THE AUTOCAR

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

EDITED BY H. WALTER STANER.

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THE AUTOCAR.

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COLONIAL AND FOREIGN EDITION.

IN ADDITION TO THE USUAL EDITION OF "THE AUTOCAR," A SPECIAL THIN EDITION IS PUBLISHED EACH WEEK FOR CIRCULATION ABROAD. THE ENGLISH AND FOREIGN RATES WILL BE FOUND ON THE LAST PAGE. ORDERS WITH REMITTANCE SHOULD BE ADDRESSED "THE AUTOCAR," COVENTRY.

The Autocar can be obtained abroad from the following:

AUSTRALIA: Phillips, Ormonde, and Co., 533, Collins Street, Melbourne.

NICE: Levant & Chevalier, 50, Quai St. Jean Baptiste.

UNITED STATES: The International News Agency New York.

PARIS: Neal's English Library, 248, Rue Rivoli.

Notes.

Royal Automobilists.

His Royal Highness the Prince of Wales is rapidly becoming an enthusiastic automobilist. Some months since we recorded the fact that he had bought a City and Suburban electric car, and now we learn that he has placed an order with Mr. Oliver Stanton for a 22 h.p. Daimler. While speaking of Royal orders, it may be interesting to mention that the 22 h.p. Daimler car which the King ordered some months ago for his beaters, and to supplement the present 12 h.p. beaters' car, is rapidly nearing completion. This vehicle has been referred to in some quarters as a new Royal order, but this is not the case. Mr. Stanton was commanded to place it on order some months since, and the matter was recorded in our columns at the time.

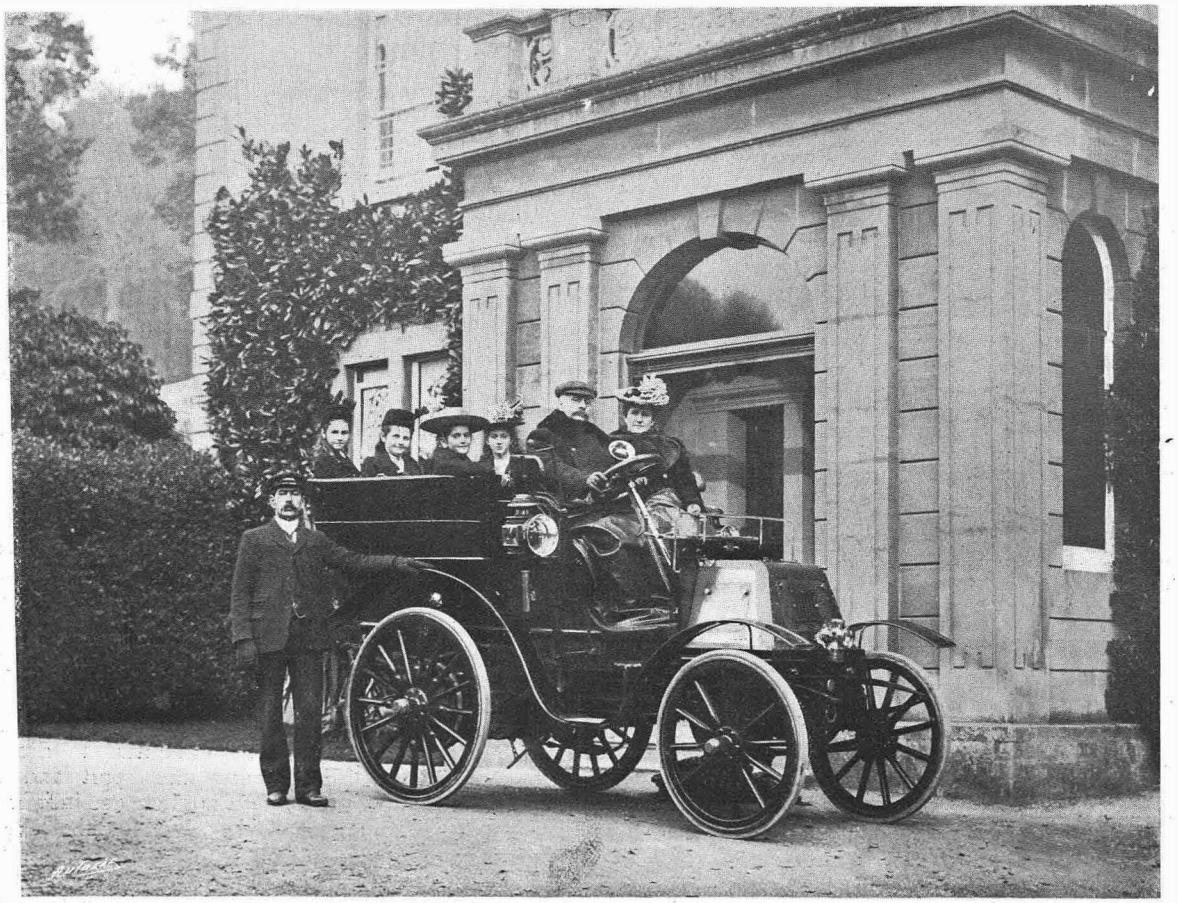
The Physical Aspect of Automobilism.

In the course of his address to the members of the Automobile Club of Great Britain and Ireland on January 9th, Baron Henri de Rothschild, speaking as a doctor of medicine and a motorist, said: Physical fatigue, occasioned by any sport, is bad for the health, and may be the cause of serious disorders, such as lung complaints and rheumatisms, resulting from remaining too long in cold air or in the rain. Moreover, an excess of automobilism may cause nervous troubles, due to the long continued vibration, with their usual consequences of insomnia, fever, and defective blood circulation. A complaint which is very prevalent among certain classes nowadays, and is capable of having serious consequences for those afflicted with this nervous disorder, is neurasthenia, and this has on several occasions been entirely cured by motor car rides at regular and frequent intervals. Hypochondria, and even certain affections usually subjected to the air cure, can be treated in the same fashion. So long as the automobilist enjoys seven hours' sleep, he may motor for two hours in the morning and three hours in the afternoon, with pleasure and advantage to health. If the speed of the car exceeds thirty miles per hour, three hours of such driving would be enough. But if automobilism is practised moderately without excessive speeds, it will produce the most beneficial effects.

Moderation the Keynote of Health.

As most of our readers are well aware, Baron Henri de Rothschild is known among those to whom he administers medical advice and comforts free of charge as Dr. Pascal, and we are very glad to see that he has drawn attention to the effect of excessive automobilism. It is possible to overdo anything, however good, and, of course, automobilism is no exception to the general rule. As a matter of fact, it is necessary in these matters to draw a hard and fast line between the sport and the pastime. Competitive sport is not indulged in from an entirely hygienic point of view, but for the sake of the excitement and delight which the strife affords. It is the recreation of sound men who can stand almost anything, and what would be excess for average persons (not to mention those below the

average) is entirely within the safe compass of the thoroughly robust person. The sportsman is necessarily on a different plane from the man who practises any form of outdoor recreation mainly from the health point of view. It is necessary also to remember that the difference between a drive in the summer time and one in the winter is very marked. At this time of the year few people indulge in very long runs; but in the summer time, when the temperature is much less rigorous, they can enjoy and experience benefit from drives which, at a low temperature, would be fatiguing, and possibly unduly so. It is also necessary to bear in mind that people who are sensitive to exposure would be well advised to use covered cars in the winter time. The question of vibration is one which is rapidly settling itself. Already we have cars in which vibration is practically eliminated. Motor vibration may be said to no longer exist on some of the best cars, and vibration from the road has been almost entirely absorbed at moderate speeds. In this aspect of moderation, it must be confessed that at the present time the buying public do not give the manufacturers all the encouragement they should have. We mean to say that there is little demand for a car built not to exceed eighteen miles an hour which will run down to one third of that speed and at any intermediate speed with perfect smoothness, and with what could be practically regarded as silence. These attributes are quite easy to attain, but the buying public do not ask for them. They demand them all with the exception of the fact that the quietness and the smoothness are required at double the speeds we have named. There is a rapidly-growing number of motors, however, which are delightfully smooth and quiet at speeds of twelve miles an hour and below. At the same time there is little provision made at present for people who have passed middle life and who want a motor equivalent to the carriage and pair, not to mention the single-horse equipage or a pony cart. The machines which come very much the nearest to these requirements are the steam cars, as, while they have more speed than is actually required, they can be driven perfectly silently and pleasantly at the lowest rates, and if the internal combustion engine is to meet all requirements the behaviour of the steam car at low speeds must be equalled. At the present time many potential purchasers are afraid to buy, as they do not want the high speed vehicles they are almost bound to acquire if they decide on internal combustion machines of best make. Some have found by experience that low gearing alone does not result in a pleasant-running vehicle; the machine, as a whole, must be designed for its average rate of



Home again. A photograph taken at Weston-super-Mare of Mr. J. J. Barstow, J.P., D.L., etc., and family on their return from a motor tour in the North of England. The car is one of the well tried two cylinder Daimlers, and its owner tells us it has never had a breakdown or hitch of any sort in many hundreds of miles running.

progression. This class of buyer, although a very large one, is not one of which much is heard. Speaking broadly, it is not in touch with automobilism, and does not make its wants heard as does the younger and more enthusiastic generation, whose wants are mainly catered for. The older people will only come into the movement by degrees, as they realise that their requirements are fully understood and carefully met.

The Supply of Petrol.

A fortnight ago we announced that Messrs. Carless, Capel, and Leonard had decided to sign the indemnity clause in the consignment note, and now we are informed that the Anglo-American Oil Co. have decided to take the same course. Both firms consider that the railway companies are treating them very hardly in the matter, and we would be the last to dispute this belief. At the same time, the railway companies have the whip hand in the matter till such time as it is possible to develop a proper system of petrol transport by road. In the meanwhile, it is out of the question for anyone but the distributers of the spirit to sign the consignment note. The liability for consequential damages hinges entirely upon the proper packing of the petrol, and, of course, no one can answer for that but the senders. It is out of the question for the receiver, who may be a hundred or more miles away, to vouch for the safe packing of a consignment of petrol. However, we need not go further into the niceties of the question, as they have been pretty well thrashed out, and we will content ourselves by recording that the conditions which led in some districts to very high prices being charged for petrol are entirely at an end, and that things are practically in the same state as they were before the railway companies insisted upon the endorsing of the indemnity clause. For this relief, motorists at large have to thank the distributers of petrol.

The Law as to Motor Vehicles.

The committee of the Automobile Club have issued a blue book to members of the House of Lords, to members of the House of Commons, and to over 4,000 members of county councils, dealing with "the law as to motor vehicles," with the subtitle of "what it is and what it should be." The blue book contains the memorable speeches made by Sir Francis Jeune, Lord Onslow, and the Right Hon. Henry Chaplin on the occasion of the annual dinner of the Automobile Club in November, 1901. It is followed by a report of the county councils' deputation to the Local Government Board in January last year, Mr. Long's reply to the deputation being given in full. The letter sent by the General Council of the Automobile Club to the whole of the press of the United Kingdom in March last, and giving the particulars of the distances in which autocars could be pulled up, is repeated, as is also the memorial of manufacturers and sellers of motor vehicles to members of the county councils of England and Wales, in which it will be remembered that the members of the industry pointed out how in the early thirties the motor movement had once been stifled, and that it was greatly hampered in these later days by the restrictions which were imposed. This memorial was accompanied by some important particulars of the magnitude of the industry. These are the chief items in the blue book. The only fault we have to find with them is that they are scarcely definite enough, and it would appear that in many ways it would have been better to have reserved the issue of this blue book till the club had finally decided on the form which the proposed alterations to law should take. As the blue book stands, it gives a great many people's opinions on the subject which by no means agree with each other, though there is a general idea running through them that the speed limit should be abolished and that means of identification are desirable. In fact, it appears to us to some extent, the blue book as it stands is apt to mislead the people to whom it is sent, as the last item, with the exception of a quotation from *The Times* newspaper, is a copy of a letter to the County Councils Association, dated February, 1902, and in this the club expresses its distaste for numbers, and suggests names. Now, everyone in the automobile world knows that all this has been more or less undone since by the numbering bill which the club afterwards brought forward, and which will be discussed shortly by the club membership at large. However, we must presume that the idea of the blue book is to bring the subject before the authorities, and, if possible, to induce them to consider it. Later, when the matter is advanced another stage, a further blue book may be sent to them, in which the definite desires of the automobilists are given.

Many Exhibitions.

