether eighteenpence per ton more than ordinary granite macadam, but do not tell us the price per ton of macadam, so we have no means of ascertaining whether this increase of price be five or fifty per cent.

It would also be interesting to know how many tons of material are used per mile for a road, say twenty feet wide, and what is the life of the ordinary macadam road. It appears to me that 100 yards of Tar-mac is a very short distance to lay down, and that it would not be altogether safe

Correspondence.

to rely too much upon conclusions drawn from it. It seems to me that in a very short time the 100 yards of Tar-mac will be as thickly covered with dust as the rest of the road, this dust not necessarily coming from the Tar-mac, but being blown on to it by the wind, and carried on to it (in the form of mud) by the wheels of vehicles.

Of course, when this happens, "the man on the road" will at once conclude that the Tar-mac is to blame, and the local ratepayer might even have the bad taste to kick at the extra eighteenpence per ton.

Perhaps Mr. Hooley or Mr. Manning would enlighten us on these points, as I am sure any remarks from them would be of great interest to all motorists. CHASSIS.

THE SIDE-SLIP TRIALS.

[8773.]—As a spectator the most impressive thing to me was the manner in which every test drove home the fact that the rear drive gives a most unscientific vehicle.

The slipperiness of the test strip was greater than one would be likely to meet with in practice, but it was most instructive to note the manner in which the rear drive slid the front wheels over the surface of the greasy road, and rendered steering absolutely impossible.

Now, if the front wheels had been drivers as well as steerers every bit of grip upon the road, as indeed the mere friction of the wheels with the greasy surface, would tend to drive and to lead the car in whatever direction was desired.

This was abundantly proved, unofficially, by a front-driven car on the Friday evening before the tests, and on the Saturday immediately after they were concluded.

This car, with perfectly smooth tyres (the lot weighing, minus the driver, only five hundredweight—the lightness making the test the more severe) made at least as good a curve as the best of the cars provided with non-sideslip devices, and in addition it performed circular and sinuous courses. Moreover, these tests were all executed at a far higher speed than were the official tests

Manifestly, therefore, if front driving and steering will do these things with smooth tyres, with tyres equipped with devices for gripping the road (I have not found these necessary) this principle should give the most perfectly safe car.

CHAS. C. WRIGHT.

[8774.]—In your report of the anti-skidding competition I notice you do not give a correct account of No. 11, the car fitted with the Sainsbury device. This was the only car that made a curve on the actual grease, and went nearer to the post than any other by four and a half yards. To verify this statement an illustration of No 11 appeared in a contemporary as a car making a sharp turn.

I regret being compelled to write about this, especially as the judge's decision is not yet out, but as your influential paper criticised the competition, I think it only fair to give the actual facts of the case. W. R. McTAGGART.

AN AUTOMOBILE ENGINEERS' INSTITUTION.

[8775.]—Some months ago you were kind enough to notice in your columns a circular which I was then placing before a considerable number of automobile engineers and other followers of the automobile movement. This circular sought opinions and criticisms as to certain suggestions dealing with (I.) a proposed institution of automobile engineers, and (II.) a proposed scheme of automobile engineering education.

Out of a large number of replies received some ninety per cent. were of a favourable nature; these, moreover, were remarkably unanimous upon the following points, viz.:

I. That an institution of automobile engineers, following approximately the lines of the existing engineering institutions, should be formed.

II. That the question of automobile engineering education should be postponed for the consideration of the institution of automobile engineers when formed.

III. That only persons actually engaged in the designing and constructing of automobile machinery and vehicles should be eligible as members (associate members, etc.) of the institution; but that other persons, connected with or interested in the construction, employment, etc., of automobiles, should be eligible as (say) associates of the institution.

IV. That reports of meetings, contents of original papers discussed at meetings, and any other literary matter relating to the transactions of the institution should be printed and distributed, free of charge, among the members, associates, etc., of the institution.

V. That the institution should consider the question of organising a testing department for the purpose of conducting various official tests of automobile machinery and vehicles, and of issuing certificates of the results obtained. (This department would bear much the same relation to automobilism as Lloyd's does to shipping.)

VI. That the institution of automobile engineers should confine its attention to the strictly technical aspects of automobilism

My friend, Mr. T. M. Cairns, has since carried out a similar canvass in Scotland with much the same result.

We propose to call a meeting in London at an early date for the purpose of submitting a scheme drawn up on the above lines.

While desiring that such meeting should be as representative as possible, we find it very difficult to communicate directly with more than a limited number of automobilists. If, therefore, you could find a place in your correspondence columns for this (I fear lengthy) letter, it would be of very great assistance. JOHN F. MARSHALL, M.A.

INEXPERIENCED CHAUFFEURS.

[8776.]—Week after week letters are appearing in the "motoring" publications from owners of cars detailing trouble with their inexperienced drivers.

May I say a word on behalf of the latter, of which I am one, and no doubt my case will be typical of hundreds of others who have taken lessons with the full belief that at the end of the course, and a certificate in their pocket, a comfortable situation was a foregone conclusion

Last November I borrowed the sum required for a course of lessons and duly received a certificate. My reference (four years) states I am very intelligent, honest hardworking, and sober. I have answered countless advertisements, asking only a reasonable wage and offering to fill in spare time with other duties, being a good book-keeper, and in fact handy at almost anything. My want of experience, however, simply bars me from obtaining a situation. The schools are extensively advertised all over the country inducing many who cannot afford it to pay the fees in the false hope of an immediate position as driver.

So far we have only heard of the unsatisfactory drivers. Surely there are some owners of cars with pupils fresh from the schools who can speak a word in our favour. We cannot all be bad and without the power to use our brains.

PUPIL.

INCONSIDERATE DRIVING.

[8777.]—I have read a long explanation from a Mr. Weigel in your last issue but one in regard to his inconsiderate driving, and I cannot follow what his complaint is about.

It appears that the Automobile Club has disqualified or suspended him from trying to beat high speed records on a racing car on the public highway, and I think it was well known at the time that this was only done because the Automobile Club passed a rule to the effect that racing attempts must not be made on the public roads. Mr. Weigel did this and received his punishment, which punishment he suggests is inadequate, or rather he says ridiculous, because, owing to domestic reasons, he will never wish to race again. But that being the case, I cannot see what he has to grumble about. He has been punished in the manner which the Automobile Club considered satisfactory, and he only seems to object to it because it is inadequate. Surely there never was a case where both sides agreed so heartily.

CHAS. T. GRAHAM.

ELIMINATING TRIALS: EARP'S DISQUALIFICATION.

[8778.]—The judges admit that prior to Thursday's mishap Mr. Clifford Earp was entitled to second place in the forthcoming Gordon-Bennett race at Homburg. On what possible grounds has he been passed over, and a car of inferior performances substituted?

The public have a right to demand that they should be represented by their best vehicle, and can see no reason why in a moment of panic Mr. Earp should be debarred from the lawful position to which he is entitled, his only fault being the application of his brakes too fiercely to avoid striking the barrier which was drawn across the road too near the course.

Had another lap been run there might have been some argument that he was unable to compete, but this was not the case.

It must be admitted that four of the competitors were indiscreet in racing so close together, but the road being clear

they wished to give the public a good show of their capacity, and it was, indeed, a gallant chariot race, worthy of the old Romans, and a proof of the pluck of our countrymen. Surely all the others were just as much to blame as poor Mr. Earp. The car and the man, however, will both be fit to race again in a very few days. It is cruel that England shall not be represented by our proved best.

May I, through your journal, call attention to another anomaly. The cars we saw running were built for the Isle of Man course. In the name of commonsense the makers who have won their right to compete in the Gordon-Bennett should be permitted to enter any car which, in their opinion, is best qualified to carry off the much coveted trophy, otherwise we wilfully handicap ourselves. E. KENNARD.

[8779.]—The decision of the committee of the A.C.G.B. and I. not to place the Napier car driven by Mr. Earp second in the English entry for the Gordon-Bennett Cup seems to me incredible. The car had proved itself to be beyond all doubt the second best car in the trials. Why were the trials held? I presume to make sure that the best English cars obtainable should be sent to Germany to compete. Did the committee, in its panic at Mr. Earp's accident, think that no other driver could be found to take his place on the car which could easily have been repaired in time?

The conditions of the Gordon-Bennett, I believe, do not require the national clubs to name their drivers until the cars come to the starting point. I have just read that Mr. Earp is actually out of the hospital. He has over one month to recover.

Imagine if England was running trials to select the best horse to compete in an international race, and because the proved best horse and jockey fell after the trials were over that the selecting committee ruled both horse and rider out, and entered a slower animal! Can the committee really be serious in its decision?

Surely such good sportsmen as Messrs. Girling and Jarrott will not care to drive slower cars to represent England, especially when such an accident might have happened to either of them.

Personally, I think the sport of the Gordon-Bennett race is absolutely dead, and the sooner the A.C.G.B. and I. drop out the better. Its international character is gone: we ran the risk of the English cars being called Darracq, and we may still see an English driver on a French car this year, but so long as this country does compete, for goodness sake let the best English car start. HENRY L. CLARK.

MR. EDGE'S PROTEST.

[8780.]—As a motorist of some little experience, I should like to applaud Mr. Edge's protest against the club's judgment of the Isle of Man trials.

I do not think that since I have had the pleasure of contributing to your correspondence columns I have ever had the good fortune to be in accord with Mr. Edge, but at last I am pleased to say that I am.

I was not in the Isle of Man, and I have not seen the racing, but I have, I believe, some experience in racing and race meetings, and I can read figures as well as anybody else, and by the figures I read the first person that should have been chosen to represent Great Britain was Mr. Earp, and how the club could possibly leave him out is beyond my comprehension or beyond the comprehension of anybody else but the club itself. Is this a new method of the club's justice?

The difference of methods between the French club and the English club is palpable in the reading of the rules. The English club blandly states that, notwithstanding one does the best performance, those who enter the eliminating tests must consent to the judgment of the club. What is the good of holding tests and doing the best performance in that test if, like Mr. Earp, one is set aside after one has beaten all other competitors?

The French club simply says: "The first (3) finishers in the eliminating test will represent France."

It has been thrown out as a suggestion that the makers of Mr. Earp's car could not get it ready in time to compete in the race. If the judges of the club really put this forward as an excuse, then they are not fit to be judges of anything connected with automobilism. The Gordon-Bennett is to be run on the 17th June, which gives a month to do the work in, and I take it that Mr. Edge would have been quite prepared to guarantee that the job would have been done in a week. I know for a fact that one of Monsieur Clément's cars was smashed on the morning before the Paris-Vienna, and it was ready and did start at three o'clock the following morning, although a new frame was made, as the old one was smashed.