At the present time automobile exhibitions are exceedingly numerous—too numerous, in fact. In addition to those which are taking place within the Metropolitan area, shows are projected at Liverpool, Edinburgh, Manchester, and Brighton during February, while abroad Brussels, Vienna, and Stockholm will all hold exhibitions. Of course, with regard to the three latter, no one can fairly infer that they are not necessary. Still less would we do so for some of the others, but it is perfectly certain that there is no need for an exhibition at Brighton, nor for one in Liverpool and another in Manchester with only a week or so between them. At the same time, there is a special excuse for the Brighton show, as it appears that the Aquarium authorities, at whose premises the show will be held, have some arrangement with the Brighton Corporation, and the proposition practically stands to the effect that if the industry will support the exhibition the Corporation will grant the use of the Madeira Road for a speed trial to take place immediately after the exhibition—that is to say, on February 14th. There is no doubt about the suitability of the drive from a spectator's point of view, and it is stated that it will give a good kilometre track with a flying start.

Statistics from Paris show that in three months horse-drawn cars were responsible for 597 mishaps and twenty-three deaths, while automobiles caused ninety-two accidents and only one death. In commenting on this fact, the *Manchester Daily Despatch* states: "The controllability of the modern motor car makes it the safest vehicle in our streets." Quite so. We hope it will not be long before all the great dailies recognise this fact.

JACKSON'S SPRING WHEELS FOR AUTOMOBILES.

The upkeep of pneumatic tyres naturally causes many inventors to cast about for a method, or methods, of constructing wheels for automobiles and other vehicles which will afford freedom from road shock to the occupants of the car similarly or akin to that provided by the pneumatic tyre. The accompanying drawings show very clearly the details of a spring wheel constructed in accordance with the designs of Mr. J. Jackson, who is, we understand, gauge maker to several of the leading British railway companies.

Mr. Jackson has gone farther than inventors do as a rule in attempts to demonstrate the practicability of their ideas, for he has purchased a 5 h.p. Panhard, and has mounted the vehicle on wheels of his own construction. These wheels are shod with solid rubber tyres of small size. Mr. Jackson lately picked us up in his little car, and, with another member of the Automobile Club, took us a trial trip over some very rough macadam, part of the trial surface being afforded by Constitution Hill, Bird Cage Walk, and the eastern end of The Mall. Both our fellow clubman and ourselves were agreeably surprised at the running of the car over these lumpy, holey roads, but before we could pronounce absolutely as to the comparative qualities of Jackson's spring wheels and pneumatic tyres we should have to test both on the same car. That the spring wheels did absorb a very large amount of road shock and vibration there was no doubt, and our companion, who is familiar with the sensation of solid rubber tyres, expressed his opinion that the spring wheels were very comfortable.

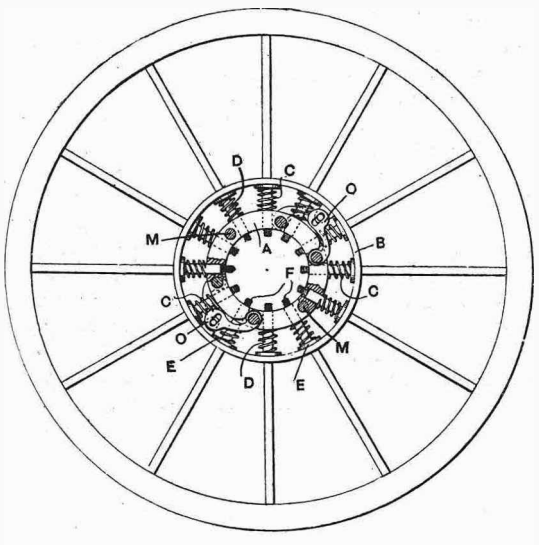


Fig. 1.

A, inner ring attached to the hub.
B, ring to which the spokes are attached.
C C C, spiral springs between A and B.
D D, plunger rods for springs C C C.
E E, heads of the plungers D D.
F, screwed end of the plungers D D.
M M, bolt holes in discs
O O, links to prevent creeping.

Fig. 1 is an elevation of a wheel built up in accordance with Mr. Jackson's scheme, but with the covering discs removed to show the arrangement and method of fitting the springs.

By reference to this figure it will be seen that the ordinary felloes of the wheel are connected by spokes to the ring B. In the annular space between the rings A and B are placed twelve spiral springs C C C for the purpose of transmitting the load from the inner ring A to the outer ring B already mentioned. These springs surround the stems of headed plungers D D, which are struck to the same radius as the ring B, against which they are thrust by the springs C C C, which abut upon the inner ring A. The heads are so formed to obtain a large surface of contact with the ring B. Although the plungers are in the drawing shown radial with the spokes of the wheel, it must be clearly understood that these do *not* pass through the outer ring B.

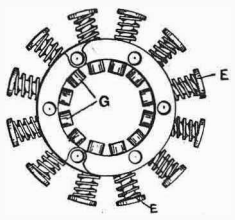


Fig. 2.

G, nuts on the spring plungers.
E E, radial heads of the spring plungers.

The inner ends of the plunger rods or stems D pass through holes in the inner ring A, and have a thread F there cut upon them. By means of nuts (see G, fig. 2) screwed on to the threaded ends F of the plungers E E, the segmental heads of the latter can be withdrawn from contact with the inner surface of the outer ring B, and the whole spring arrangement withdrawn from the wheel. When this part is placed into position the nuts are removed, and the springs then lock up the centre of the wheel with its surrounding parts by their pressure on the plunger-rod heads, as already mentioned.

The hub of the wheel is soled on its inner side with a disc, which bears against the face of the inner ring A (fig. 1), the disc being formed with a shoulder to fit into the ring.

On the outer face of the wheel is a disc of similar form to that already mentioned, but made detachable. The hub of the wheel is secured to both the inner and outer discs by the bolts M M (fig. 1), which pass right through both discs and the ring A. The spaces between the discs are filled up with a suitable lubricant. To prevent any creeping of the central ring, suitable links O O are provided, but the inventor has devised another method for this purpose by forming the inner disc with an internal hexagonal boss, which coincides with a hexagonally-cut flange on a ring B, but made so as to allow play.

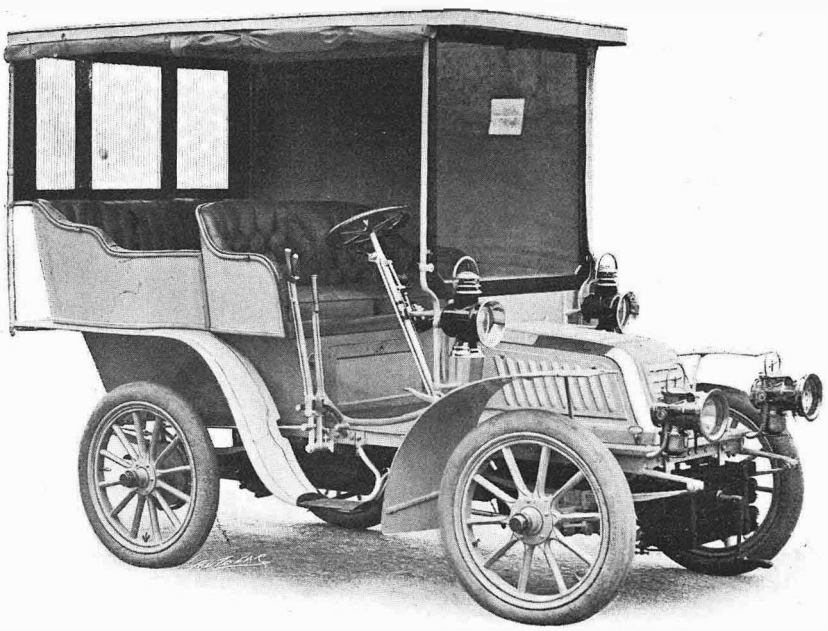
We shall watch the progress of this invention with interest, for from our short experimental trip we are of opinion that it has much to recommend it.

A Geneva correspondent says that Switzerland seems destined to become, *par excellence*, the land of automobiles. In three years it is expected that every horse connected with the coaching and mail services will have disappeared. In the coming spring the first steps will be taken in bringing about this great change. There is probably no country in Europe where motor traction is more necessary from a humane point of view, as the struggles of the horses up the passes are often painful to witness.

TO BIGGLESWADE ON A BEAUFORT.

Some time since, at the invitation of Mr. Archibald Campbell, of the Beaufort Motor Co., we went for a trip to Biggleswade on one of the two-cylindered 12 h.p. Beaufort cars, which are already earning so good a name for themselves amongst automobilists who have any acquaintance with them. The car upon which we were to make our trip was a smart, roomy vehicle, with a comfortable well-upholstered body, and one that had already done a considerable amount of work. Upon this occasion the weather failed us completely, for a more uncomfortable morning for a forty-five miles run could hardly be imagined. Rain had fallen heavily during the night, the suburban roads were coated with slip mixture of the worst, a dank mist lowered over North London, and at the very outset of the journey a drizzling rain was falling. However, the Beaufort having been run out of the smart depot in Baker Street, the very same blue-eyed fair Scandinavian driver who so successfully drove one of these cars up the Round Tower in Copenhagen placed himself at the wheel. The honour of the front seat was not craved by either Mr. Campbell or ourselves, and such shelter as the tonneau afforded from the blasting, cutting north-easter was indeed welcome. But a Hoare motor coat is proof against all penetrations, and so clad we two passengers cared naught for all the skies might bring us. Our way out of town was by Regent Park and St. John's Wood, until the Finchley Road was struck at Swiss Cottage, and thence the highway immortalised by Hogarth was held by Golder's Green, through Finchley, until the North Road was run into at "Tally Ho" Corner. Until Barnet Hill was reached, the car showed us nothing but its contempt for the horribly holding mud of the Finchley and Barnet roads, but up the famous steep to the town she travelled well without a change of speed, though the surface was sticky and sodden and the wind approached half a gale. Clear of Barnet, past Wrotham Park, the roads improved marvellously, and the car sparked right up and swung along to a tune that made the wind-driven drizzle sting one's cheeks. The rise to Bell Bar was taken without a murmur, and a smart clip of three miles brought us to Hatfield without incident. The sterling hill-climbing qualities of the Beaufort, together with the excellent driving of its operator, were again exemplified up Digswell, while the holding powers of its brakes were demonstrated to us after a rapid run down the steep and winding descent into Welwyn. In Welwyn itself we swung right for Stevenage and Baldock, and in the bleak and open country beyond found the wind was at its bitterest. From Baldock to Biggleswade the road follows the Roman Way, passing by Astwick on the left and Blake Hall on the right, until one swings sharply to the left at Stratton Park Gates, with Biggleswade close at hand. A few minutes run through the homely Bedfordshire town brought us to the Ivel Hotel, lunch, and an inspection of Albone's petrol agricultural motor, which was then in receipt of its last coat of paint prior to despatch for exhibition at the Smithfield Cattle Show.

Upon getting under weigh the writer found that it would be necessary for him to catch a fast train at Hitchin in order to keep an appointment in town, and to do this our driver gave us a show of what the 12 h.p. Beaufort was capable over the clogging surfaces of the road to Henlow Crossing, and thence to Hitchin. The pace was —— well, every inch up to the legal limit, and the train was caught with a decent margin. It was with considerable regret we left our two friends to continue their return to town by road, for our non-stop run from London to Biggleswade, and our subsequent train-saving scurry of eleven miles to Hitchin, had left us with a real respect for the travel and comfort of the Beaufort. We hope before long to be able to give a detailed description of the Beaufort 1903 cars, accompanied by some drawings, which will show the points of the several well-considered mechanical refinements included in their construction.



The Monaco authorities are making a rich bag out of alleged autocar scorchers in their "kingdom." There are no half measures—the cars are stopped, occupants marched off to the commissaire of police, who, after hearing the charge, briefly remarks, "One thousand francs," and the money has to be paid before the victims are set free. Six cases of this kind in one day occurred at Monte Carlo recently.

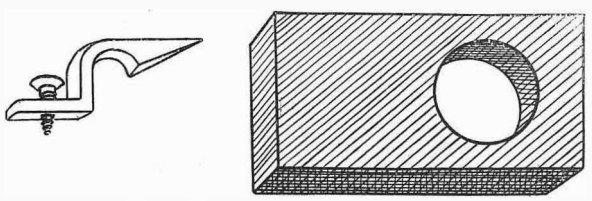
SOME SPARKING PLUG EXPERIMENTS.

BY A. J. WILSON.

In common, I expect, with many other readers, I was keenly interested by the description in last week's *Autocar* of the discovery made by Panhard's workmen that a foul sparking plug can be made to act perfectly if the continuity of the wire conveying the secondary current is broken outside the plug. The results described seemed so contradictory and inexplicable that I determined to make a few experiments in order to satisfy myself whether we were being "spoofed" or not.

Perhaps the recital of the manner in which I conducted my experiments may be of even greater interest to the bulk of readers than if I had had the resources of a fully-equipped workshop or laboratory, because what I did can so easily be done by anyone for his own satisfaction. The subject is so interesting, and opens up such possibilities of future development, that I conjecture that a great many readers will be encouraged to adopt and improve upon my primitive methods. Having nothing but the domestic toolbox to draw upon, I was yet able to conduct so many tests as satisfied me not only that the new discovery is perfectly genuine, but also that there are other features connected with the same class of phenomena which deserve investigation.

My apparatus was of the simplest description. Selecting a strip of hard wood about an inch wide and half an inch thick, I cut two inches off it and bored a hole, by means of a brace, which I enlarged with a rat-tail file until it was a tight fit for the brass mount on the end of a standard De Dion sparking plug. For an adjustable terminal I lit upon a common brass stair-rail eye, from which I filed away the superfluous part so as to produce a zig-zag terminal to which to screw the end of the wire carrying the secondary current. When the wooden block thus made was pushed over the brass

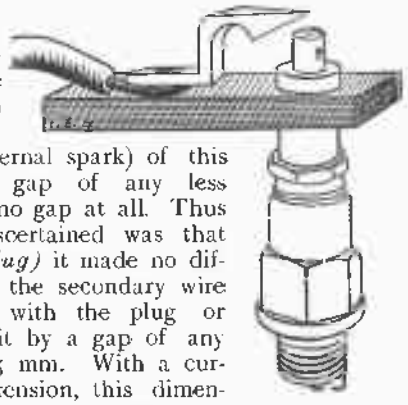


The apparatus with which the experiments were carried out. Though simple, it served its purpose up to a certain point.

mount on the sparking plug, the effect was to hold the terminal firmly in whatever position I might place it.

The brass point formed out of the stair-rod eye was screwed to the wooden block in a position where its extremity would bear firmly upon the end of the sparking plug, and the secondary wire was clipped to it by the same screw; but the screw was not so tight that the brass point could not be pushed round upon it as a pivot so as to remove the point from contact with the plug, and to vary the distance between them so that I might experiment with gaps of various dimensions.

I then fitted the plug to a motor and ascertained that (with a newly-charged 4.4 volt accumulator) I could get a spark as long as a ¼in. across the gap outside the plug, but that there were frequent misses until I had reduced the gap to about $\frac{1}{16}$in., or, say, 1.5 mm., and I could not detect any difference in the explosions with a gap (and consequently an external spark) of this length and a gap of any less length, or with no gap at all. Thus the first thing ascertained was that *(with a clean plug)* it made no difference whether the secondary wire was in contact with the plug or separated from it by a gap of any length up to 1.5 mm. With a current of higher tension, this dimension probably would be extended.



I then tried the effect of smothering the inside points of the plug with dirty oil, but could not find any difference: it sparked well under all conditions; so I held the plug over a candle flame and thus thoroughly sooted it—points, porcelain, and case—but, strange to say, the plug kept on sparking as well as ever under all conditions, no matter whether there was an external gap or not. So I overhauled my store of discarded plugs, and at last found one so shockingly bad that it would not drive the motor under normal conditions—with the secondary wire in contact. It was a plug that had been discarded on the road, and had since been left in a toolbag: the oil had dried into a firm cake on the porcelain and points, and the latter had got knocked down flat. I adjusted the points to their normal position, but could never get the motor to start until I made an external spark by moving the point on my wooden block so that there was a gap of 1.5 mm. between it and the end of the sparking plug—and the motor started immediately. Thus I confirmed the correctness of the Panhard discovery. Over and over again the same result accrued: with an outside gap the engine worked perfectly, but as sure as I closed the gap I could not get a single explosion.

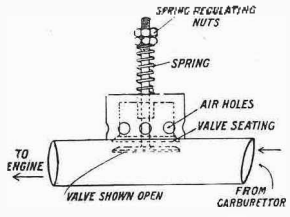
Thus far I could only say that there is "no spoof"; the discovery is genuine. But I went a little further and tested the thing by visible evidence, taking the plug out of the motor and tying it outside where I could see the spark, and the result of this investigation proved very interesting, and led me to think that other investigators with more perfect appliances at their command might be able to carry the enquiry so much further as to add usefully to our knowledge of the behaviour of sparking plugs under different conditions. Using the same foul plug as in the successful experiment, I found that the spark jumped true and bright from the wire in the centre of the porcelain to the wire on the body of the plug, when there was an external gap, but that when there was no gap—the secondary wire being screwed in contact with the plug—there was a thin irregular spark visible across the "soot bridge," *i.e.*, the current did not jump from wire to wire, but ran irregularly, or "trickled," along the

dirty top of the porcelain. This seemed mysterious indeed, since the distance between the two wires was constant, and there seems nothing to explain why the spark should jump from wire to wire when there is an external gap and not do so without such external gap. Whatever the explanation of the apparent anomaly may be, the phenomenon of the current trickling along the "soot bridge" as described is perhaps subject to the reservation that when the plug is *in situ* the compression adds so much resistance that the current does not "trickle" across the soot bridge as it does at atmospheric pressure. But, if so, how are we to account for the current jumping across from wire to wire, under compression as well as not? In the one case, the current took the line of least resistance—"trickling" along the surface of the soot bridge; but in the other it jumped the gap from wire to wire.

Apart from the probability that this Panhard discovery may lead to the adoption of an external gap on all sparking plugs for the avoidance of trouble through oil getting at the sparking points, it seems to me that (if my deductions are confirmed by further experiments) the discovery that a plug will always work well with an external gap, whether the inside of the plug be in good order or not, will have the effect of providing us with an ever-ready means of ascertaining at a glance whether our ignition is good, at any rate up to the place where the external gap exists, because the spark jumping across the gap from the end of the secondary wire to the plug can always be seen, and will do away with the necessity of opening the commutator, testing the trembler (or wipe), and searching to discover whether there is a leak. On the other hand, I have always understood that every time the current creates a spark by jumping a gap some current is wasted, so that the existence of such spark outside the plug would tend to exhaust a battery much sooner than when no such external gap existed.

USEFUL HINTS AND TIPS.

We are indebted to Mr. W. P. Shaw, of Birkenhead, for particulars of the following results, which he obtained by fitting an auxiliary air valve into the induction pipe of his motor. The method of fitting this valve is shown by the annexed sketch; but in case any readers of *The Autocar* wish to adopt Mr. Shaw's device we give a simple method of its construction. A hole equal to one-third the diameter of the pipe should be drilled in the induction pipe, the hole being nearer to the carburetter than to the motor. Over this hole is fitted a cylindrical dome, which should be "sweated" or hard-soldered to the pipe. The dome is bored out and provided with a flat, or conical, mushroom valve seat, the valve guide being formed by a boss in the centre. Around the dome are drilled a number of holes whose combined area is equal to that of the valve. The valve stem is continued through the top of the dome, and is provided with a light spring, the tension of which may be easily regulated by means of a nut and lock-nut. The function of the valve is to supply pure air to the mixture and so weaken it when the engine is racing, and at the same time maintain a full cylinder charge. When the mixture is cut off by the throttle, the valve supplies pure air to the cylinder, scavenging and cooling it, and, by reason of the maintained compression within the cylinder, acting as a brake. It makes the regulation of the mixture automatic to a certain extent, and effects a saving in fuel. We cannot do better than quote our correspondent's words as to the results obtained by fitting the valve. He says: "When the throttle is full open the valve does not operate, but when more than half closed then the valve begins to work, and, strange to say, the engine quickens—probably due to a really better mixture—and drives the car along at a rapid pace with the spark advanced about half forward. Running down a long hill, I closed the throttle, and could then hear the engine drawing in air. At the bottom of the hill I opened the throttle halfway, when the valve stopped, and the engine started driving again." The fact is that when the throttle valve is full open, the full suctional power of the intake stroke is exerted upon the carburetter and a very rich mixture is drawn in; hence the foul smells and dirty valves that some motorists experience. With the valve half shut some of the suctional force is exerted upon the extra air inlet valve, and pure air is taken into the cylinder with the enriched air. The result is a more combustible mixture and quicker and more regular beats as noticed by our correspondent. As the speed of the motor increases, the air valve opens wider to the increased suction, admitting more air and giving, as a result, a reduction in the power of the explosion, which is again increased as the speed of the motor drops. The valve is certainly a useful addition to a motor, and one that is well worth trying, as it undoubtedly adds to the efficiency of the motor, as is proved by the new Krebs Panhard carburetter, which practically arrives at the same end as this simple valve. It is particularly interesting to note that our correspondent first sent us a sketch of his device on January 12th, 1902.



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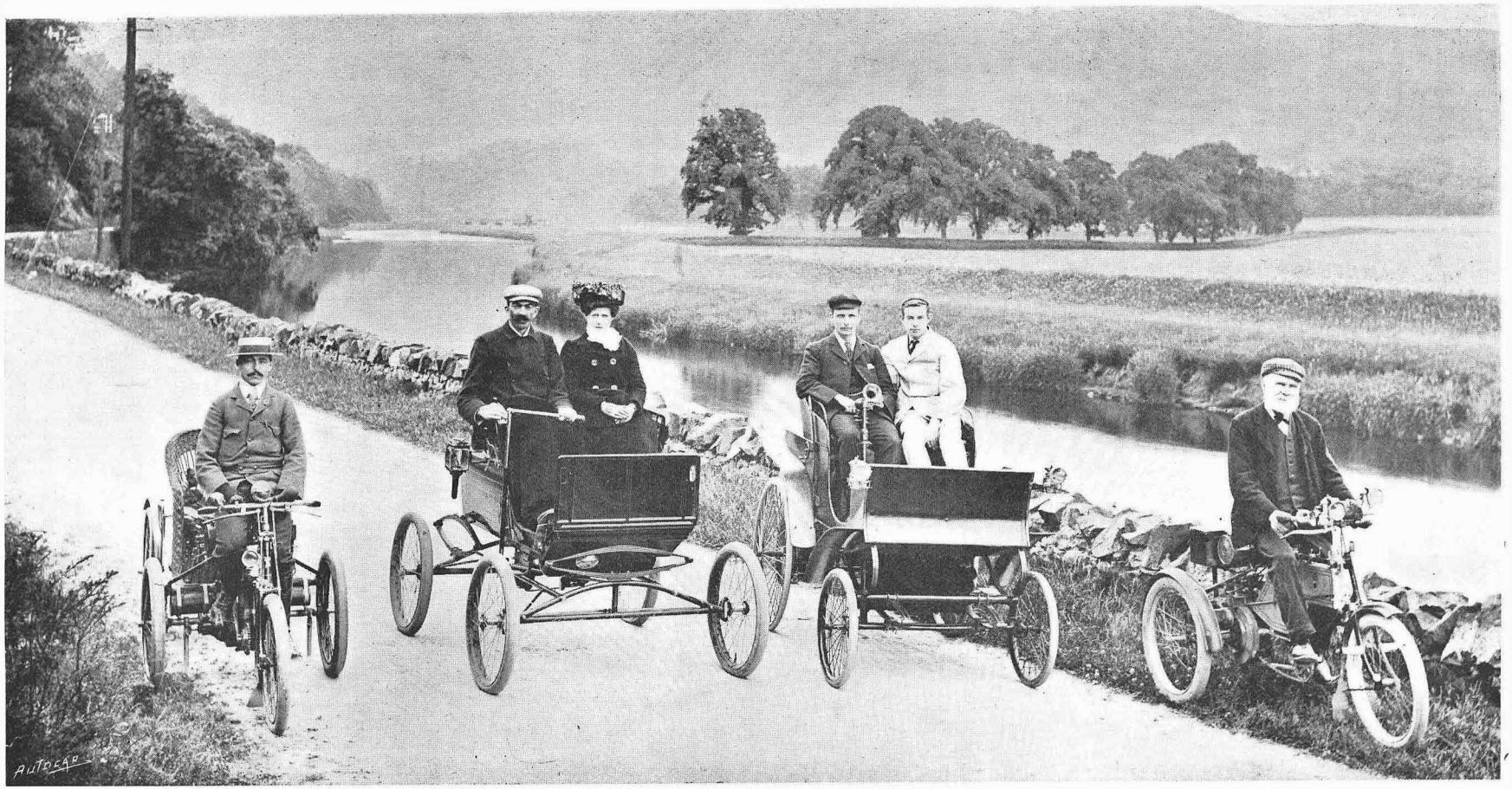
Intending purchasers of American cars would do well to bear in mind that an American gallon is about twenty per cent. less than an English one, so that a tank with a reputed capacity of twenty gallons would only be sixteen gallons.

× × × ×

Many correspondents have from time to time enquired as to the best brand of oil to use with a paraffin burner. We have made some enquiries into the matter, and the general opinion is that any of the cheapest and lowest flash Russian oils obtainable are generally suitable. For the Serpollet type of burner, it has been found that the brand known as "Testefas" suits best, giving a good clear heat without any tendency to smoke. Of course, various oils have their different peculiarities; the cheaper ones, as a rule, being less refined and containing more carbon, may not possibly suit some types of burners so well as the more refined brands.

BY THE SIDE OF ST. MARY'S LOCH.



SOME SCOTCH AUTOMOBILISTS.