In a race of such international importance as the Gordon-Bennett, in which it is every Englishman's wish to be represented by their best cars, I think it is equally every Englishman's right to demand that the judges who select the chosen vehicles publish their reasons for such selection (unless, like in France, it is the winning cars that are chosen), and I trust that some of your readers, sir, will back up my letter by demanding through your correspondence pages an explanation as to why Mr. Earp was not allowed to race, and why his car was not one of the chosen vehicles.

Possibly, if a little storm were raised in this direction, we might get some insight into the brain of the Automobile Club and see of what stuff it is made. D. M. WEIGEL.

P.S.—I would suggest that the protest that Mr. Edge made would have been in better form if it had not come direct from himself, inasmuch as being a competitor he was bound to abide by the decision of the judges.

THE BRITISH GORDON-BENNETT DRIVERS.

[8781.]—I notice a letter (8754) from Mr. Stocks concerning my times in last year's eliminating trials. It is, I believe, correct that prior to the induction valve giving out my car did the fastest time at Welbeck.

I also did the fastest time on the Dashwood Hill climb, as correctly mentioned in *The Autocar* of the 30th ult., but my total average was not so good as Mr. Stocks's on account of the time lost in replacing the valve, which came out of my kilom. time.

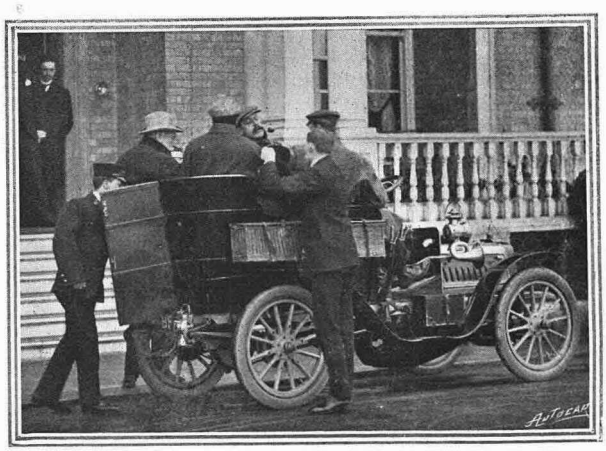
This ruled me out of the Gordon-Bennett race, according to last year's rules, although the car itself was allowed to run. CHAS. S. ROLLS.

A NEW TYPE OF LOCOMOTIVE.

[8782.]—I notice in your journal a reference to a proposal of mine for a new type of locomotive. Allow me to make a correction. I did not advocate a geared locomotive, but the use of smaller wheels for driving, say about 4ft. diameter. Driving axles not to be coupled, but each axle driven by three single acting cylinders. The advantages would be (at least in my opinion) less weight unsupported by springs owing to the use of smaller wheels. Secondly, getting rid of coupling rods. Thirdly, higher piston speed than can be conveniently used on double-acting engines. JOHN HENRY KNIGHT.

SUMMARY OF CORRESPONDENCE.

Mr. C. McR. Turrell writes in reference to the contact maker manufactured by the Aston Motor Accessories Co., Ltd., described in *The Autocar* last week (p. 663): "I feel that it is only fair to mention that the contact maker in question is quite noiseless in action, even without solid grease. It works perfectly in lubricating oil, and those I am using have given the greatest possible satisfaction in every way."



THE PARLIAMENTARY GOLF TOURNAMENT. The Colonial Secretary driving the Granville Hotel, Ramsgate, for the links in Mr. Eric Hambro 12 h.p. Talbot.

Flashes.

The Clipper Tyre Co. publish a handy illustrated list of routes out of London, which can be obtained on application to their works at Coventry.

* * *

A correspondent kindly sends us a gem from the *Manchester Evening Chronicle*, entitled "Motors and Motoring; Hints to Lady Learners." Space forbids our reproducing the article, but we give two or three extracts, which may amuse if they do not instruct. "The throttler has been called into existence by which the driver can reduce the amount of air admitted into the carburetter and so render the mixture less explosive, or reduce the amount of carburetted mixture admitted to the cylinder; and where two or more cylinders are provided he controls the number in use." Then again. "Air cooling is as yet for high speeds successfully employed on only a few makes. Two light aluminium fans suck the hot air from between the flanges on the cylinders into the wind chest, and it is ejected beyond the car by centrifugal force, two side air scoops helping the fans in their work. The improvement this effects in the lightness, appearance, and general convenience of the car is apparent to even the most casual observer."

* * *

As a proof of reliability of a good modern steam car we may mention that the other day a new Miesse car was driven straight from the Wolverhampton works to Arbroath by its owner—a distance of some four hundred miles—without the slightest mechanical trouble of any sort.

* * *

On the 15th inst., the large motor garage at Nice, which from time to time has housed many notable cars, was entirely destroyed by fire. The establishment is known as L'Auto-Garage of Nice, and at the time the fire took place there were cars there to the value of £20,000. Luckily, they were all covered by insurance. Amongst the notable owners who have lost their vehicles in this conflagration are the Duke of Leuchtenberg, Prince Soltykoff, Prince Sharowsky, and others. Nothing is left of L'Auto-Garage but the bare walls, and although it was feared at one time that the Automobile Club premises would have been included in the conflagration they were luckily preserved.

THE "AUTOCAR" DIARY.

May 16-23.—Circuit National Belge.
" 19-20.—Scottish A.C. Glasgow to London Non-stop Reliability Trial.
" 20.—French Gordon-Bennett Eliminating Trials.
" 23-31.—Aix-les-Bains Automobile Week.
" 24-29.—Arras Automobile Week (A.C. du Nord).
May (or July 25). A.C. Belgium Circuit des Ardennes.
June 4 Aero Club Meeting, Crystal Palace (2.30)
" 7.—Spa Week commences.
" 7.—Namur Week commences.
" 10-20.—A.C. de Namur's Summer Festival, Hill-climbing, Flying Kilom., and Boat Races.
" 11.—Ranelagh Club Motor Car Races
" 15-30. (Provisional date).—A.C. de Belgiques Circuit des Ardennes Race.
" 16.—Weighing-in of Gordon-Bennett Racing Cars (Homburg).
" 16.—Evening Reception at Kurhaus, Homburg (Gordon-Bennett Race).
" 17.—Gordon-Bennett Cup Race, Taunus Course, Germany.
July 10.—Mont Cenis Hill-climb (A.C. Italy).
" 22.—Kiel Motor Boat Races
" 26-Aug. 1. Spa Automobile Week and Exhibition.
" 30.—British International Cup for Motor Boats.
Aug.—Reliability Trials for Motor Boats.
Sep.—A C G B I. Reliability Trials.
(For Club Fixtures see Club Doings, page 700.)

The War Office has intimated that the proposal for the Motor Volunteer Corps to be provided with a Maxim gun cannot be complied with.

* * *

With one dissentient, the Richmond Corporation have adopted a resolution asking the Office of Works to limit the speed of motor cars in Richmond Park to ten miles an hour.

* * *

The Surveyors' Institution has been discussing again the question of "The London Streets and London Traffic," raised by a paper on the subject from Mr. Thomas Blashill. The general opinion was that more direct routes were wanted, and as an alternative to trams in crowded thoroughfares the more flexible motor traffic on roads with a smooth, easily reparable thin surface on a permanent foundation or bed was suggested.

* * *

The six photographs which we reproduced in the form of a supplement last week, illustrating the Isle of Man eliminating tests, were by Messrs. Campbell and Gray.

* * *

A reader of *The Autocar*, who is having a motor house built, is contemplating having a turntable, not, of course, as a necessity, but as a luxury, so that the car can be turned round in any direction.

* * *

Tenders are invited for the supply to the committee of Port Works, at Almeria, Andalusia, Spain, of a motor launch, at a cost of about £100. Tenders must be sent in within sixty days of the 9th of May. Particulars may be obtained at the Commercial Intelligence Branch, Board of Trade, 73, Basinghall Street, London, E.C.

* * *

"L'Automobile Devant la Justice" is the title of a legal French work in which a Parisian lawyer, who has already concerned himself very closely with automobile matters across the Channel, and, indeed, appears to be the Gallic Staplee Firth, closely considers the aspect of French law as it deals at present with automobilism. The work is of a very complete nature, and English automobilists who are French scholars, and contemplate motor touring in France, might do worse than make a careful study of its pages. M. Baudry de Saunier contributes an amusing preface. The publisher is Vve. Ch. Dunod, 49, Quai des Grands Augustins, Paris.

The Doctor's Number of "The Autocar."

MAY 28th.

"Next week a special number dealing with Motoring for Medical Men will be issued. It will contain articles setting forth the advantages of the car for medical practitioners by doctors who practise what they preach. There will also be the evidence of many doctors who have been good enough to furnish us with their motoring experiences for the benefit of their professional brethren who are not yet quite convinced of the advantages of the motor.

The Gordon-Bennett Number of "The Autocar."

JUNE 18th.

The Gordon-Bennett Race takes place on Friday, 17th of June, and "The Autocar" of Saturday, June 18th, will contain a full report of the great international race. In addition to the report of the race itself much exclusive information about the event will be given, as well as many illustrations of special merit and interest. Our account of the race will be the first to be published dealing with the event from the automobilist's point of view.

The municipal authorities of Paris have just added to their already large stud of motor vehicles a watering van of enormous capacity, built by De Dion-Bouton. It is fitted with a 40 h.p. engine with four cylinders, and is expected to do the work of several of the antiquated horse-drawn vans.

Photograph by *L. Taggart, Douglas*

THE ELIMINATING TRIALS. No. 10 coming up Hillbury Road, which is blotted out by the dust cloud.

The Merthyr surveyor recently applied to the District Council for a new horse, so that he might the better supervise the roads under his care. The council, however, considered that a motor car would be of greater service. It is not likely that the surveyor will object.

* * *

The Great Eastern Railway Co. will shortly be running a service of twelve motor cars on the East Coast. Six will run from Southwold and six from Lowestoft, and if the service proves successful similar services will be established between Clacton and St. Osyth, and other districts not now served by the railway.

* * *

The Holland (Lincs.) County Council has applied to the Local Government Board for the ten miles speed limit in respect to the embanked portion of the road from Spalding to Crowland. The Lincolnshire A.C. intends to oppose the proposal, which it believes will not be for the benefit of the users of the road in question.

* * *

The Chief Constable of Durham (Mr. W. G. Morant) has purchased a 14 h.p. Daimler for use in connection with his duties, and has already found it very useful.