The group we reproduce above is from an interesting photograph taken last summer about midway between Peebles and Innerleithen. The small petrol dogcart is built by the owner, Mr. Laurence Bell. He started with the patterns and finished with the upholstery, doing all the work himself. The engine is a single-cylinder horizontal one on Benz lines, and develops 4 h.p. on the brake. The carburetter is of the Daimler type, and a throttle is fitted between it and the induction valve, which is worked by a small handle under the steering wheel. With the spark advanced, Mr. Bell can regulate the speed of the engine from about 300 revolutions to 800 with the throttle alone. The transmission is by belts to countershaft, two speed gear, and then by chains to driving wheels. At first, slipping belts and a jockey were used, but these were soon given up for a friction clutch gear which Mr. Bell designed. To move the convex or male portion of the clutch between the two female or concave members—which, in the case

of this gear, are the first and second speed pulleys on motorshaft—a long lever is used, which extends to just below the driver's seat. The clutch can be put in mid position, so as to give a free engine, and it is controlled by a quick threaded screw worked by a small hand wheel, which will be noticed in the photograph on the right-hand side of the car next to the brake lever. This makes a very simple arrangement, the car being entirely controlled by the small hand wheel and the throttle lever. The water circulation is natural, three gallons being sufficient to run the car for over one hundred miles. The gentleman on the right of the photograph, on the tricycle, is a native of Innerleithen, is seventy-three years of age, and he covered nearly 2,000 miles in the first nine months of his motoring experience, and regards a run of 120 miles in a day as a mere bagatelle. The Locomobile next to Mr. Bell's car had been in constant use for over fourteen months at the time the photograph was taken, and the repair bill amounted to one new tyre, one tyre repair, and a new chain—another excellent record. The other motor tricycle is a 2¼ h.p. M.M.C., which, after 4,000 miles of running, was still as good, or better than, ever. The owner, Mr. Shiern, of Peebles, distinguished himself at the Paddy Slacks hill climb last summer. He was present as a spectator, but was pressed by his friends to make a trial, and straight off, without any preparation, he went up the hill, and covered the measured mile in the second best time of the day. Mr. Laurence Bell, who is a practical engineer and is well known to motorists for miles round Innerleithen, has done a very great deal for the automobile movement locally, and it will certainly not be his fault if it does not develop even more rapidly than it has done. It will be seen that Mr. Bell gives very practical evidence of his skill.

THE DRIMOSIT RUG.

The question of a thoroughly protective and adequate rug or apron for the driver of an autocar has hitherto been a matter hedged about with difficulties. Driving rugs there have always been, but scarcely one that has proffered efficient protection to the man at the wheel. Both from observation and experiment—for we have used the "Drimosit" rug ourselves with complete satisfaction—we are able to assure our readers that in the design of this welcome garment Mr. J. W. Lovegrove, of 175, Piccadilly, W., has put an ideal article upon the market. The difficulty hitherto experienced has been to protect the lower part of the legs and the feet from the weather, while leaving the latter free to actuate all the pedals on the footboard as readily as though one's limbs were entirely free, and at the same time to keep the lower part of the trunk and the seat protected from wet and cold. By the three small accompanying illustrations, showing the manner in which the "Drimosit" is assumed, it will be seen how thoroughly the rug does this. It is made with partial legs and roomy feet, with thin soles in leather, through which the pedals can be delicately felt, and the feet are thrust into these "feeted" legs as shown by fig. 1. So soon as both legs are in, the "Drimosit" is buttoned securely round the body as shown in fig. 2, and protects and covers the limbs no matter the position assumed, as shown in fig. 3. The loose portion of the material of which the "Drimosit" rug is made is buttoned round the leg, so that if the driver wishes to descend from his vehicle he can do so easily without divesting himself of his rug. It is, as a matter of fact, when buttoned up, a garment. The material is complete at the back, and being shaped to the seat and waist no water can penetrate, however much may be floating about on the seat. These rugs are made in almost any desired material, and lined with fur, camel-hair, or anything desired. As we have already suggested, once used by automobile drivers who have to face cold and rain, they will never be relinquished. We hope shortly to illustrate the "Drimosit" as designed for lady passengers on automobiles, and in which, with adequate top covering, a fair *chauffeuse* may face the deluge and remain dry.

Fig. 1.

Fig. 2

Fig. 3.

Mr. Edwin S. Cheel died on the 9th inst. His widow begs us to thank many manufacturers and members of the Automobile Club for their letters of introduction to people at the Cape. Mr. Cheel was to have gone to South Africa this month, but consumption, from which he was suffering, carried him off before he could leave these shores. He will be remembered by many as one of the participants in the thousand miles trial, in which he drove an Ariel tricycle with a Whippet trailer.

THE DENNIS SPRING DRIVE.

When calling on Messrs. Dennis Bros. at their well-appointed and commodious works at Guildford lately, our particular attention was directed to their new combined spring drive, water-cooled propeller, or arborshaft, brake and universal coupling, which they are now fitting to their standard 14 h.p. Dennis cars.

This device has been designed for the purpose of softening the driving shocks of the engine, as well as for saving the whole driving economy of the car as much as possible from the effects of a carelessly-used clutch.

By reference to figs. 1 and 2, it will be seen that upon the rearward tapered end of the secondary gear-shaft where it projects from the gear box, Messrs. Dennis Bros. have mounted a piece which, for want of a better term, we have called the driver B B. This part is made with drilled lugs top and bottom, to take the driving springs C^1 C^1 C^1 C^1, as shown, and with a rearward boss upon which the spring-driven brake drum C C runs loosely. By following the section of this drum, as shown in fig. 1, it will be seen that it has a rearward produced collar, which serves to make it a portion of the forward universal joint of the propeller-shaft F F, by means of the vertical pin marked *d*.

Fig. 2 is a front view or elevation of the driver B B and the spring-driven brake drum C C.

The band brake, applied by the actuation of a foot pedal to the drum C C, is not shown, but the section of the latter shows the water space. Water is led thereto by a pipe from the tank, the necessary cock being opened by the depression of the brake pedal, the fluid being served all round the inner surface of the drum by centrifugal force. We have not as yet ridden on a car fitted with this drive, but we have no doubt that it has an excellent effect in reducing engine sensation to a minimum and saving the vital parts of the driving mechanism from shock at the same time.

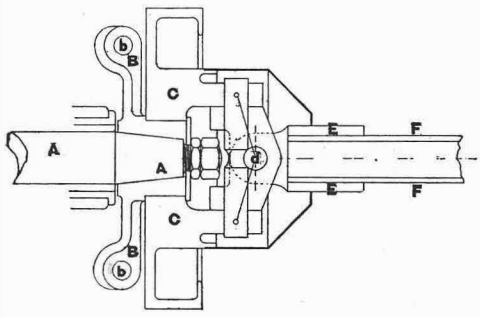


Fig. 1.

A A, end of secondary drivingshaft
B B, driver fixed to A A.
b b, fixing for the brake drum C C.
b^1 b^2, tets for springs C^1 C^1 C^1 B^1.
C C, spring-driven brake drum.

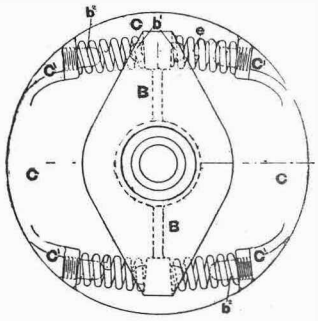


Fig. 2.

C^1 C^1 C^1 C^1, driving springs.
d, driving pin.
E E, lug on the end of the shaft F F.
F F, propeller shaft.

A NEW HIGH SPEED ENGINE INDICATOR.

In the course of his paper on "Indicating High Speed Engines" before the Civil and Mechanical Engineers' Society on Thursday, 8th inst., Mr. A. Marshall Arter, A.M.I.C.E., referred as follows to the Mathot recorder in connection with the indicating of petrol engines:

This instrument (supplied by Messrs. McInnes, of Glasgow) is designed to take a continuous set of diagrams for a short period on one piece of paper, and is especially useful to record the performance of the gases in high-speed petrol engines now so extensively used in motorcar work.

It has not been the practice hitherto, except in a very few cases, to make any arrangements to indicate these engines, the ordinary instruments not being suitable for the work, having regard to the high revolutions, and, possibly, to the extra volume they would add to the clearance space, which in small engines might sensibly decrease the compression in the cylinder.

The ordinary indicator diagrams represent either the compression and explosion or the exhaust and suction strokes, and as the explosions of most petrol engines are, to a certain extent, variable, they do not give a fair indication of their true working state. By this instrument, however, it is possible to secure a record of a consecutive set of explosions, and to analyse with more accuracy the real working conditions of the engine.

The makers have carefully studied the requirements of the manufacturers of petrol motors, and are making instruments in which the cubic capacity of the cylinder and of the connecting cock is small. Another advantage that this instrument possesses is that the paper is made to travel by clockwork, and no connection to the crankshaft is necessary, which is a great convenience with this type of enclosed engine.

The recording device is attached to an ordinary McInnes indicator; it consists of a clockwork mechanism, the speed of which is controlled by a special compensating governor, which causes the paper, carried in the form of an endless roll in one compartment, to pass over one drum, and to be wound on a third. By this arrangement the diameter of the drum over which the paper is passed while the diagram is drawn, and hence the speed of the paper, remains constant, instead of being gradually increased as more paper is wound on it, or *vice versâ* if only two drums are used.

Incidentally, it is interesting to note that the speed of the engine can be calculated from the series of diagrams obtained, provided that the speed at which the paper was travelling at the time was known. The latest type of instrument is fitted with an external piston spring, which is a great improvement for this work over those patterns in which it is enclosed in the cylinder of the instrument, as by this means it remains comparatively cool, instead of being heated by the piston or the hot gases that leak past it. An atmospheric line is automatically drawn on the paper by an adjustable marker at the same time as the diagrams are drawn. By means of these continuous diagrams the proportion of misses and the number of explosions in a given time, together with the maximum pressure of each explosion, can be determined; the order of their succession, and consequently the regularity or otherwise of the variations, can be observed and traced to the secondary influences producing them, such as the suction of the inlet and exhaust valves and passages, sensibility of the governor, or incorrect mixture or time of ignition.

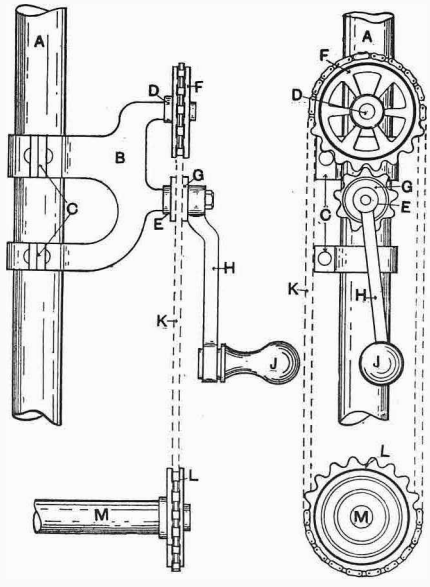
It is, therefore, now possible for engine builders to more fully understand the action of their petrol engines, and to make such experiments and introduce with a better knowledge of circumstances such improvements as will conduce to the best and most economical results.

The French sporting paper *Auto Vélo*, owned by the Marquis De Dion, will now have to change its title. On an appeal, instituted by *Le Vélo*, the court has ordered that the former must cease to use the title, under the pain of a fine of £8 a day.

A SIMPLE STARTING GEAR.

To many people an excursion into a frequently muddy road for the purpose of restarting their engine is very much objected to, and to such some simple and effective method of starting up the motor would be very welcome. There are, of course, many other reasons for having a starting handle accessible from the driver's seat, such, for instance, as frequent stops of considerable duration, during which time the motor would be consuming fuel to no useful purpose. Many such starting devices have been designed from time to time, and have attained more or less success. The latest starting gear is the design and invention of Mr. W. J. Ellis, of Queen's Road, Southend-on-Sea, and is the subject of the accompanying illustrations.

Mr. Ellis's Belle car fitted with his patent starting gear



Front and side elevation of the Ellis starting gear.

A, steering column.
B, bracket attached to A.
C, clips securing B to A
D and E, spindles formed on B.
F, chain wheel mounted on D.
G, sprocket engaging with F mounted on E.
H, starting crank fixed to G.
J, starting handle.
K, chain connecting F to L.
L, chain-wheel on engineshaft.
M, engineshaft clutch

Its construction is plainly shown by the reproduced drawing, and its manipulation by the photo engraving. A bracket B is attached to the steering column by two clips C; on this bracket are formed two spindles D and E, upon which are mounted two chain wheels F and G. The smaller chain wheel G is made to engage with the larger one F in the same manner as a spur gear, while F drives through a chain K on to a similar chain wheel mounted upon a clutch on the motor crankshaft M or other shaft geared to it. To the sprocket G a crank and handle H and J are fixed, by means of which the shaft M is given motion through the wheels F and L and the chain K. As the sprocket wheel G is of small diameter and has a long handle attached to it, a great leverage is obtained, so that the motor can be started up with the least possible amount of physical exertion. Those parts of the gear which are mounted upon the steering column remain stationary through the clutch on the shaft M. Mr. Ellis has fitted this arrangement to his own Belle car, which is shown in the above illustration, and he tells us that it acts perfectly, and we have no reason to believe that it would not be equally satisfactory on any other vehicle. To medical men such an arrangement should appeal strongly, as it is often very undesirable for a motor to be left running in the immediate vicinity of a patient's residence. Equally so is it the case with business men who have long calls to make. Such a device might be fitted to almost any motor vehicle by an ingenious engineer, though in many cases it would possibly involve an extra starting-shaft and a pair of bevel wheels.