* * *

A Madeira correspondent, commenting upon a grumble which appeared in our columns lately with regard to 3s. 9d. being charged for two gallons of petrol, refers to an acquaintance of his who owns a car in Madeira, and who, when he requires to run it, is mulcted of no less a sum than 30s. for a gallon of spirit.

Flashes.

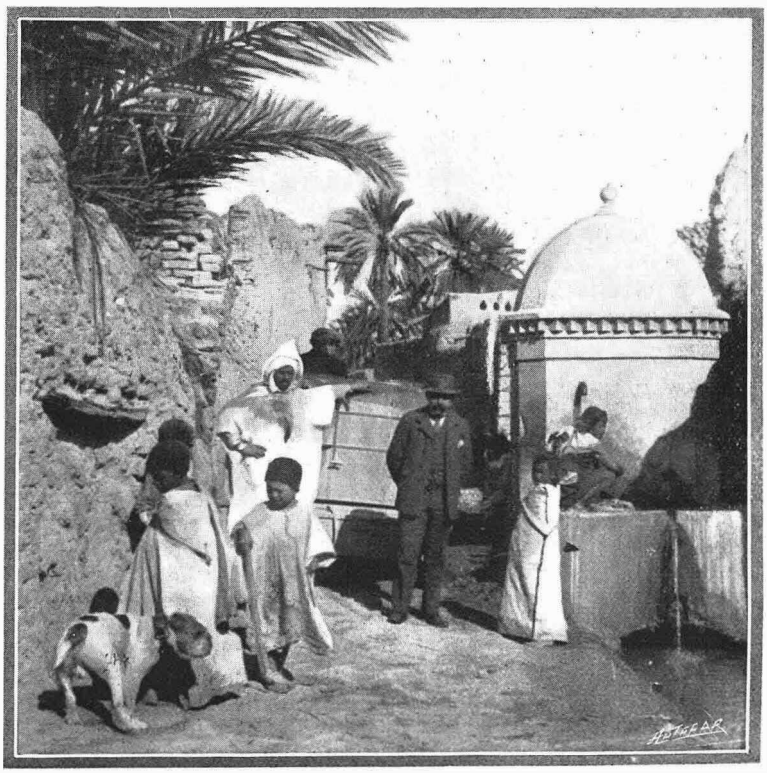
A man fined at Kingston for driving his horse so as to injure a policeman, argued that he was not driving to the danger of the general public, as that term did not include policemen.

* * *

We are interested to note that the postal authorities have at last found a motor car which satisfies their exacting requirements. In the course of his statement in the House of Commons last week, when dealing with Post Office matters, Lord Stanley said the motor car service employed by the Post Office had not been particularly successful, with the exception of the Milnes-Daimler car which runs between London and Epping, which was doing most excellent work. We hope now that the authorities have satisfied themselves as to the reliability of the motor car they will make still further use of it.

* * *

Two cases under Section 6 of the Motor Car Act, 1903, are reported. The first was at Lambeth Police Court on May 10th, when Mr. H. R. Hope was fined £10 and £3 3s. costs for not stopping his motor car on the occurrence of an accident which arose owing to the presence of his car. The other case was heard at Midleton, Co. Cork, last week, when a similar charge against Mr. Patrick Hallinan was dismissed, as it was not proved that the defendant "knowingly" contravened the Act.



An autocar at an oasis in the Sahara Desert

Flashes.

A Carlisle gentleman offered to present his motor car to anyone who could get twenty miles an hour out of it, that being the police speed for which he was fined.

* * *

The Great Central Railway have installed special facilities for the handling of cars at Grimsby, so that visitors to the Gordon-Bennett race may be assured both on this side and the other that every care will be taken of their vehicles. This is what might be expected of one of the most go-ahead railways in the country. As an instance of the enterprise of the company, we may mention that a number of special extra holiday expresses are being run this week-end, and several go through from Marylebone to Sheffield without a stop.

* * *

We learn on good authority that another experimental stretch of Tar-mac has been laid upon a piece of road nearer London than that to which we referred last week. This stretch of the new material will be found at Wallington, Surrey, two miles south of Mitcham Junction, and it has been put down, thanks to the persuasion of Mr. Stallard, surveyor to the Croydon Rural District Council, by the body for whom he acts. The length is about 120 yards, and it is particularly well adapted for experimental purposes, as it lies between two different kinds of macadam and adjacent to a portion made up of hand-picked flints. Drivers of cars passing this way will be interested to mark the respective merits of the several materials. Some comment has already been made on the black appearance of the Tar-mac, but a coating of fine slate has been laid on previous to the final rolling, which would have a bleaching effect, and which would leave the surface about as light in colour as a flint road, though a dark road would be welcomed by many road users, who find the glare of the light-tinted highway troublesome in brilliant weather, especially in the chalk districts.

* * *

Last week-end we were pleased to inspect one of the old 6 h.p. twin-cylinder Daimlers, the property of Mr. P. W. Brading, the engine of which had been most simply and satisfactorily modernised by that gentleman. High-tension electric ignition had been fitted, together with a plug form of throttle-valve set in the angle of the induction bridge piece, which throttle-valve was capable of control either by the governor or from the steering-pillar by Bowden wire at will, the valve also being proportionately closed upon the clutch being withdrawn. The car could be driven very slowly on its top speed, the engine was marvellously quietened, while when running light its revolutions per minute could be reduced to 265. Saving appearance and height of the body from the ground, the car was quite a modern-feeling vehicle to ride in, the engine being as quiet as most others.

The Speedwell Motor Manufacturing Co. inform us that they are experiencing quite a rush for their light 6 h.p. vehicles.

* * *

It really would be thought that drivers in charge of manufacturers' cars would have vehicles that, when running about the streets of London, should so behave that they would produce the best effect upon the non-motoring public, if only with the idea of making proselytes. Nevertheless, one morning early last week it was our unhappy lot to drive from Hammersmith Broadway to Hyde Park Corner behind one of these cars, which belched from its silencer a cloud of offensive blue smoke the whole way. Passing through such neighbourhoods as High Street, Kensington, the effect produced upon the public at large is not calculated to make a good impression.

AGRICULTURAL MOTOR VEHICLES. There has lately been carried out in the Warwickshire district a series of trials with a motor lorry, in which all spur gearing is dispensed with and a friction drive substituted—a system which, if we remember rightly, was first introduced into England by Messrs. A. Dougill and Co., of Leeds. The firm who are carrying out the trials referred to are the Jones Haulage Syndicate, Whitacre Heath, near Birmingham. The illustration above depicts one of the lorries in question conveying a a load of milk to a local centre.

The Motor Car Co., Ltd., ask us to contradict a report that the 10 h.p. Decauville is no longer obtainable, and to state that this car still remains one of their standard patterns. It was one of this type which created and still holds the non-stop absolute record run from Edinburgh to London in June, 1902.

* * *

Although we do not think anyone could possibly misunderstand the amusing account of the run on the old steam voiturette which we published last week, it is only fair to the modern steam car such as the White, Turner-Miesse, or Serpollet to make it clear that these vehicles are as reliable and easy to manage as thoroughly good petrol cars. It should be remembered, too, that these little American steamers of the Locomobile type, which are now looked upon as more or less unsatisfactory, filled a real want in their time, as they were practically the only silent, smooth running machines which could be bought for a reasonable figure when they were first introduced into this country.

OCCASIONAL GOSSIP. By the Autocrat.

Everyone who saw Earp drive in the eliminating trials regrets to hear of his accident. So far as could be gathered from his style and looks he was never flurried, and drove through like a veteran. Speaking of veterans reminds me of Mr. Hargreaves. I suppose he was the oldest man driving in the trials. He certainly cannot be accused of nursing his car; in fact, it is a marvel how he keeps it on the road.

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Some people regard me as a blind champion of the four-cylinder engine for petrol cars, but I want to say that I am not. I merely record what I have experienced, and up to the present I must say I have not sat on any vehicle which can beat, for smoothness of running, a good four-cylinder engine. I admit at once that there are many four-cylinder engines which do not run as well as they should, which give more or less vibration at certain critical speeds, and are altogether far from what they might be. On the other hand, given a properly designed four-cylinder engine it is most difficult to improve upon it. All sorts of complicated systems of balancing have been introduced for which sweeping claims have been made, but it cannot be said that the result justifies the claims of the upholders of the specially balanced two-cylinder systems. It is true that they run remarkably well considering that they only have two cylinders, but sooner or later the thump of the two-cylinder engine is apparent, and directly the engine begins to labour, whether it is balanced or not, the occupants of the car realise more or less painfully that it only has a couple of cylinders; not only so, but all the balancing in the world will not enable a smaller number of cylinders than four to obtain so constant a driving effort. Speaking of two-cylinder engines, I wonder why the simple opposed type is not more often employed. It was very satisfactory on the old two-cylinder Benz vehicles, and there was a two-cylinder engine built by Turrell some years ago, which was illustrated and described in *The Autocar*, which really ran very smoothly. Besides that, there are one or two little-known American vehicles with two opposed cylinders which I have tried, and these also run with remarkable smoothness. They are not so good as the best four-cylinder engines, but they provide a very sweet-running engine with the smallest number of parts by which it seems possible to get fairly satisfactory results.

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It seems to be rather a pity that the critics of automobile racing should continually harp on the fact that there are no practical advantages to be derived from it in its present form. Without going into the question at the moment as to whether the racing monster is useful in aiding the development of the touring car, it seems to me very strange that motor racing should be the only sport in which its critics insist that it should carry utilitarian advantages. They say that motor racing will not enhance our commercial prosperity, and that appears to be the end of it. The same remarks might be made about almost every sport. For instance, what is the good of fishing except the sort that sportsmen never indulge in? What is the use of golf, when all its benefits might be obtained by a series of light gymnastics in the open air? In fact, we might run through all the sports, and show how useless they are except so far as they develop muscle, train the eye, and test the nerve and pluck of the participants. In these respects motor racing is, to say the least of it, one of the most manly sports. Not only is it physically a game for strong men only, but it unquestionably requires uncommon pluck, nerve, judgment, and quickness of eye and hand.

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The editor has forwarded me a proof of Mr. John Henry Knight's letter. I must apologise for mentioning him as an advocate of the geared locomotive, when as a matter of fact he was commending to the attention of engineers small wheels all separately driven by high-speed single-acting engines. However, I am not sorry personally to hear that Mr. Knight is leaving me to champion gearing as an alternative. I know there are many difficulties in the way, but it would appear that the limitations of the large wheel direct-driven railway locomotive are nearly reached, and if the loads and speeds are to be materially increased it will only be by striking out on lines not hitherto associated with railway locomotive practice. When so sound an engineer as the late Mr. David Joy, the inventor of the world-famous Joy valve gear, advocated a design for a locomotive which embodied an enlarged edition of the cycle free-wheel, I hope neither Mr. Knight nor myself will be regarded as profane in suggesting that something might be done by a careful consideration of motor car practice. Writing about the late Mr. David Joy reminds me that comparatively few automobilists are aware that Mr. Basil Joy, the technical secretary of the Automobile Club, is a son of the celebrated engineer.

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I do not think the average owner of a petrol car realises how greatly steam cars have been improved within the last two or three years. There is no doubt that, speaking generally, they did not compare favourably with the petrol car at one time, but, despite the almost innumerable improvements which have been made in petrol cars, it is not too much to say that steam cars have kept pace with them. When we have vehicles which can be driven one hundred miles or more without a stop for fuel or water, and which require no more attention while on the road or in the car house than the best petrol cars, I think it may fairly be said that the steamer has not only held its own, but it has made up any ground it may have lost. There is a delight about the smooth elastic running of a good steamer which has to be experienced to be appreciated. It is true that the variety of steam cars is small compared with petrol vehicles, but there are four or five makes at least which are most delightful vehicles, though they scarcely get the credit from the public they deserve, as most of them look just like petrol cars, and as they seldom if ever show any exhaust the average beholder merely thinks what nice silent cars, and wonders why all cars are not as quiet. Some people talk as though the ideal of the maker of the steam car was to emulate the petrol vehicle, but as a matter of fact it is really the steam car, with its great range of power in the engine—so great that no change-speed gear is required—which has brought about the quiet-running petrol car. Steam car control is from the throttle, and always has been, while from a petrol point of view the throttle is a comparatively recent introduction, and great though the control it affords may be it is far less than that which the throttle of a steamer gives to the driver.

SOME QUERIES AND REPLIES.

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

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

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

STARTING TROUBLES.

I now have a lot of trouble in starting my car (7 h.p. Panhard Centaure) when cold. All the winter I have used a rubber hot water bottle with marked success—a tip from your paper—but now there should be some quicker way. I have no compression taps in my cylinders to lessen the labour of turning the handle. Clean sparking plugs and valves do not seem to hasten matters. Would cutting nearly all air off and enriching the mixture make any difference?—H.L.D.

DRIVING.

I read in *The Autocar* last week a paragraph which comes under the heading of "Noise in the Silencer—Driving." I am particularly interested in the last paragraph *re* the use of an accelerator. I drive a two-cylinder twin slow running 12-14 h.p. engine. Does the use of accelerator apply also to my engine, as I habitually drive with accelerator down (which cuts out the governor)? I should be glad if you could put me right. At the foot of the paragraph I note the following: "If the spark is advanced as far as possible, the engine speed will be as high as the governor will permit." Does this mean that the spark is advanced with the accelerator up, that is to say, with the governor governing? On pressing down accelerator pedal to cut out governor and so obtain a high speed, should spark lever be retarded slightly?—H.H.

When the spark is fully advanced and the accelerator is down keeping the governor out of action, the speed and power of the engine will be as high as possible, for the piston is drawing in a full charge of mixture and igniting it at an early period, this of course resulting in the high power and speed, but if the accelerator is up and the governor is functioning, then the mixture admitted to the cylinder will be regulated by the governor, and so the speed of the engine will be kept to its normal if properly adjusted. That is to say, it will not run above the speed for which it has been designed to work for long periods. It is advisable to advance the spark somewhat when running with the accelerator pedal down, but this should not be fully advanced; otherwise it will tend to overheating the engine.

OVERHEATING.

Can you explain how it is that my engine gets so hot in about five miles that it takes the temper out of the valve springs, and by so doing lets all compression away? The engine is a two-cylinder 12 h.p., and this defect has only developed since I have had the engine overhauled and a new commutator put on. Previously I could do sixty or seventy miles without the least sign of overheating, but now the engine gets so hot that it does as mentioned. I am using Pratt's A with air valve full open. I have just had the valves thoroughly well ground in and the cylinder rings are in splendid condition, no sign of heating through, yet the crank case top is quite hot after a very short run. The water circulation is quite free, and the compression on the engine very good indeed. If you could advise me where to look for the fault I should esteem it a favour.—A. ARMITAGE.

In all probability when fitting the new commutator to your engine the half-time gear wheels were not put back in exactly the correct place to give the proper timing. The small gear wheel on the engineshaft and the larger gear wheel on the camshaft have one definite relative position to each other, in which the opening of the valves is correct, as also is the timing of the spark. The teeth which should engage with each other are usually marked in such a manner that a little care will enable the gears to be re-established in their correct positions after being dismantled, but unless great care is taken and the position of the valves and the firing is carefully checked after remounting the parts it is very easy to place the gear wheels so that they engage one tooth forward or behind that tooth which gives the proper position. If the gear wheels have been mounted so that the larger wheel is one tooth behind its corresponding tooth on the smaller gear wheel, then the exhaust valve will open later than its proper period, while a corresponding difference will be made in the time of firing, though this time is capable of variation by means of the advance ignition lever, whereas nothing can be done to alter the opening of the valve by the driver excepting the dismantling and re-assembling of the gear wheels. Now the result of such error in setting is overheating, for the later fired charge burns somewhat more slowly and so develops more heat, and the hot gases are retained in the cylinder for a longer period on account of the delayed opening of the exhaust valve. If you will carefully check the setting of the valves you will probably find that there is a slight error. This checking may best be done by observing the relative position of the piston to the exhaust valve. After completing the firing stroke, that is, after the time that the contact has been made at the commutator, when the piston has descended to the bottom of its stroke, the exhaust valve should be just slightly lifted if the valves are correctly set. If the valve has not begun to lift, it may then be taken that the gear wheels are incorrectly intermeshing, and that the cause of the trouble lies at this point.

THE CHEAPEST CAR ROUTE TO FRANCE.

(1.) Would you give the cheapest return boat fare for a motor car to France, and say whether the car has to be at the boat at any specified time? (2.) Is any tax payable, and are English numbers and driver's license available in France?—T.P.

(1.) The cheapest route for car transport is by the Bennett Line, sailing out of the Thames. We cannot give you the exact cost or the dates of sailings, but if you address Messrs. Bennett and Co., 29, Tooley Street, S.E., you will obtain full particulars. We know the cost of transport is considerably below the lowest cross-Channel route, which is Southampton-Havre, by which line the charge is £2 7s. 6d. for the single journey. (2.) The duty payable upon cars entering France is £1 0s. 4d. per cwt., which, provided the confirmation of the receipt of the duty is presented at any customs house upon the frontier within one year of its date of issue, will be reimbursed less a trifling fee. English numbers and license are not accepted in France. All cars capable of travelling over eighteen miles per hour must carry a French number. Two stamped declarations must be made to the prefect of the department in which the port of entry is situated. One stamped declaration must be from the owner of the car with the request for permission to drive, the other from the maker of the vehicle stating its maximum speed on the road, maximum r.p.m. of the motor, gearing particulars, and diameter of driving wheels. You will also have to attend by appointment at the prefecture to be examined by an *Ingenieur des Mines* as to your proficiency in driving before you get your *permis de conduire*. We should strongly urge you to at once become a member of the Motor Union, when the officials of that body will obtain all the necessary papers for you and take the harassing nuisance of lodging them in proper form off your shoulders.

DARRACQ CARS.

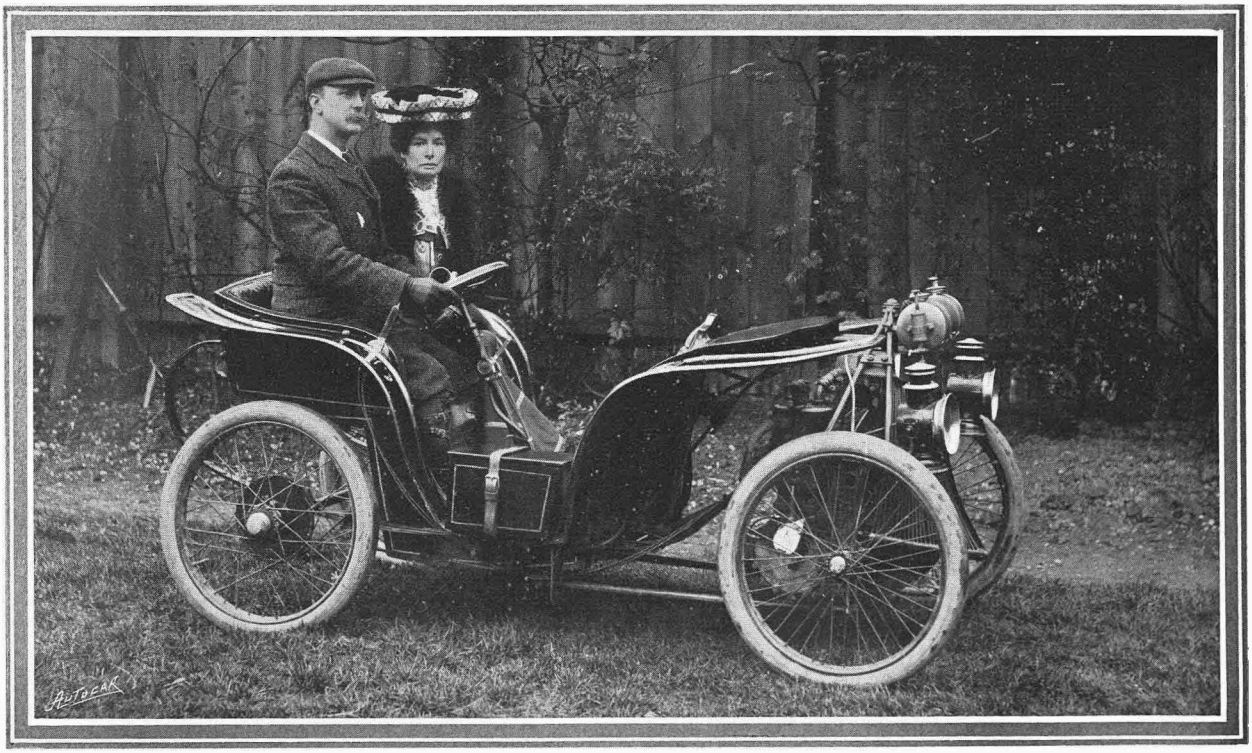
In reply to "15 h.p. Darracq": (1.) The dry batteries are useless. A well charged accumulator will outlast three sets on one charge. Personally, I used three sets on less than 1,000 miles. (2.) The substitution of trembling coil will probably result in loss of power. I find the make and break quite efficient. (3.) The spring should bend slightly on contact with the platinum-tipped screw, but all four trembler springs and screws should be the same distance apart. (4.) The average number of miles to be got out of a gallon of Carless petrol is about twenty-two. (I have driven 100 miles on exactly four gallons.) (5.) I have not broken

any clutch springs since I have had the car—nearly four months. (6.) I find a difficulty in getting the engine to run very slowly, and attribute it to the governor, which is very difficult to set properly. Explosions in the silencer are, no doubt, due to unexploded charges entering it. Misfiring probably takes place also at high speeds, but the charge being so quickly driven out of the silencer is not noticed. Other things being in order, this is probably caused by an abrased wire on the commutator in front of the car, or, what is equally likely, the wires inside the commutator are fouling the springs and preventing them making proper contact with the screws. I have frequently proved this to be the case by taking the covering of the commutator off and running without it. (7.) "15 h.p. Darracq" should be able to get any intermediate speed by means of the governor lever in the centre of the steering wheel, and by tightening or loosening the governor spring.—M. J.