CONTINENTAL NOTES AND NEWS.

Suppression of Race Meetings.

The year has opened under anything but favourable auspices for the sport of automobilism. The first event was to have been the race for the newly-instituted Pioule cup over a circular course in the South of France, and as the local authorities had given their consent, the promoters could scarcely have foreseen that they would meet with opposition elsewhere. It has therefore come as a great surprise to learn that the race has been prohibited. This surprise is not unmixed with a certain feeling of apprehension, as the interdiction unpleasantly recalls the incidents of the Nice meeting last year, and it suggests whether, after all, the sport has triumphed over the antagonism which it has so long experienced from certain quarters. It was hoped that since the Minister of Agriculture himself came out as a promoter by organising the northern alcohol circuit the Government would have taken a more liberal view of autocar racing, but the Pioule incident is calculated to awaken some misgiving among automobilists on this point. Everything, of course, turns upon whether the race has been prohibited by the Prefect or by the Minister. In the former case it may have little significance, but if the Government has refused to sanction the event it shows that the powers that be are still abiding by the policy which we sketched out a twelvemonth ago. At that time we stated that the Minister of the Interior was likely to sanction only the leading events promoted by the Automobile Club of France. He is not inclined to allow indiscriminate racing merely for the sake of the sport, but is quite willing to encourage events which are likely to be of value to the automobile industry. Racing must have some technical and commercial importance if it is to receive official support, and if prominence is given to alcohol it cannot fail to be encouraged. Consequently, there does not seem to be any cause for alarm at the prohibition of the Pioule race. Even if the Pau meeting be suppressed next month —a by no means unlikely contingency—it will only be in accordance with the policy of the Government, as this event is mainly of a sporting character. Their interdiction will have no effect upon the programme of the Automobile Club of France, which, being drawn up in the interests of manufacturers, is supported by them, and the series of events will no doubt be largely a repetition of those of last year, with probably the alcohol circuit replaced by another circular meeting in France on the lines of the Ardennes race. Probably, also, the programme will be lengthened by alcohol events under the patronage of the Minister of Agriculture. The one last year partially failed on account of the abominable weather. It is to be hoped that another will be promoted later in the season, so that alcohol can have a fair trial in competition with petrol. To sum up the situation, it is clear that races will only be permitted in the future when they are carried out in the interests of manufacturers, and at the same time this will depend upon whether the Minister of the Interior finds it convenient to dispose of a police and military force to patrol the roads and prevent accidents.

The new 14 h.p. Chenard-Walcker car. This vehicle was described in detail last week, page 30.

Automobilists in Gaol.

The Parisian magistrates had a busy time last week in sending automobilists to gaol on the bare statements of policemen that they were driving vehicles to the danger of the public. And by an irony of fate, on the same day that Baron Henri de Rothschild was inculcating lessons of prudence before the members of the A.C.G.B. and I. he was himself sentenced to a term of imprisonment. The presiding magistrate, M. Mulle—not the M. Mulle who distinguished himself for his autophobia tendencies at Versailles a year or two ago—made short work of the delinquents, and when it came to the turn of Baron Henri de Rothschild the cycling policemen had two summonses against him. The veracious witnesses declared that when they asked the Baron for his papers he declared that he was not in the habit of stopping for a policeman, and that as the police were provided with bicycles to chase automobilists, it was their duty to ride after him. This was "flat blasphemy" to M. Mulle, who fined the Baron twenty francs and sentenced him to three days' imprisonment. When Baron Henri de Rothschild gives his version of the case on appeal he may succeed in getting the sentence reduced, though he can scarcely hope to escape scot free, for the acquittal of an automobilist would shake to their very foundations the traditions of police veracity and magisterial infallibility.

Race Round the World.

One of the Paris newspapers has just startled its readers with the announcement that arrangements are being made to organise an autocar race round the world in 1904 or in the following year. It also

states that the project is "being discussed with great enthusiasm in automobile circles in France and America," but whatever people may say about it on the other side of the Atlantic, we must confess that we were entirely ignorant of the proposed race, or that it was being discussed at all in France, before the journal in question came out with full details of this momentous event. Starting from Paris, the vehicles are to race through France to Munich, and then on to Vienna. From the Austrian capital they will traverse Hungary and the South of Russia, and after crossing the Urals, will make their way along the south of Siberia. It seems that the promoters at first thought of taking the course over the Behring Strait, where the cars could pass in winter when the sea is frozen. Presumably they would send forward a gang of navvies and a few steam rollers to level down the hummocks and icebergs, which might otherwise affect the speed, or prove destructive to the tyres, and thus convey an unfavourable impression of automobilism upon the Esquimaux who would crowd along the course. It is doubtless on account of these difficulties that the course has been somewhat modified, so that the cars will arrive at Vladivostock; and—if any remain—they will be conveyed to San Francisco, where the race will be resumed on to New York. They will then again take to the sea, and be landed at Havre. By this time most of the difficulties will have been overcome, and the cars will race from Havre to Paris "on excellent French roads." This is perhaps only what might have been expected. The newspaper which gravely publishes these details is generally credited with being the property of M. Henry Deutsch, the millionaire automobilist, and it is really impossible to understand what it all means. It is difficult to believe even that the paper is capable of perpetrating a joke on its readers, and the only conclusion to be come to is that it may be a first attempt, in which event the delinquent should be discharged with a caution. Speaking of the globe girdling race, it is reported that Dr. Lehwess and Mr. Max Cudell have given up their attempt to drive round the world, and that the Passe Partout, which cracked two cylinders through the water freezing in the jacket on the way to Moscow, is now stranded and abandoned by the passengers near Nijni Novgorod. We give this on the authority of the Paris journals.

A Motordrome in Berlin.

The idea of laying out a track specially for autocar racing has never met with much favour in France. The question was very actively discussed about eighteen months ago, when the French Prime Minister formally stated that no more races would be authorised on the public highways, and as there appeared to be no alternative but to create tracks, where automobilists would be able to race without interference from the authorities, a good deal of attention was naturally given to the *motordrôme*. The first proposals to lay out circular tracks of one or two laps to the mile did not receive much approval, since it was argued that races should be mainly a test of carriages, and that no speed trial could be satisfactory unless it were carried out under conditions similar to those existing on the road. It was therefore concluded that a *motordrôme*, to be of any practical value, must be laid out in a property or park sufficiently extensive to allow of roads being engineered with all kinds of gradients and surfaces. Though such an undertaking would necessarily be a very costly one, the French club did not hesitate to investigate several sites, and it was even reported that the owner of the famous Chambord estate had placed a part of this vast domain at the disposal of the club. Any idea of creating *motordrômes*, however, was abandoned when it became clear that the sport was taking a more favourable turn on account of the more lenient attitude of the authorities, or rather it has developed in a new direction, and the *motordrômes* in France will probably be circular courses of fifty miles and more passing through a thinly-populated country, while the Dourdan mile stretch will be available occasionally for mile records. In Germany automobilists do not possess these facilities, and as racing of any kind is prohibited, it has been decided to create a *motordrôme* in Berlin with a lap of 666 metres. We fear that the enterprise, which is being carried out by a company, will scarcely prove successful, for apart from the impossibility of driving at high speeds on such a small track, the repeated passing of cars would be liable to cause accidents, but as the *motordrôme* is being constructed, and is to be terminated by April, we shall be able to see whether the autocar track is likely to prove attractive to automobilists and to the public.

A New Motor Classification.

The classification of racing vehicles by weight, which came into force at the beginning of 1902, was undoubtedly a wise measure, and it has done more than anything else to keep makers in the way which leads to perfection, instead of allowing them to evolve powerful monstrosities that threatened to make the racing machine utterly distinct from the touring vehicle. By being limited to weight, manufacturers were bound to develop their cars on rational lines, and the good results of this classification are seen in the remarkable progress made during the past twelve months. Instead of diminishing the powers of their motors, they have actually increased them simply by augmenting the efficiency of their engines and gears, by which means they have been able to reduce the weight for a given power. This year some makers will be running vehicles with engines of 100 h.p. All this, however, has only been accomplished by patient experiment and constant research, necessitating in some cases an enormous expenditure of time and money in designing the most powerful and efficient types of mechanisms for vehicles coming within the weight limit. Every part of the car has, moreover, had to be re-designed. New weight adjustments have had to be made, and the springs, axles, and frames have been designed to secure the greatest possible strength and lightness. In the big cars the results are undoubtedly excellent both for the makers and buyers, but the manufacturers of light carriages and voiturettes are disposed to argue that the weight classification is a little too arbitrary, since it encourages the development of the mechanism at the expense of the carriagework. A light racing vehicle is usually not a carriage at all, as makers sup-

press the body altogether, and content themselves with a tank seat on boards across the frame. They therefore urge that it would be preferable to raise the weight for the light carriages and voiturettes, or, what is better still, merely weigh the frame and machinery. If this were done it is clear that the makers of big cars would claim the same privilege, since there would otherwise be little margin between the big carriage and the light vehicle, the one being weighed all complete and the other simply with the chassis. If the present classification be tampered with in this way, it is to be feared that it would entirely destroy the value and signification of the weight limit. Evidently makers have come to see that there is very little chance of having their claims conceded, for the Syndicat de Constructeurs d'Automobiles is now considering the advisability of inviting the A.C.F. to adopt a new classification in which the vehicles will be classed according to the cube of the cylinders. On the face of it, this would seem to be a very fair and logical definition, since a classification of this kind would be based upon the efficiency of the cars as a whole, that is to say, of the motor and transmission. It would also be an incentive to the designing of economical engines. It remains to be seen, however, whether such a method can be practicable, for it is difficult to imagine how such a classification can be made when there is such a variety of cylinder dimensions, unless, indeed, a satisfactory formula be found for calculating the speed according to the cube of the cylinders. The matter is now being discussed by the makers' syndicate, who propose, if they find a way out of the difficulty, to invite the A.C.F. to adopt the new classification, or at least employ it in conjunction with the weight limit.

Electrical Timing Devices.

Apparently, the various electrical timing devices which have cropped up since the Sports Commission of the A.C.F. decided to employ such instruments in the future for timing autocars over the mile and kilom. are not giving such good results as had been anticipated. This at least is the only conclusion that can be come to in view of the fact that the Commission has not yet received a single entry for the trial which is to take place next month. Nevertheless, it is probable that one instrument will be presented, for the Mors device was privately tested with satisfactory results recently; but, on the other hand, the way in which the Commission decided, after adopting the Mors, to open a competition of other instruments seems to show that the problem is still far from being solved. As a suitable electric instrument would allow of the seconds being split into tenths for timing the cars over the flying kilom., it is to be hoped that the forthcoming trials will prove more successful than they promise to be at present.

The Paris-Madrid Race.

The date of the race from Paris to Madrid has just been officially fixed. The start will take place on Sunday, May 24th, from Paris, for the first stage to Bordeaux. The subsequent stages have not yet been selected, as this will depend upon the reports of M. Tampier, who is at present engaged in prospecting the three or four roads by which the cars can travel from Bordeaux to Madrid. The order of departure will be decided by lots among the entries received between January 15th and February 15th, but after that date competitors will start in the order in which they send their entries. The fees are fixed at 50 francs for motor cycles (up to 50 kilos.), 200 francs for voiturettes (250 to 400 kilos.), 300 francs for light carriages (400 to 650 kilos.), and 400 francs for big cars (650 to 1,000 kilos.) After April 16th these fees will be doubled, and no more entries will be received after May 15th.

THE GORDON BENNETT CUP RACE.

[BY TELEGRAPH.]

At the dinner of the Motor Cycling Club on Wednesday evening, Mr. S. F. Edge, the chairman, stated that he had just returned from Ireland, where, in company with the secretary of the Automobile Club, Mr. Jarrott, and Count Zborowski, he had driven over the course proposed for the Gordon-Bennett race, and all agreed it to be quite satisfactory for the purpose. There are many good, long, straight stretches where three cars could pass abreast. The country passed through is very sparsely populated, and very little of the route is hedge-lined. The local people are throughout strongly in favour of the race, and several of the local councils have already passed resolutions agreeing to hand over that portion of the course passing through their districts to the club for the day of the race. The prospectors killed a few chickens, and had great difficulty in persuading the sporting peasant owners to take compensation. In every quarter the idea of the race being held in Ireland is received with the greatest favour.