PARAFFIN BURNERS.

Replying to the query on page 663, I consider after practical and extended experiments with several types that the most suitable burner for steam cars is the system of combined paraffin and petrol, as used on the Turner-Miesse steam car. A description of this burner appeared in *The Autocar* of October last. All paraffin burners are troublesome to heat up initially. But with a mixture composed of petrol and paraffin this is reduced to a minimum. The actual quantity of petrol used is small, as it need not be on more than six minutes for heating purposes. A small petrol tank holding about two gallons is fixed on the car. The paraffin tank holds about ten gallons. Both these tanks contain an air pressure of forty-five pounds per square inch, originally obtained by a hand pump, and maintained by a pump driven off the axle of the car whilst running. A small blow lamp (called by the makers a pilot light) is permanently fixed to the boiler casing. Half an ounce of methylated spirit starts the pilot light, which is connected direct to the petrol tank by a small bore tube. This heats the vaporising coil. When the latter is red hot petrol is turned on through a separate connection. This is immediately vaporised on passing through the red hot coil, and thus the Bunsen burner becomes ignited. After burning petrol for, say, five minutes the paraffin is turned on gradually, and the petrol turned off. The petrol is not brought into requisition again until the burner is extinguished or the pilot light started. Before turning the paraffin off it is necessary to open the petrol cock and send petrol through to clear out the paraffin. This is most essential in order to prevent the latter carbonising in the vaporising coils and blocking them up. As regards being affected by wind, I believe this burner is wind-proof. A correspondent—an expert in steam cars—in a letter to *The English Mechanic* of February 27th, 1904, writes, after running eighty miles on a Turner-Miesse car in a snowstorm: "In spite of the terrific gale that was blowing the burner was not affected in the least, although I should have never believed it possible for a burner to have kept alight in such weather." The system, however, wants thoroughly understanding and careful working, or failure will result. The best results are obtained by using a high-class paraffin—almost colourless liquid. It is probably the cheapest in the long run, as you get more heat and less trouble. The chief thing to avoid is blocking up the vaporising pipes with deposit. These should be looked to every day, and any paraffin that has a tendency to form carbon should be avoided. All paraffin and petrol should be passed through extra fine gauze funnels when filling the tanks, and do not use the same funnels for your water tank. In my opinion, this burner would be considerably improved if it was lowered and raised automatically according to the amount of water being passed into the boiler, the object of so doing being, of course, to save fuel and lengthen the life of the generator tubes. It is, I believe, maintained that the driver ought to do this by hand. This is obviously impossible, unless the car is brought to a stand, as the driver's whole attention is already fully occupied (1) by steering, (2) feeding in water by the regulator, (3) operating the brake and throttle, and (4) occasionally hand pumping. It does not seem a very difficult matter to so connect the fuel and water supply as to get a proportionate feed, as M. Serpollet has already done on his new Simplex car, which now uses paraffin under pressure, instead of a pump fed as originally.—G.

For the information of your correspondent, W. E. Kelbe, of Cape Colony (p. 663), I find a paraffin burner made by Brough and Co., of Manchester, is the best I have tried on my 12 h.p. steam brougham.—HY. GRRRS.



A CAR BUILT BY AN AMATEUR. At the close of the A.C.G.B.I. side-slip trials a small car of distinctly original design drove through the grease patch several times, and though it was not fitted with any anti-skid device, and the driving wheels gripped the slippery surface but indifferently, there was no sign of a side-slip. In this car the front wheels take the drive, and the great difficulty hitherto experienced with front drivers, the enormous strains on the steering, has been overcome by the adoption of a non-reversible type which both pulls and pushes the forecarriage round. This car was built entirely by an amateur engineer, Mr. C. C. Wright, of Gunnersbury. It took him three years to build, and it was constructed in his dining room.

THE ISLE OF MAN ELIMINATING TRIALS.

THE RESULTS OF THE HILL-CLIMBING CONTEST NEAR RAMSEY AND THE SPEED TRIALS AT DOUGLAS ARE DEALT WITH IN THIS ARTICLE, AND A REPORT OF THE PROCEEDINGS IS GIVEN, TOGETHER WITH SOME INTERESTING NOTES AND COMMENTS ON THE TRIALS.

WEDNESDAY, MAY 11TH.

The great event of Tuesday, the 10th inst., having been successfully carried out, public attention in the island turned to the timed hill-climb, which was arranged to take place over a measured half-mile on the Port Lewaigue-Manghold Road, up an average gradient of one in sixteen. A very large number of spectators journeyed out from Douglas by the electric trams and automobiles to the scene of the contest, so that the course of the climb was lined with interested spectators from the foot to the summit. Each car made three runs, in the following order, and with the following results:

Results of the Hill-climbing Test.

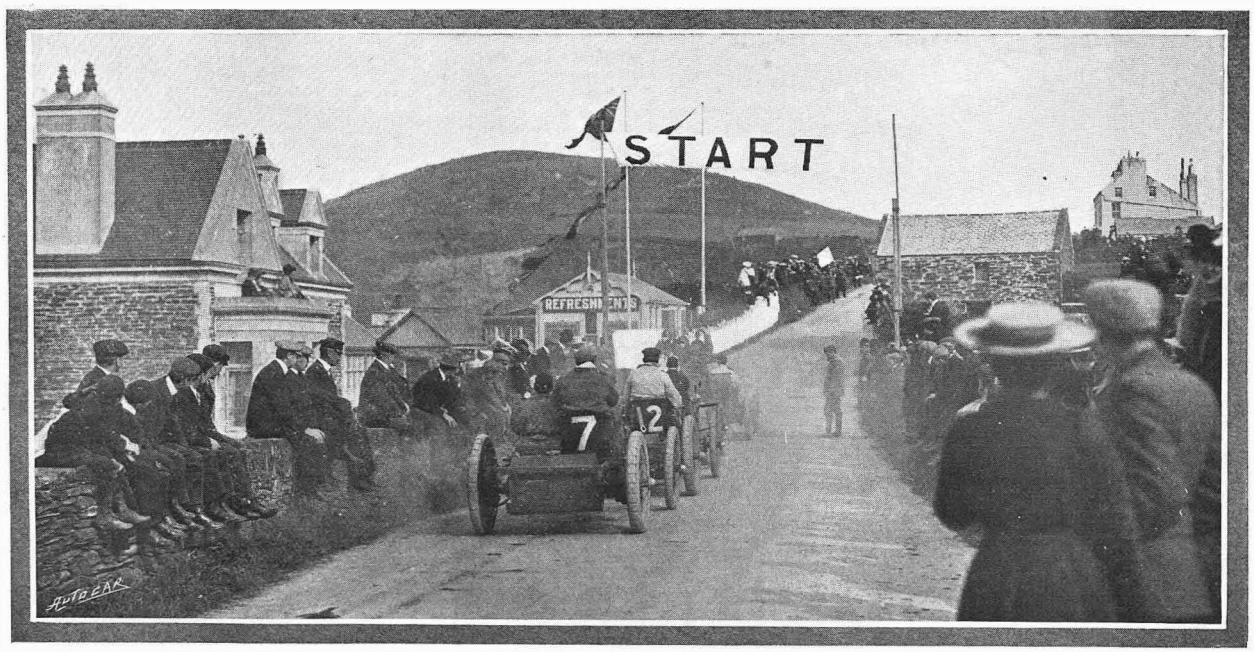
	Driver.		First Ascent.		Second Ascent.		Third Ascent.		Average Speed.
			Time secs.	Miles per hour.	Time secs.	Miles per hour.	Time secs.	Miles per hour.	Mile per hour.
1	Stocks	Napier	57⅘	= 31·35	57½	= 31·46	55½	= 32·60	33·47
3	Hargreaves	,, ...	51	= 35·29	51	= 35·29	51	= 35·29	35·29†
6	Earp	,, ...	44⅘	= 40·54	42⅘	= 42·05	43⅘	= 41·09	41·22
9	Edge	,, ...	38⅘	= 46·17*	39⅗	= 45·91	39⅘	= 45·45	47·74
10	Girling ...	Wolseley	44	= 40·90	44⅗	= 40·35	43	= 41·86	41·09
12	Jarrott	,, ...	47½	= 37·97	48⅖	= 37·34	51⅘	= 34·88	36·73
7	Muir	,, ...	49⅗	= 36·29	51⅘	= 35·02	50	= 36·00	35·77

* Fastest individual run. † Times were exactly equal on each run.

In the evening a large party, comprising His Excellency the Lieutenant-Governor (Lord Raglan), Deemster Keen, members of the Council and the House of Keys, together with nearly all the English officials and party, dined together at the Castle Mona Hotel. The chair was occupied by Colonel Holden, R.E., who had His Excellency the Lieutenant-Governor on his right and the Deemster on his left. The toast list was one of abnormal length, but in the speeches that had a bearing other than personal it was clear that not only the light and leading of Manxland, but Manxmen throughout the island, were delighted at having their island roads chosen as the scene of the trials, and the prospect of their roads being devoted to motor racing again at intervals. Should the latter come about, great improvement was promised in the roads that might be selected for the purpose. After the loyal toasts and that of the Lieutenant-Governor (which, of course, proceeded from the chair), Earl Russell, in a brief but brilliant and pithy speech, gave "The Manx Legislature," which in celerity of legislation offered a fine example to another house of law-makers across the water. Members of the Council and the House of Keys responded. Major Lindsay Lloyd, R.E., proposed "The Chief Constable"; Mr. Jas. Ochs "The Mayor of Douglas"; Mr. Alf. Bird (the chairman of the Races Committee) "The Competitors," to which all but Mr. Earp responded; and Deemster Keen gave the toast of "The Chairman."

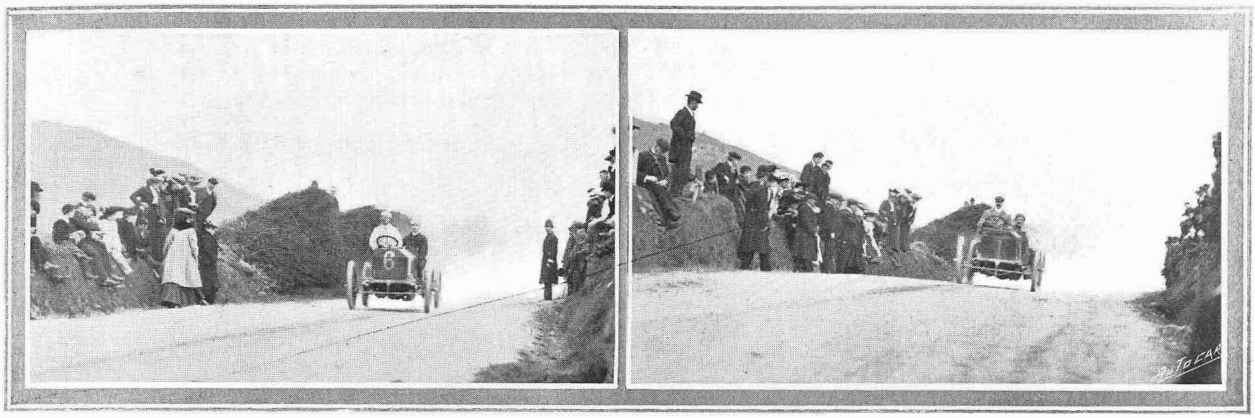
THURSDAY, MAY 12TH.

This day, fixed for the kilometre speed trials upon the northern sweep of the Douglas front, turned out as fine as the two which preceded it, but, unhappily, was marred by an accident which was keenly regretted on all hands, and which has turned out to be much less serious than was suggested, and was even at the time much less serious than was reported by the representatives of



Photograph by *Argent, Archer.*

The cars lined up behind the starting line for the hill-climbing competition.



Photograph by *Argent Archer.*

Mr Clifford Earp, No 6, and Mr. J. W. Stocks, No. 1, on the summit of the hill.

the daily press out for sensation. The course was lined with spectators, who took the keenest interest in the proceedings, and showed the greatest sympathy when the regrettable incident already referred to put an end to the proceedings before the third run over the course was adventured upon. The two courses run worked out as follows:

No.		Secs.	Miles per hour.	Secs.	Miles per hour.
1.	Stocks ...	47⅕	= 47.36	48⅕	= 46 37
3.	Hargreaves ...	49⅗	= 45.07	47⅖	= 46.96
6.	Earp ...	42	= 53.22	42	= 52.72
7.	Muir ...	47	= 47 56	47	= 47.56
9.	Edge ...	39	= 57.32	39	= 57.32
10.	Girling ...	44⅖	= 49.89	44⅖	= 50.12
12.	Jarrott ...	45⅗	= 49.24	45	= 49.02
11.	Rawlinson ...	46⅗	= 47.97	48⅗	= 46.00

It was unfortunate that the great event did not pass off without accident, as was desired by all concerned. It should be noticed, however, that no accidents were the result of the actual races, which were all to the credit of the organisers and to the participants in the contests. The accident to the Napier car and the Earp brothers was no doubt primarily due to friendly rivalry.

The account of the accident—upon the return of the cars towards the starting-point—we give hereunder in the words of one of the spectators who watched the incident throughout, and who from long and intimate acquaintance with his subject is supremely competent to form a judgment.

Earp's Accident.

It is easy to be wise after the event, but it was a mistake to allow the racers after the speed trial heats to return to the starting-post all together. It could be seen on the return from the first heat that the speed was higher than was wise, but on the second return four machines were running very fast all in a cluster, and the wonder was that no collision took place between them.

The roadway was cut up by two sets of tramlines, which were awkward to steer over, so that the least skidding or miscalculation was bound to bring disaster. What really happened to Earp's car is not clear, but he was travelling very fast when about three hundred

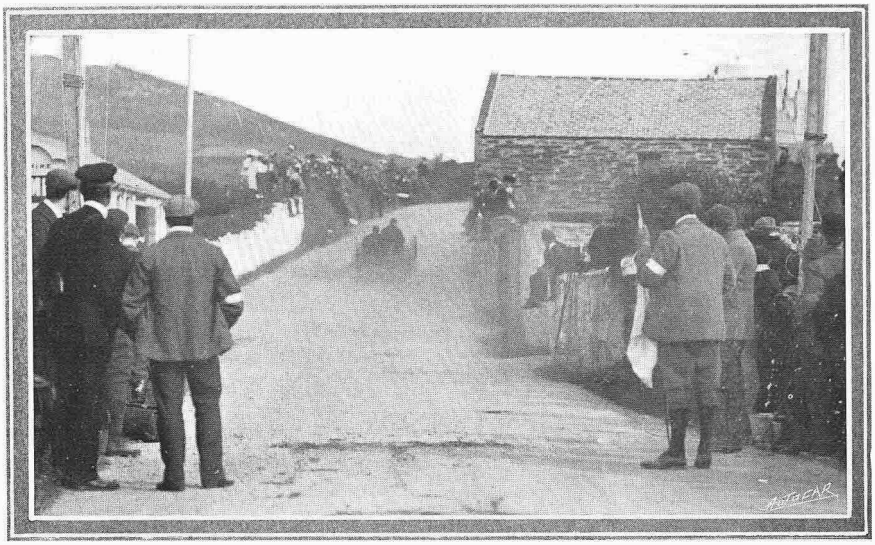
Photograph by *Argent Archer.*

Looking down the test hill towards the starting point.

The Isle of Man Eliminating Trials.

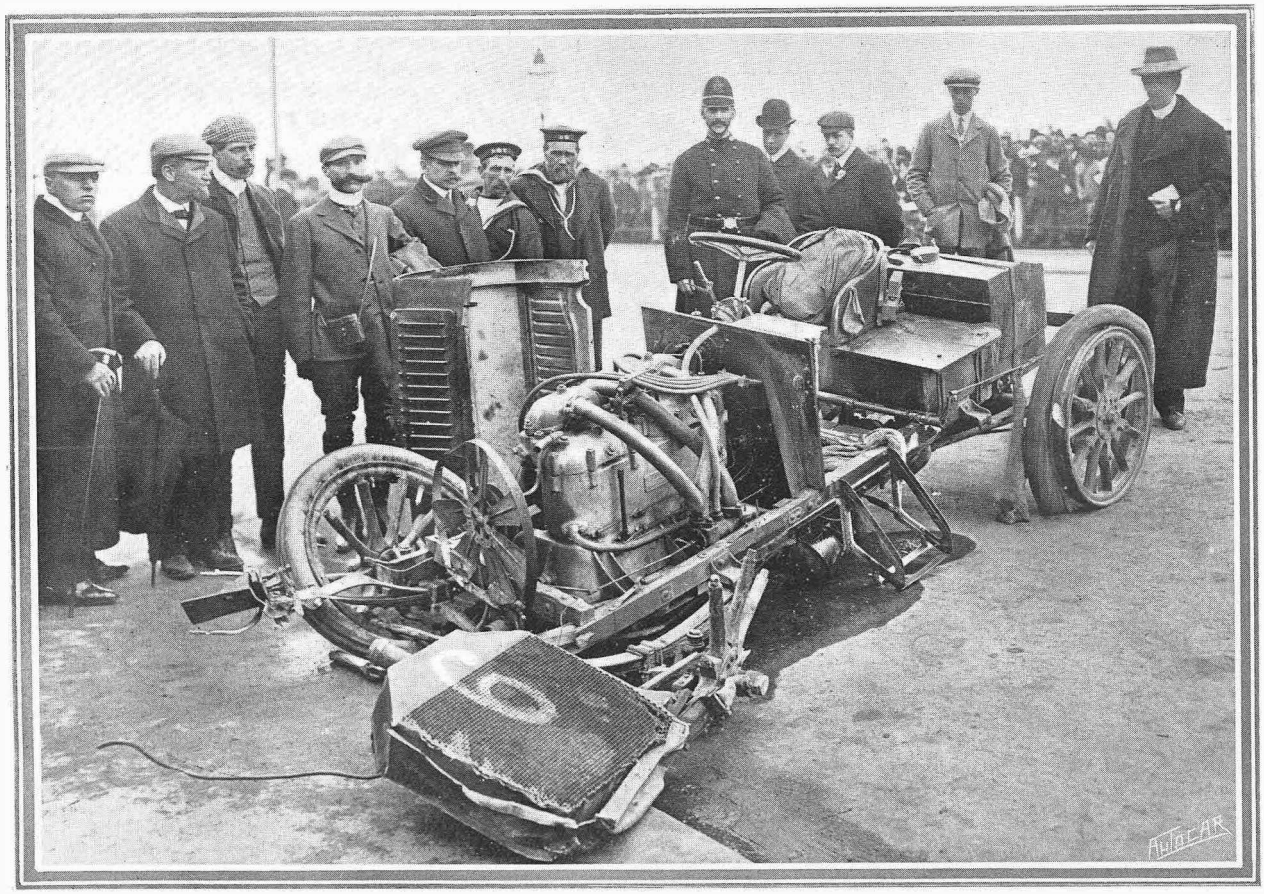
yards away from the barricade across the road behind the starting-point, and did not appear to appreciate the fact that he was so near. As proved by an examination of his wheel tracks, the brakes were applied hard, the left-hand rear wheel appeared to be locked and skidding over the road surface, whilst the right-hand wheel alternately locked and revolved. After seventy yards of running in this fashion, the swerve on the car brought it violently to the right hand pavement, which it mounted and plunged into the wall. Thence it rebounded and moved on about twenty yards, when again it came to rest nose down in the gutter. At the same time the driver and mechanic were thrown out on the side pavement another ten yards further on. Considering the violence of the collision with the wall, it is remarkable that so little damage was done, for, as far as we could see on examination, the engine, gear box, and rear axle were uninjured, and although the wood frame was broken between the front springs no doubt the car could be on the road and running as well as ever in a few days. After the accident two fresh front wheels were procured and slipped on in place of the broken ones, and the car towed home to the garage without trouble.