"THE DARRACQ AND ITS MANAGEMENT." This is the title of a very handy little book which has been compiled by Mr. Archibald Ford, the manager of Mr. William Lea's motor depot at Liverpool, and the originator of the school of motoring which is meeting with such conspicuous success. In the first place, the book is written in a very plain manner and is quite elementary. A large number of very clear illustrations and sectional drawings are given to make the explanations even more transparent. There is a useful little glossary at the end, in which the names of several parts are given in French, and last, but not least, some useful and practical driving instructions are given, as Mr. Ford is convinced—and rightly—that this is a most important branch of the subject. We are particularly pleased to see that not only are the elements of driving plainly put, but the tyro is urged to drive artistically, so as to get the best results out of his car with the minimum of vibration, noise, and strain. Further than this, there are some useful and practical hints on the care of the car and on the best way to meet little roadside difficulties which may arise. The book is an immense advance on its predecessors, the first of which was brought out in 1901, and is in itself an evidence of the development which has been made in the interval. Even those who do not use, or contemplate using, Darracqs will find many useful hints in the little work.

Correspondence.

A RACING MAN'S VIEW OF THE PARIS EXHIBITION.

[2763.]—In your last issue a statement is made by a correspondent, Mr. Chas. Sangster, that "no radiator fitted in this country will keep water cool enough so that the car does not want refilling for, say, 500 miles." This statement is incorrect so far as the "Napier" is concerned. We will guarantee to supply standard "Napier" carriages which will run much further than this without refilling with water. We have been doing so for some considerable time, and in May last I drove in a trial from Glasgow to London, a course of over 400 miles, where it was officially recorded that "no water was required," although many miles had to be driven on the low speed to keep within the time limit.

We trust that your correspondent will amend a statement which is not in accord with fact, and harmful to me as a motor manufacturer. S. F. EDGE.

[2764.]—I have read Mr. Sangster's letter in last week's issue with considerable astonishment. Remembering the days when the manager of the Cycle Components Company could be counted amongst those sceptical individuals who could not and would not believe in the future of the motor industry, and remembering many of his criticisms on foreign methods of construction, and having seen some practical specimens of how much better many of these things could be arranged if the British brains of Birmingham had the designing, I marvel at his wish now to pose as a champion of foreign design, and also at his decision to copy—one might say blindly—the ideas he has seen shown on some of the stands at the Paris Exhibition.

Perhaps the car he mentioned as being concerned in the manufacture of requires these modernities, but in any event I do not think that the English manufacturers will accept Mr. Sangster's advice in regard to *chassis embouti*, etc., without first having more knowledge and better experience than Mr. Sangster can place at their disposal.

In certain types of cars where a necessity has arisen for a certain design I would not and do not suggest that certain apparent complications are necessary to obtain satisfactory running results, but at the same time, to endeavour to build all carriages on the same lines without understanding why would be foolish.

Mr. Sangster probably cannot understand this because he would fail to appreciate where the difference between a 16 h.p. and a 60 h.p. car comes in in regard to these questions.

The conclusions I had arrived at as set out by me in my previous letter were the result not of merely looking at certain devices shown on cars which had never even been tried and run—which appears to be the only data Mr. Sangster has to argue upon—but of a long and varied use of many kinds of automobiles, some of them arranged on the lines he wishes all English manufacturers to copy.

Also "the racing experience" which Mr. Sangster scoffs at—why, I cannot imagine, as no one knows better than he does himself how much he is indebted to other people's racing experience—has enabled me to form certain practical conclusions which have been borne out by the drivers of the cars constructed on the lines he champions.

I do not propose arguing the matter with Mr. Sangster, as although educational from his point of view, this would require space and time. I am nevertheless obliged to him for referring to me so continually as "a racing man"—a fact, as a sportsman, I am proud of—but at the same time I would mention that I personally race and have always raced for sport, pure and simple, and my real interest in the motor industry is as a large buyer of cars, both of English and French make, in connection with my own business and for resale to the public, consequently, as an agent spending and prepared to spend money in the purchase of cars of whatever make I may think best, no one has a more *bonâ-fide* right to criticise methods of construction than I have myself.

The opinions I expressed in my previous letter I adhere to: Let the evolution of the perfect motor carriage be on the lines of simplicity, combined with efficiency, and let it not be forgotten that the construction should be of such a character that in the event of accident parts can be repaired and replaced easily and cheaply.

I shall view with interest the experiments which Mr. Sangster has decided to make in connection with the cars he mentions—a decision which probably shows a motive for his letter—but I hope that at least the English public and the English manufacturers will not rush after complications—in whatever form—without first forming their own opinions as to their necessity.

CHAS. JARROTT.

[2765.]—Mr. Sangster's letter in the last number of *The Autocar* contains a very large quantity of debatable matter, which boils down into the suggestion that British manufacturers ought to be copyists. This may seem a bare summary of his long letter, but surely the British manufacturer is able to evolve out of his own intelligence some improvements in motor design, and to have his own very decided opinion on the importance of retaining features which have proved to be efficient. The discourse which Mr. Sangster preaches, when deprived of its padding, really amounts to a consideration of whether the three features of the Mercedes, which he enumerates, are at the moment items for immediate acceptance by the British industry, and by the British users of foreign motor cars.

(1) The *chassis embouti* may be lighter, stronger, and ultimately cheaper than the old form of frame construction, and Mr. Sangster's reputation as an engineer is a sufficient guarantee of the accuracy of this statement. From the point of view of the manufacturer, the question then arises whether the time has come for the standardisation of frames, in view of the fact that so many purchasers of cars wish to have widely differing varieties of bodies unsuitable for a single standard of frame. At any rate for the present, standardisation, like the alleged economy, is out of sight. From the point of view of the owner there is the question of the sequel to accidents. Will the frame resist the fancy manœuvres of an inexperienced user, such as cannoning against lamp-posts, side-slipping on the pavements, or overturning into a ditch? Neither type of frame will withstand such abuse, but while the broken portion of a built-up frame can be repaired, the pressed steel frame has to be replaced as a complete whole. This replacement means the complete dissembling and subsequent re-assembling of the car. What will the unfortunate misuser say when he receives the necessary enormous bill?

(2) Mechanically-operated inlet valves. Mr. Sangster questions whether these are more complicated than the atmospheric suction valves, and yet he at once admits there is a complication. He omits, however, to refer to the wear, which alters the power of the engine and spoils the exact timing of the valve, and if the timing be incorrect the alleged superior efficiency disappears. The mechanically-operated inlet valve may be ideally designed for a certain speed; it may score in silencing the running of a big engine at reduced speed, but it has not yet been proved to have a greater efficiency at all speeds for all engines.

(3) The statement that the induced draught type of radiator is more efficient than the old pattern is one not justified by experience, when the car is in motion, whatever may be the heating of a stationary vehicle. Its use reduces the quantity of water carried, but that is not necessarily an increase in efficiency. The old system of radiator has reached perfection so far as efficiency is concerned, and its advantages must be sought in other and secondary considerations. There are authentic cases of the distance of 500 miles being covered without any necessity for refilling the tank, during the whole of which distance the water has kept perfectly cool. That is complete efficiency. Weight may be reduced, but complication and risks of injury inevitably enter when air is induced through a honeycomb by a fan. F. T. BIDLAKE.

[2766.]—I have been greatly interested in reading Mr. C. Sangster's letter in your issue of the 10th inst., because it suggests to me that he is at last anxious to keep up with the times if possible, and is taking a much keener interest in the motor car industry than heretofore.

Up to the close of the year 1901, I had the honour of being in very close touch with Mr. Sangster, and would call his attention to at least one Englishman (once a cycle racer) who gave him very valuable advice on the motor question, which, if followed at the time, would probably have been

of great benefit to him. . . . I have, however, to thank Mr. Sangster for his backwardness at the time, as this placed me in my present position, which consists of the exploitation of Continental manufactures," of which I can obtain deliveries at a reasonable price, and sell here in large quantities.

I am also glad to observe that he is desirous of including himself amongst "British manufacturers who are alive to their shortcomings, and who are willing to learn from those who can teach." This was not so in 1901. From the beginning of that year the demand of almost every reputed cycle agent was for a motor bicycle, and I did all in my power to convince him of this, and tried to persuade him to make a cycle engine, but up to the middle of July, 1901, he was very firm in all his replies to me, which were to the effect that he would never make a motor bicycle. (I told him at the time that I should remind him of it later, and now take this opportunity of doing so.) Towards the end of the year he was becoming converted, and had a motor of foreign manufacture fitted to a bicycle for experimental purposes, and I was not surprised to see a home-made engine fitted to the same make of cycle at the shows last November, but, *he was eighteen months too late*, otherwise he might have provided the English manufacturers and agents, and through them the British public, with British motors for their cycles, to the detriment of the foreign article.

The same argument applies in the same degree to the motor tricycles and quadricycles. The idea of manufacturing these was suggested to him *over two years* before he completed one, and they were then produced in such small quantities that they could not be made a commercial success, and before this desired result was arrived at, the demand for the same was on the wane, owing to the progress of the industry and the fact that small cars were being sold at very little more than the price of a quadricycle. Thus two more valuable years were lost.

I have no intention of arguing for or against the *chassis emboutí*, mechanically-operated inlet valves, or multitubular radiator of special design and construction. I have heard arguments on both sides. Has Mr. Sangster tried them? I would never argue on theoretical lines only. I always prefer to see the different inventions in practical use, and can then form an opinion in my own mind as to what is most likely to be most satisfactory from the user's point of view.

As a personal friend of Mr. Sangster's, I would suggest that he gives the whole question further deliberation before he definitely decides to avail himself of "some of those improvements" which, before he has time to adopt same, may again be *two years behind the times*.

In regard to the racing cyclists who "as a whole know so little of their machines," I would point out that even these gentlemen are useful in pointing out defects in their machines, which might involve the manufacturers in almost endless expense were the public experimented on first, and in the same way I suggest that the public and manufacturers have to thank some of those gentlemen who risk their lives on automobiles with the idea of placing in their hands reliable and most satisfactory vehicles.

J. W. STOCKS.

[2767.]—I have read with very great interest the letter of my friend, Mr. Chas. Sangster, in your last issue, and I read it with such interest because it shows me that after many years of effort on my part Mr. Sangster has at last realised that the motor car is a serious vehicle and leads to serious business.

Year after year I either lent or took Mr. Sangster out on the best available vehicles of the time, but he still remained a "scoffer," and it is with the greatest of pleasure that I realise that now he has been quietly thinking the whole matter over, and has taken up the *rôle* of "the English motor car builder's prophet."

It also pleases me to notice that the particular type of German-made vehicle which meets with his approval is one that I have just recently been instrumental in granting the free sale of in this country.

There is one little point in Mr. Sangster's letter which is rather unfortunate, and that is he is writing of the 1902 type of vehicle, in which some of the points which so pleased Mr. Sangster have been eliminated in the 1903 type, so that even if the British manufacturer took Mr. Sangster's advice and became a mere copyist he would simply be copying an obsolete model.

His personal remarks in regard to Mr. Jarrott seem to me somewhat out of place considering that Mr. Jarrott was one of the first to help Mr. Sangster in his motor baby-hood days, and has conducted successful automobile businesses while Mr. Sangster was still suffering from a kind of motor measles.

S. F. EDGE.

NON-SLIPPING DEVICES.

[2768.]—I am much interested by the description of the Parsons non-skidder, and it recalls to me a tyre which the Dunlop sold some years back with transverse raised ribs moulded on the tread. I found it a complete success in grease, but dusty in summer. Such a tread to solution to car tyres would obviate the abrasion and slip in driving that must occur with the chain device, but my own idea is a "tyre protector," with such a tread, to lace on for winter use. Whilst writing, may I ask how a cover is likely to "burst" if the inner tube is capable of restraining the air compressed in it? I presume that "gash" is the word intended.

W. R. C. S.

THE NUMBERING PROPOSALS.

[2769.]—In the last issue of *The Autocar*, Mr. E. Cragg, the hon. secretary of the Lincolnshire A.C., writes correcting your report of the general annual meeting of the club. I fear there must be some mistake or misapprehension. I certainly understood Mr. Rasdall to ask why motors should not be numbered as were cabs and policemen; and although Mr. Cragg may not have heard words to that effect, I, with others, certainly believed we did, and I am under the impression that at least one speaker commented on those remarks of Mr. Rasdall. Possibly, Mr. Rasdall did not intend to say what he is credited with as to cabs and police; but four gentlemen who were present at the meeting and whom I have talked with recently, agree with me as to what Mr. Rasdall said, or what they believe he said. I shall be pleased to hear that Mr. Rasdall does not wish us to be numbered like cabs and policemen, for many of us fail to see any need for it, or indeed for any numbering whatever; but I am certain Mr. Rasdall used the words he is reported to have used.