It was a bad ending to what up to then had been a most successful and enjoyable series of events, and the more annoyance was felt by all in that it was avoidable, for if the competitors had kept their heads clear, as



Photograph by *Argent Archer*

The starting point for the hill climb, No. 7 away.



Photograph by *Argent Archer*

The Napier racer after Mr. Clifford Earp's accident. It is remarkable that the right hand tyre is still on the wheel and inflated, though the rim is very much bent.

they had previously done, it would never have occurred. Considering the distance travelled from the time the brakes were applied before striking the wall, it appears probable that the clutch was not entirely disengaged from the engine, so that the brakes were not only overcoming the momentum of the car, but also acting against the engine power.

Incidentally, the Palmer cord tyres were put to their first public trial, as Earp's machine was fitted with these, and his car ran right through the eight hours' trial on Tuesday, the hill trial on Wednesday, and the speed trials up to the time of his unfortunate accident without giving the least trouble. Not only did they escape punctures and internal troubles of any sort, but they did not even lose air at all, and were not re-inflated. It will be interesting to add that they were ordinary tyres such as are fitted to touring cars, and were not specially made for racing purposes.

NOTES AND REFLECTIONS.

Horses and Cars.

Considering that so few cars had previously visited the island, it was remarkable how little notice horses took of the noise made when running the racers along the promenade to go up for weighing and inspection. The police authorities and public were exceedingly tolerant, and no restrictions were imposed or objections offered to high speed.

The Hill-climb from Ramsey.

In no part of the tortuous course provided for the trials was the skill and pluck of the drivers, reliability, staying power, and soundness of design in every part of the racing machines more thoroughly tested than outside the Ramsey control. Some few minutes after passing this, an exceedingly sharp bend is encountered, the road practically more than doubling on itself, as shown by the accompanying photograph, the outside width over the two roads and the centre grassed portion carrying the signpost being not more than the width of three ordinary roads placed side by side.

Before reaching this point from Ramsey there were

A bad bend in the road outside the Ramsey control. This bend forms the first part of a stiff hill-climb.

three bends to negotiate, at all of which the power had to be shut off for periods and dead slow running made to negotiate the bad turns, which commenced the stiff climb up the mountain side. Stocks appeared to cut round this bend in a marvellous fashion; locking his steering hard over to the left, the rear part of the car apparently lifted bodily round, as though it were hopping, and in a flash the front wheels were shot straight, clutch let in, and the mechanic appeared to be engaged in doing his utmost to increase the acceleration of the car in the shortest interval. The movement at this moment was interesting to watch. The climb seemed to be made by a series of leaps such as one witnesses when the clutch is suddenly let in with an engine accelerated and the car at rest, there being a tendency to wind the front part of the car up round the driving wheels. Mayhew's car appeared to do this in the greatest degree, and he never appeared to have his motor running with the life and go that characterised most of the other Napiers.

The Direction of Running.

The course round the island was arranged so that the driver always steered to the right instead of, as is usual in most racing, the reverse direction. It would appear that more difficulty is experienced in negotiating corners which require bearing to the left, and there is more tendency for a car to skid or upset. Why this should be so was visually demonstrated by the Darracq racer when waiting to take its turn in the speed trials. There was a palpable list over to the right hand at every explosion, the right-hand spring being well depressed by the reaction of the frame to the unbalanced torque produced by the explosion acting on the piston and cylinder head. In running round a left-hand corner this would tend to overturn the car, whilst it would make it more stable on a right-hand turn. The effect on the Wolseley with opposed cylinders appeared as a deflection of the front springs, thus putting an additional stress on the front wheels, but having no influence in tending to overthrow the car.

The Running of the Cars.

A particularly noisy hum, like a huge humming-top, always heralded the approach of Edge. The speed he attained on the turn in the last round was well in advance of anything previously done, his negotiation of the top corner being such as to be long remembered.

Girling never appeared to be quite happy at the corner, and slowed down rather more than any of the other competitors. It therefore speaks well for the picking-up powers of his engine, as by the time half the ascent was completed he was travelling very fast.

Hemery's Darracq was belching out huge clouds of lubricating oil vapour, and was firing erratically, the speed up the hill being only about fifteen miles per hour; but Edmonds was travelling well, and after reaching the hilltop moved very fast for three miles until our view was cut off by intervening hills. It was to be regretted that this car only passed once round the course.

Earp was apparently out on a pleasure excursion, as he appeared to be all smiles, and paid as much attention to the spectators as to his car and the road. Albeit his driving was perfection and most confident. Hargreaves might have been astride a thoroughbred by his style, and only seemed to require a whip to complete the illusion. Girling and Jarrott drove well, but Jarrott looked tired and seemed more anxious than usual.

One curious point was noticed when the hilltop was reached. All the motors belched out volumes of black soot consisting of the carbon deposited by unused petrol vapour for a number of revolutions. This, perhaps, was owing to a richer mixture being employed for hill-climbing, and when the motor increased in speed on reaching the top the proportion of air and petrol vapour was not instantaneously corrected for the faster speed, and misfiring or too slow burning followed.

THE ELIMINATING TRIALS IMBROGLIO.

Mr. S. F. Edge Interviewed.

All who know Mr. S. F. Edge felt no surprise when upon taking up their morning papers on the 13th inst. they found that he was reported to have lodged a protest with the committee of the Automobile Club concerning the exclusion of Earp and the car he drove in the trials from the chosen trio, but astonishment was expressed that he should have tacked to it a childish ultimatum to the effect that if Earp was not selected he (Edge) would not take part in the race. From our knowledge of the 1902 Gordon-Bennett winner, we felt that there must be something wrong here, and so we resolved to see him immediately and find out the facts of the case.

Mr. Edge was in, and would see us at once. We entered his tastefully decorated office, from the centre table of which he directs the business of S. F. Edge, Ltd., by the aid of several willing assistants, to say nothing of the faithful white bull terrier lying stretched at his feet, watchfully eyeing his master, and wondering how long it might be before he would again survey the world from the front seat of that other wonderful pet of his master's which resembles no dog he ever knew.

We apologised for troubling a busy man, and stated the reason of our call. Had he (Edge) any objection to give us his version of the affair for the benefit of the readers of *The Autocar*, who prefer facts to the sensational imaginings of some daily organs? He would. Nothing would give him greater pleasure. Would we sit down? We sat, and plunged *in medias res* without delay.

"Why, Mr. Edge," we asked, "did you tack on that threat to your protest, which was quite *comme il faut*, and to be expected?"

Photograph by *R. C. Ryan.*
Mr. Montagu Napier and Mr. S. F. Edge. A characteristic photograph.

No Threat accompanied the Protest.

The reply was straight, sharp, and to the point.

"I did not protest, and I did not threaten."

"But the papers," we interjected.

"Oh, the papers," replied our subject, "they are frequently a little previous. Here," said Mr. Edge, reaching to a basket and handing us some typed matter, "here is the protest I have addressed to the club secretary, and which is in his hands this morning."

We took the copy, which read as follows:

Mr. Edge's Protest.

The Secretary, Automobile Club, 119, Piccadilly, W.
May 16th, 1904.

Dear Sir,—As the Automobile Club has not thought fit to send any official intimation to the individual competitors, or the entrants, of the results of the Gordon-Bennett eliminating trials, I can only assume that the reports in the newspapers, and the statement put up in the Peveril Hotel, Douglas, stating the result as follows: Mr. S. F. Edge first, Mr. S. Girling second, Mr. Jarrott third, with Mr. Hargreaves and Mr. Stocks as reserves is correct, and that Mr. Clifford Earp and his car, which the races' committee in the same pronouncement indicate were the second best driver and car in the trials, have been omitted because Mr. Earp had a mishap at the close of the trials.

If this notice is correct, I wish you would bring before your committee my very strong protest of such a judgment as being absolutely unfair, and against the best interests of Great Britain winning the Gordon-Bennett race.

The trials were, I understood, held for the purpose of finding out the three best drivers and cars in combination to represent England in the Gordon-Bennett race, and the finding of the committee is that a Napier car, No. 9, driven by myself, is the best combination, and No. 6, driven by Mr. Clifford Earp, second best. This being the case, I fail utterly to see how any subsequent question affects the point at issue, provided Mr. Earp and his car are able to race at Homburg on June 17th, and until the committee have satisfied themselves that he will be unable to do this, my contention is that they are entitled to be second in the British team.

Mr. Earp's car will be on the road again in perfect condition in a few days, and he himself ready to drive it.

There is no doubt that your committee are now aware that the accident to him and his car is comparatively slight.

I trust that your committee will give the most serious consideration to my protest, as Great Britain will have a quite hard enough battle to fight without its second best competitor being eliminated through what appears to be a panic decision, which was come to a very short time after Mr. Earp's accident, when the most incorrect reports in regard to his accident were current, and I contend, sir, that if it is the intention of the races' committee that the proved best British cars should represent Britain, then Mr. Earp must be included, as he is entitled to by his performance, as the committee themselves admit.

Yours truly,
S. F. EDGE.

"That seems a very proper form of document," we said, as we closed the perusal, "but there is no shadow of a threat."

"Of course not," returned Mr. Edge; "the threat was the phantasm of some reporter's brain."

"Well, Mr. Edge," we continued, "now we have got you on the subject, do you mind giving us your opinion of the suitability of the British cars concerned in the trials to take part in the German race?"

"The only cars that are built suitably to enter for that event with any chance of success are my own, Mr. Mark Mayhew's, and the Darracqs."

"Two Napiers and the Darracqs," we replied; "why, then, were the others run?"

"Because the Isle of Man course was an impossible course for cars to be driven at the speed at which the cars in the German race will be driven. To put the matter in a nutshell, cars suitable for the Manx course are quite unsuitable for the German event."

Nothing less than Eighty Miles an Hour.

"Then you think the Manx trials were useless?"

"Oh, no, but they lacked something most important to the issue. Everything that was done in connection

Faster British Cars Available.

with the tests was excellent in its way, but a veto should have been put upon the cars, no matter what their other qualities, which could not effect a flying mile or kilometre at a speed exceeding eighty miles per hour. Unless cars can travel at that speed they are useless for the Gordon-Bennett. They will be left every mile by the foreign cars engaged. It would be better for England not to be represented at all than represented by unsuitable cars."

"But where are these cars to come from?"

"Well, we have three cars in hand capable of this speed, but we did not enter them for the Manx trials as they could not have done themselves justice over the course."

"But, Mr. Edge," we remarked, "the cars that the club will frank for the great race are the cars that ran in Man."

A faster Car available.