As to the remarks attributed to the president, I certainly believed—and the four gentlemen I recently spoke to also believed—that he said something to the effect that it was most unpleasant for them as magistrates to have to adjudicate in cases where there was an obsolete law broken, when every time they went out on their motors they themselves broke a stupid law. If he did say so, what is the harm? Our police know very well that every time we go out we break the stupid law restricting us to twelve miles an hour; but they also know that we do no wrong, and that we fully realise the necessity of driving carefully, and never recklessly. The freedom we enjoy, and will take care to not abuse, is due to the common-sense attitude of the authorities, and to the fact that so many of our magistrates, councillors, etc., are either practical automobilists and car owners, or have practical evidence of the safety of autocars when even doubling the limit set down in the stupid law. I daresay that Sir Hickman Bacon would be one of the first to admit the breaking of the stupid law by every member of the Lincolnshire A.C. and every other automobile club; yet at the same time he has done much to break down prejudice and to bring about the excellent state of things now existing in Lincolnshire, where even complaints against autocarists are almost unknown.

As regards the voting, there were certainly no dissentients; and I believe it is correct to say, as in your report, that the proposal against numbering was carried without a single dissentient. The members certainly gave the impression that they were against the proposal, and the only argument against was that of Mr. Rasdall referred to. I did not, as in the case of Mr. Cragg with Mr. Rasdall, hear Sir Hickman Bacon say that he dissented from the vote; but I do believe that what he did say was, in his capacity as chairman, that the proposal was carried without dissent. Indeed, I believe I am right in saying that this popular automobilist has a decided objection to carrying a number, not even as with cabmen or policemen.

The meeting in question was the annual general meeting of the club, and was fairly attended, as such meetings go. There was an unmistakable feeling against the A.C.G.B. and I. Bill as regards numbering; and the altered feeling of the committee of the parent club was referred to at the meeting, and welcomed.

Mr. Cragg knows that I have the welfare of the Lincolnshire A.C. too much at heart to make wilfully any misstatement—especially where harm might result—as to the club and its doings; and if I made mistakes in the report which I sent you, I cannot understand how I fell into error, or how it is that others at the meeting went away with the same impressions as to what was stated as I did.

Of course, the report was obviously not a verbatim one; but I maintain its was a fair and correct summary. I trust I am above willingly sending an incorrect report; but if I have made mistakes, which I deny, it is strange that each of the gentlemen I have asked bear out my version. It is strange, too, that at least Mr. Rasdall did not repudiate the words in question when the next speaker commented on them. The representatives of the papers present were asked not to report certain other remarks made; but the request was needless, for I hope we have some discretion. The point is, however—Was the report in *The Autocar* correct? I say it was.

THE WRITER OF THE REPORT.

[2770.]—Although the proposal to number motor cars is universally condemned, the only alternative at present suggested is to retain the *status quo*. In view, however, of the fact (so it is openly stated) that the Government are going to bring in a Bill next session which will *inter alia* embrace numbering, I think it behoves us to enquire whether there is no alternative to numbering which will meet the views of the authorities, and I venture to suggest that there is.

I will not occupy your valuable space either by pointing out in detail how or why numbering has been a failure on the other side of the Channel, or by enlarging on the many objections there are to the proposed system of identification by legible numbering.

I take it that the present position is briefly this: Automobilists are restricted to a maximum speed of twelve miles per hour, and must stop when called upon to do so either by a constable or by a person in charge of a restive horse. Automobilists, as a rule, habitually travel at a greater speed than twelve miles per hour—the majority with due consideration for other users of the road, and a few without any consideration whatever. These latter have obtained for automobilists generally an unenviable notoriety, with the result that the police have in many places had to resort to tactics of all sorts to catch these offenders. The result, as we all know, is that more often than not the real offenders escape, while considerate drivers have been caught and made examples of. Consequently, a kind of feud has sprung up between automobilists and the police, with the result that many drivers, rather than run the risk of a certain fine refuse to stop when called upon to do so; and if by chance they are held up give false names and addresses. Hence the demand that is being made on all sides for cars to carry a number sufficiently large to enable them to be identified when in motion.

Assuming the aforesaid to fairly represent the present state of affairs, I venture to suggest that the requirements of the authorities who are clamouring for numbering can be met, and well met, by: (1) Making it compulsory that all motor cars carry in a conspicuous place a small plate bearing the name and address of the owner of the car (such plate being capable of being read only when the car is at rest); (2) making the owner of a car responsible for the action of whoever may, for the time being, be driving the car; and (3) making the penalty for not stopping, when called upon to do so, a heavy fine for the first offence, and imprisonment for the second and subsequent offences. In short, make the car self-identifying as regards ownership when the car is at rest, instead of when in motion, and enable the severest punishment to be meted out to those who fail to stop on the demand either of a constable in uniform or of a person in charge of a restive horse. Obviously, the sign to be made by a constable as a demand for stopping must be an unmistakable one, impossible to misunderstand, such, for instance, as holding up both arms at right angles to the body; and it should be made at least ten yeards ahead of the car in the direction in which it is moving.

In addition, all drivers should be required to hold certificates of competency to drive.

As a corollary to this scheme all vehicles the property of manufacturers, factors, agents, etc., out on the road for the purpose of trial or otherwise should be required to display an identification plate.

It will probably be suggested that this scheme provides no means of identification for those in charge of restive horses. Quite true; but these users of the road are surely in no worse position than others who may have cause for invoking the aid of the law, and are unable to identify the party or parties giving the ground for such cause of action.

With the removal of the legal limit, the *raison d'être* for police traps will disappear, and consequently the aversion of automobilists to being held up by the police will also disappear; and this the more so when drivers realise that a demand to stop will more often than not be made with the object of testing their willingness to comply with the law than with the object of making a charge against them.

In conclusion, this scheme has the advantage that automobilists cannot have charges brought against them for breaking the law without their being made aware of the fact at the time and place of the alleged breach.

ROBERT D. PHILLIPS.

AN UNBURSTABLE TYRE.

[2771.]—We are pleased to note in your issue of the 10th inst. Mr. Rucker's reply to ours which appeared in your impression of the 3rd inst., but his savours much of that of the usual inventor, who, immediately he imagines he has discovered something new, gets somewhat excited, and is much upset when he finds that the more soberly-balanced and moderate minds cannot immediately grasp his eccentricities.

However, we are looking forward to the Automobile Show at the Crystal Palace at the end of the month, when we hope to have an opportunity of seeing the "unburstable tyre" fully demonstrated.

For THE COLLIER TWIN TYRE CO., LTD.,
W. GEO. WILLIAMS, general manager.

[This correspondence is now closed.—ED.]

MOTOR BICYCLING.

[2772.]—In response to your South African correspondent, dating his despatch from Port Elizabeth, I am glad it is in my power to offer him as "a private owner" a very favourable report of five months' experience of a Clyde motor bicycle. Having visited the French Exhibition last month, as well as the Stanley and Crystal Palace Shows, I am confident that magneto ignition will before long alto-

gether supersede accumulators in the same way that electricity has displaced lamp ignition. I can assure your enquirer my spark has never for one instant given me a single moment of anxiety. A fall from a Clyde can do

no harm to any part of your engine, and all the troubles incidental to secondary batteries are, of course, altogether unknown—this means so much.

Having already expressed my views in your valuable paper on a former occasion I will trespass no longer on your important space except to enclose a photo showing how well the Clyde can be steered by the knees at top speed without hand assistance. I have ordered Clydes for my two sons. 2¾ h.p. I recommend for heavy weights. When the public have learnt what perfectly simple conveyances magneto motor bicycles are, no motor man will be without this necessary tender to his car, and will bless, as I do, the day he purchased one. E. KENNARD.

P.S.—The Clydes vibrate so little I require no vibrationless springs in my seat-pillar. Stopping dead by the aid of the exhaust valve lifter in the left handle-bar, in an emergency you have nothing further to remember but to use this. I am confident you will see a big boom in these bicycles next summer.

PARALLEL TRANSMISSION SHAFTS.

[2773.]—In your remarks on the horizontal engine and the Wolseley system of transmission in your last issue, you state that this form of transmission could not be well adapted with any other engine excepting the diagonal or inclined type. We would like, however, to point out that this system of transmission from engine to gear box, viz., by means of Hans Renold silent driving chain (thus doing away with bevels), is adopted in the "Brooke" car, which car is fitted with vertical engine.

For J. W. BROOKE AND CO., LTD.,
MAWDSLEY BROOKE, director.

MOTOR CAR INSURANCES.

[2774.]—We notice in your issue of the 10th inst. a letter from a correspondent, A. B. C., with reference to motor car insurance.

If this correspondent will kindly furnish us with his name and address, we shall be very pleased to give him full information on the various matters about which he enquires.

For the LAW ACCIDENT INSURANCE SOCIETY, LTD.,
E. T. CLIFFORD, General Manager.

PARAFFIN BURNERS FOR STEAM CARS.

[2775.]—In the issue of your valuable paper of the 3rd inst., there is an interesting letter (2747) on this subject from Ceylon, which, however, I think may prove somewhat misleading to those of your readers who have not had much experience with burners of the Clarkson type. I hope, therefore, that the following remarks may prove of interest to them.

Mr. Clarkson, in designing a burner to be placed on Locomobile steam cars and light American runabout cars of the Locomobile type, was, I think, rather ill advised. Under the existing conditions of the design of these cars it was absolutely impossible for him to construct a burner which could fulfil the two fundamental and vital conditions, namely, "ample draught and combustion space." I may say that, on removing one of these burners from a Locomobile car to which it was fitted, and on which it would never work satisfactorily, and making exhaustive tests in a laboratory, on the bench, under varying conditions as regards combustion space, draught, and oil pressures, I found that the burner would work perfectly and that the orange-coloured flame could always be steadily maintained, that the burner could be got to work smokelessly, and also could be regulated without giving blow-backs. I venture to submit, therefore, that if the Clarkson burner could be applied to a properly-designed car where the two conditions, as stated above, could be fulfilled, it would work very satisfactory.

I am pleased to say that the other day I had the privilege of riding in the new Chelmsford car, designed by Mr. Clarkson, where, not being hampered by other peoples' designs, he has been able to place his burner in the position which he likes, thus enabling him to get a steam car using a paraffin burner which is smokeless, and the flame of which does not vary in colour and height, and thereby enabling the driver to maintain a steady steam pressure in the boiler. Furthermore, the life of the vaporiser and of the mushroom valve controlling the admission of the air and vapour mixture will naturally be very much prolonged; and on the car which I examined the other day, and which had already run 2,500 miles, these were in a condition as good as new. This speaks for itself when one compares the life of the old type of vaporiser fitted to the Locomobile car, namely, about 550 to 700 miles. ERNEST A. ROSENHEIM.

[2776.]—The letter of your Ceylon correspondent refers to the story of an unhappy marriage between a Clarkson burner and an American steam car, neither of which was "intended by nature" for each other.

Certain parties were strongly in favour of the union, and by a lot of troublesome negotiation a marriage was arranged, and seemed at first to promise well.

The wife's relations were always against it, and naturally blamed the husband for any trouble. However estimable the contracting parties might be individually, it soon became clear that they were hopelessly incompatible for working together harmoniously under everyday conditions of life; and I have the greatest possible sympathy for anyone like your correspondent who is far away from the best professional assistance, and, therefore, obliged to fall back upon his own resources in adjusting the differences of such an ill-matched pair. The results have been very different when the best aid was immediately available, as is evidenced by the very satisfactory reports which have appeared in your paper.

But as this is not the ordinary condition of things, my firm soon decided to put a stop to it, and, in consequence, refused much business. An exception was made by special request in the case of a repeat order from parties in India who were evidently satisfied with the results previously obtained, and specified the burner to be fitted to the cars.

Referring to the numerous advertisements of second-hand cars, what is more natural, considering the large number sold and their short life? Numerous and almost similar advertisements of these cars second-hand began to appear in the American automobile press before the application of paraffin was attempted.

To judge the burner by the results of such an unhappy association seems scarcely reasonable, but rather (if the truth of the matter is desired) to base conclusions upon a wider experience.

Permit me to refer to the conspicuous success of the burner in the recent trials by the War Office committee as well as in the earlier tests made by the London County Council. In both cases every competitor was beaten, also in the more recent success of a heavy motor equipped with the burner negotiating the Egyptian desert sands before the Headquarters Staff.

The Clarkson burner is successfully used for public service in such widely-separated places as Capetown, Alexandria, the Niger, Selangor (Straits Settlements), and London. These instances of success could be multiplied.

In conclusion, it is satisfactory to note that all the essential conditions of a successful application of the burner have been carefully and adequately fulfilled in the Chelmsford car. The result has proved very gratifying indeed, and is open to the inspection of all.