"Quite so," returned our subject; "but if I have the honour to be selected I should represent to the club that I am, in my opinion, in possession of a much faster and more suitable car for such a race than I ran in the Isle of Man, and that with that car I feel I should stand a much greater chance against other competitors. Now, to win the Gordon-Bennett Cup is a matter of much greater moment to the manufacturer than to the club, so it might come to the conclusion that I was not talking without reason and thus give me consideration. Of course, I do not know, but there it is."

The Condition of Earp.

"Well, now, Mr. Edge," we remarked, "to return to the question of your protest, do you, as a man who has had more experience of automobile racing than perhaps anyone else in this country—do you think that Earp's smash is likely to have upset his nerves and made him an undesirable selection for the Gordon-Bennett?"

"I will reply to that query by putting another to you. If my memory serves me correctly, you were an amateur racing cyclist in the days of the old high bicycle, and croppered over the handle-bar a few times in actual competitions. Did your nerves suffer, and did you ride any the worse the next time you were in the saddle?"

We admitted that such falls had no deterring effect upon the continuation of our athletic career.

"Neither do such incidents as that on the Douglas front, then, affect the driver of a racing automobile. Earp will be as fit to drive in the Gordon-Bennett as anyone who takes part."

"What was the actual cause of Earp's accident?" we queried.

"The actual fact was that the rod connecting the locking bit which engages in the brake ratchet to the hand lever was broken or bent, and he connected it up temporarily with wire, which, unfortunately, broke, so that having once forcibly applied his brakes he could not take them off again to counteract the side-slip when it began. It was a side-slip—a dry side-slip—as the marks of the wheels afterwards showed.

"Were you aware, Mr. Edge, that the results of the half-mile climb and the Douglas front speed tests would be taken into account in making the final selection?"

"No, certainly not," remarked Mr. Edge, with considerable emphasis; "quite the reverse. I understood from Mr. Julian Orde that the Ramsey hill-climb and the Douglas speed tests were merely put on to give the Isle of Man people a show in return for all they had done for the club and us."

"Quite so," we replied, "that was our impression"; and thanking Mr. Edge for his very clear statements and practical comments upon the whole matter we took our leave.

CLUB DOINGS.

The Lincolnshire Clubs.—Suggested Amalgamation.

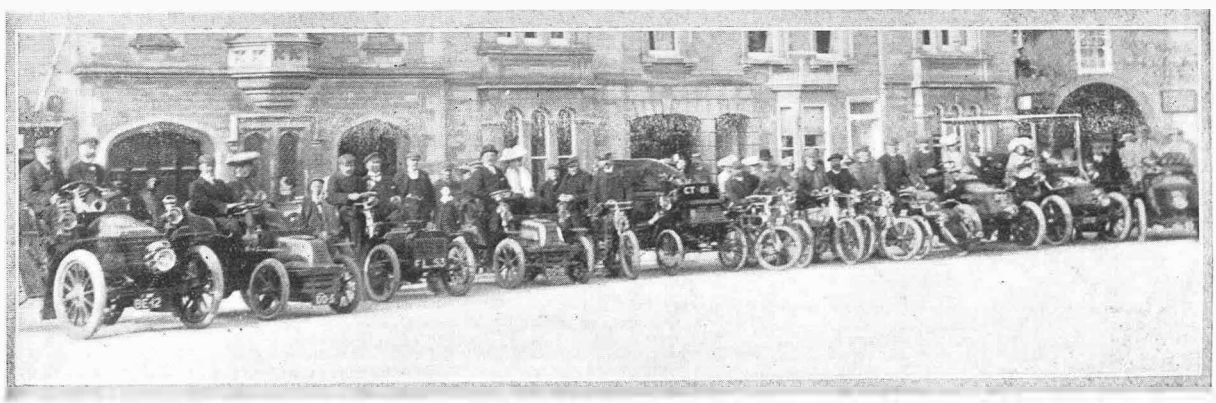
A conference between delegates from the Lincolnshire Automobile Club and the South Lincolnshire Motor Club was held at the "Red Lion," Boston, on Thursday, May 12th, to discuss the future relations of the clubs to one another. Despite reports to the contrary, the South Lincolnshire Motor Club showed that it was determined to maintain its independence, and declined to form any amalgamation with the Lincolnshire Automobile Club. Nevertheless, it was unanimously resolved that where the cause of automobilism or motor politics was concerned the two clubs should act together by means of a joint committee formed of an equal number of members from both clubs.

Lincolnshire A.C.

Another enjoyable meet of the Lincolnshire A.C. was that held at Boston on Thursday last week. The members turned out in strong force, and their cars were a thoroughly representative lot.

Manchester A.C.

On Saturday last the club run was to Old Moreton Hall, and was attended by twenty-two cars, which brought so many members and their friends that the capacity of the dining room was severely taxed. Very great interest was taken in the picturesque Old Hall at the extreme corner of Cheshire off the highway between Congleton and the Potteries, the lofty hill of Mow Cop being its conspicuous landmark.



Meet of the South Lincolnshire Motor Club at Fron Hall, Market Deeping, the residence of Mr. and Mrs. G. Linnell, on May 14th.

South Lincolnshire M.C.

A very enjoyable meet in connection with the South Lincolnshire Motor Club took place at Market Deeping on Saturday last by kind invitation of Mr. and Mrs. Linnell. There was a good muster of cars and motor cycles present from Boston,

A group of lady motorists who attended the South Lincolnshire A.C. run.

Wrangle, Sibsey, Benington, Spalding, Crowland, Bourne, Thrapston, etc., which were arranged in the Market Place, and made quite an imposing show. Tea was afterwards provided in the Town Hall by Mr. and Mrs. Linnell, about forty ladies and gentlemen sitting down thereto. Altogether a most enjoyable afternoon was spent.

CLUB FIXTURES.

May 21-23.—Reading A.C. Whitsuntide tour to Porlock.
,, 21-23.—Midland A.C. Whitsun tour to Bettws-y-Coed.
,, 21-24.—Yorkshire A.C. week-end run to Lake District.
,, 21.—Southern M.C. Whitsun tour to Worthing.
,, 21.—Wolverhampton A.C. run to Lichfield and week-end tour to Llandudno
,, 21.—Herefordshire A.C. meet Gloucestershire A.C. at Malvern, and hill-climbing competition.
,, 23.—S. Lincs. A.C. meet at Woodhall Spa.
,, 25.—Leicestershire A.C. run to Rothwell.
,, 28.—Nottinghamshire A.C. hill climb.
,, 28.—Reading A.C. meet Gloucestershire A.C. at Farringdon (5 p.m.)
,, 28.—Berks A.C. opening meet and gymkhana, Hall Place, Maidenhead.
,, 28.—Eastern Counties A.C. meet at Felixstowe.
,, 28.—York A.C. run to York.
,, 28.—West Surrey A.C. run to Hindhead (hill climb).
,, 28.—Lincolnshire A.C. run to Crowland.
,, 28.—Wolverhampton A.C. run to Sutton Coldfield.
,, 28.—Southern M.C. run to Chertsey.
,, 28.—Sheffield and District A.C., Hunters Bar for Chapel-en-le-Frith.
,, 29.—Southern M.C. run to Odiham.
June 11.—Ranelagh Club motor car races.

Berkshire A.C.

Field Marshal Earl Roberts, V.C., K.P., etc., who resides at Ascot, has accepted the invitation of the committee to become the honorary president of the above club.

POLICE TRAPS.

A police trap is laid at Wallop Cross Roads, six miles from Andover.

There is a police trap which is being worked daily on the straight road at Surbiton on the Portsmouth Road, the 440 yards ending just short of Reservoir Works.—X.Y.Z.

Motorists should drive with care between Coulsdon Station and Merstham. The police have traps there. The police are also not satisfied with the way some cars illuminate their numbers, and they are about to start a flashlight trap after dark, and will stop any motorist whose number is not properly illuminated.

Some months ago the 6 h.p. Siddeley made a non-stop run in the Automobile Club's hundred miles trial, and altogether performed exceedingly well therein. Its example has now been followed by one of the new 18 h.p. four-cylinder vehicles, which last week not only made an absolute non-stop run over the hundred miles, but climbed the steep portion of Dashwood Hill at 15.57 miles per hour, the Dashwood Hill mile at 18 miles per hour, and the Aston Hill at 19.06 miles per hour, the quantity of petrol consumed being 4 gallons 3 quarts 1 pint 10 ounces, showing over twenty and a half miles per gallon.

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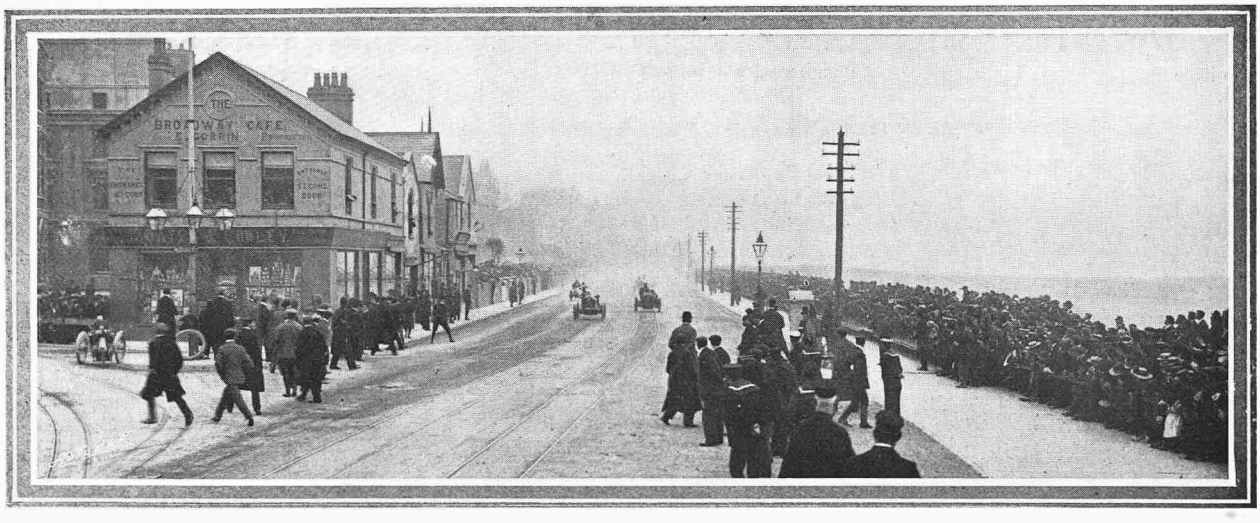

Photograph by *Argent Archer.*

THE ELIMINATING TRIALS. A view down the Promenade, Douglas. Cars returning to the starting point. Earp leading.