T. CLARKSON.

GLITTERING LAMPS.

[2777.]—May I venture to suggest that many cars would be less alarming to horses if the headlights were somewhat toned down.

I happened to witness a "motor car accident" a few days ago, caused mainly by the breaking of the hames strap of the harness. A minute before the car had passed me, with four beautifully-polished copper lamps dancing and glittering in the sunshine. With the sun flashing on these and on the large glass fronts, I am bound to admit that its approach was calculated to terrify a very considerable percentage of horses. Though I am equally bound to admit that the driver of the car in question approached the horse with all reasonable care.

HARRY LUPTON.

We are compelled to hold over a number of letters through pressure on our space. Several answers to "Queries of General Interest" are also unavoidably withheld for the same reason.

Flashes.

A country parson's son writes to express his belief in the future of the motor car as the means of arresting the decay in village life in England. And he suggests that, as it is now possible to get a satisfactory 12 h.p. car for £300—light, easy to manage, and of first-class workmanship—a parson could look after three or four parishes with as great ease as he now manages one. Already, as we are aware, country livings are being combined in order that a single living—in a different sense of the word—may be created. With cheap motor cars there is no reason why this process should not be extended. Better a tithe of a parson than no tithe and no parson!—*The Church Times.*

* * *

The *London Scottish Regimental Gazette* for January has a most amusing illustration entitled "Scotland for Ever, with Apologies to Lady Butler." It shows a charge of gallant warriors—London-Scottish, we presume—each man driving a little motor car and flourishing a claymore. All of them are ornamented with fearsome goggles and extraordinary caps—neither Tam-o'-shanters nor motor caps. In the foreground are some immense tacks and saws, with an explanatory note from the artist that "these jaggy things have been placed there by the enemy."

* * *

The following is the concise and elegant manner in which the *Motor Car World* of America heads its report of the Paris Show: "Though patriotic Frenchmen fume, the Paris Show proves dominance of German ideas."

We were told an amusing anecdote the other day of a very new manager who was just taking charge of a cycle works where motor work was being done. He had some knowledge of a certain form of motive force, but when going into the place where the internal combustion motors were being attended to saw one of the men adjusting a De Dion trembler. Seeing the platinum on the trembler blade, he ordered it to be filed off, for, said he, "how can you expect it to act when there are spots of solder on it?"

* * *

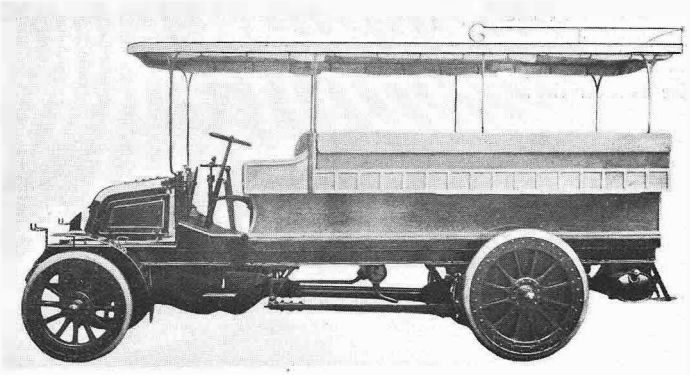
Messrs. Cordingley's exhibition at the Agricultural Hall, which takes place on the 21st to the 28th of March next, has, we understand, received a very large entry of exhibitors. Although it is over two months before the opening, the whole of the ground-floor, minor hall, arcade, annexes, and the major portion of the gallery has been allotted to the leading firms of this country and from abroad. Mr. Cordingley claims that the exhibition will be the most representative ever held, and there certainly appears every likelihood of his statement being fulfilled.

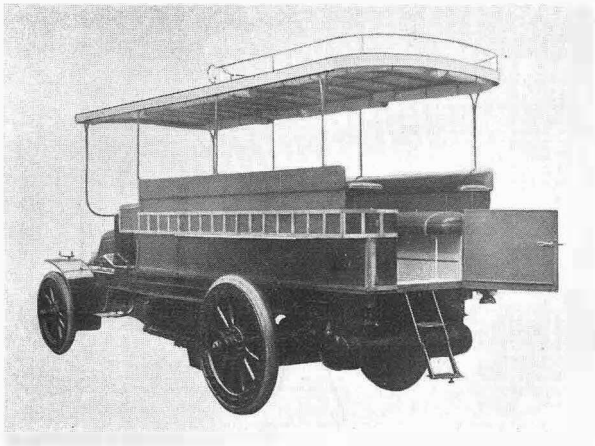
* * *

In connection with the death of Miss Helen Blackburn, one of the pioneers for improving the position of women, it is interesting to note that her father drove about Regent's Park in a horseless carriage of his own construction more than twenty years before the appearance of the modern autocar.

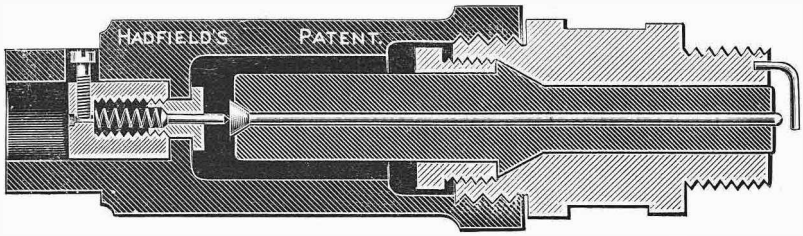
* * *

Mr. W. M. Letts, whose visit to the States we recently chronicled, is stopping to see the New York Automobile Exhibition before returning, so that he will be in a position to compare it with the Crystal Palace Show.





Last week we illustrated and described the latest pattern Milnes-Daimler omnibuses. The three views above are of some similar vehicles, so far as engine, transmission, and frame are concerned, but fitted with canopy and storm curtains. The omnibuses are designed entirely for town work, but the above vehicles are suitable for country pleasure trips, or for public services where all requirements are met by the arrangements shown above. In the very best of weather the roof can be entirely removed.



Mr. F. H. Hadfield, of 58, Bunhill Row, London, E.C., sends us some particulars and a sample of a protected sparking plug, which he patented in February last. This comes somewhere near the style of sparking plug mentioned in *The Autocar* last week, in connection with some sparking plug experiments, that is, so far as the insulated covering to the outer portion of the plug is concerned. The gap, however, could not occur in this plug, as the connection is automatically made by a small spring plunger, which ensures a perfect connection between the high tension wire and the central insulated wire of the plug. Altogether, we think the plug is very good, and one that is well worth trying by those who are troubled with short circuits by leakages at the plug when covered with mud or rain. The insulating cap is made from a special material known as ambroin.

Many Metropolitan motorists know the White Lion Hotel at Cobham. This establishment has lately been honoured in the daily press by a lengthy reference to the duel which is proceeding between its proprietor and a local resident. It seems that the proprietor owns a cottage which looks upon the railway, and in the garden of this place he has erected a board advertising his hotel. The owner of the ground between the railway and the cottage apparently objects to this, and has erected a hoarding to screen the advertisement from view. The hoarding and the placard have been heightened several times, and at last the screen was blown down. Then the objector to the placard set to work to build a much stronger board, but to reduce wind resistance closed it in only at the top, whereupon the resourceful hotel proprietor lowered his advertisement, which is now plainly visible from the railway beneath the screen built to hide it.

* * *

When the Brooke change speed gear was first introduced to the public last spring, many thought it would not stand wear. It will be remembered that this gear is worked entirely by chains. On the other hand, those who know how well a chain gearing, properly proportioned, covered in, running in oil, and thoroughly protected from dirt, stands, will not be surprised to hear that one of the first of these gears which has now been running for 10,000 miles, on being opened up, shows practically no signs of wear.

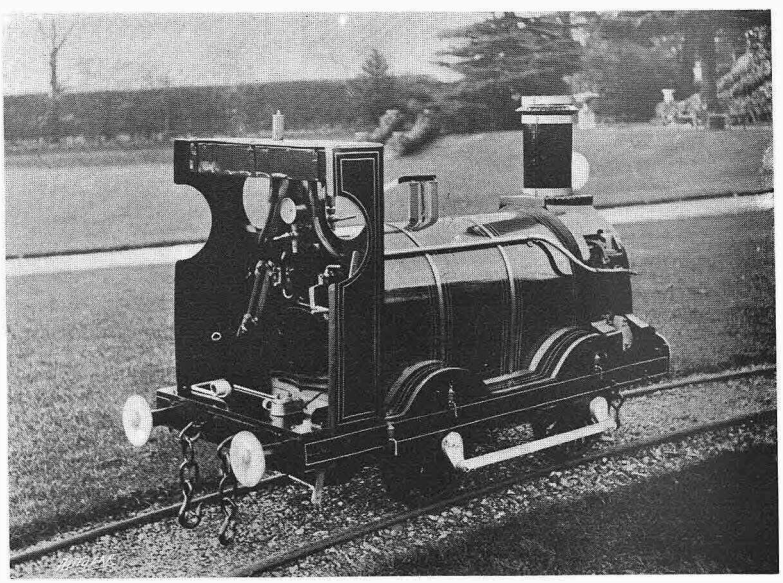
* * *

Last week we illustrated the first Leyland van which was purchased by the Blackburn Corporation. It has now been in use twelve months, and only last week a deputation from the cleansing department of the Corporation visited the works of the Lancashire Steam Motor Co. and placed a repeat order for a van similar to the one which has had twelve months' continuous work. We congratulate the Lancashire Co. on having given such satisfaction to the Corporation, and the people of Blackburn on having a thoroughly up-to-date and progressive municipal body.

The Greville Motor and Cycle Works (previously known as the Merlin Cycle Agency), of 77, Archway Road, Highgate, N., have installed a commodious garage adjoining their works, the latter also having been extended, as the firm have added the manufacture of motor cycles to their previous business.

* * *

Two new sizes of Clipper-Continental motor tyres are now being made by the Continental Tyre Co. One is 100 mm., which fits the same rims as the 90 mm. size, and the other is 125 mm., which fits the same rims as those used for the 120 mm. size. Both the new tyres are of a stronger pattern than the 90 mm. and 120 mm. tyres, with the rims of which they are interchangeable, and it will be a great advantage for owners who have 90 mm. or 120 mm. tyres, and find they are not quite up to their work, to be able to fit the larger and stronger sizes without being put to the expense and delay of rebuilding the wheels. Speaking of these tyres reminds us that the company have now brought the repairing of them to a remarkable degree of efficiency. All the repairs are done at the Hanover works, where a department is maintained solely for the purpose, and repairs can be sent either through the Clipper Tyre Co. or direct through the Continental Co.'s London house.



This model locomotive is the property of Mr. Harry North, of Eltham. This gentleman has a small railway in his grounds, and has had the engine designed and made to carry three or four children on a little trolley. Of course, it is only in outward appearance that the engine is made to resemble roughly a small shunting locomotive. The engine, which is of 2½ h.p., and water-cooled, is concealed within the bonnet, or, perhaps we should say, boiler-shaped bonnet. It drives by two belts from engineshaft to countershaft, which is geared to the back axle. One gives forward gear and the other reverse, the levers for control being placed within the cab. The cooling water is carried in the roof of the cab, and the petrol tank is fitted inside the top of the boiler, the imitation safety valve giving admission to it. The engine weighs 3 cwt. in all, and is 6ft. in length by 4ft. in height, and has pulled as many as six adults. It has been built by Mr. H. W. Hitches, of the Eltham Motor and Cycle Works, and Mr. Vincent S. Allpress, a consulting engineer in the district, and an enthusiastic automobilist to boot, who has kindly furnished us with particulars of the engine, speaks in the highest terms of Mr. Hitches's workmanship. He thinks that the little petrol locomotive does Mr. Hitches very great credit.

The leading article in the *Law Times* of January 10th is an interesting one. It summarises the law as it stands to-day, and makes certain suggestions for its alteration. The *Law Times* is entirely in favour of the abolition of the speed limit and identification by means of a number. It also considers that the £10 maximum fine is not sufficient for second or subsequent convictions, and that the magistrates should be empowered to impose imprisonment for repeated offences. Our legal contemporary is entirely convinced that the proposal for the inclusion of a right of appeal to the high court is far too drastic an innovation upon our criminal procedure to become law, and, further, is in no way desirable. It considers that appeal to quarter sessions upon the facts and to the high court upon law should meet the case. Of course, the *Law Times* regards the matter entirely from a legal aspect, and we summarise its opinions as such, and not because we endorse them all. We scarcely think that it realises the immense volume of the ridiculous and trumpery convictions which have been made against motorists, or the fact that there are quite a number of morally innocent people who have been convicted more than once of technical infractions of the law, and who would, if its suggestions as to second and subsequent convictions of furious driving be taken up, be subjected to the indignity of imprisonment merely because they had had the misfortune to drive through an infested district, and not because they had broken the law, nor because they had endangered the public safety in any way.

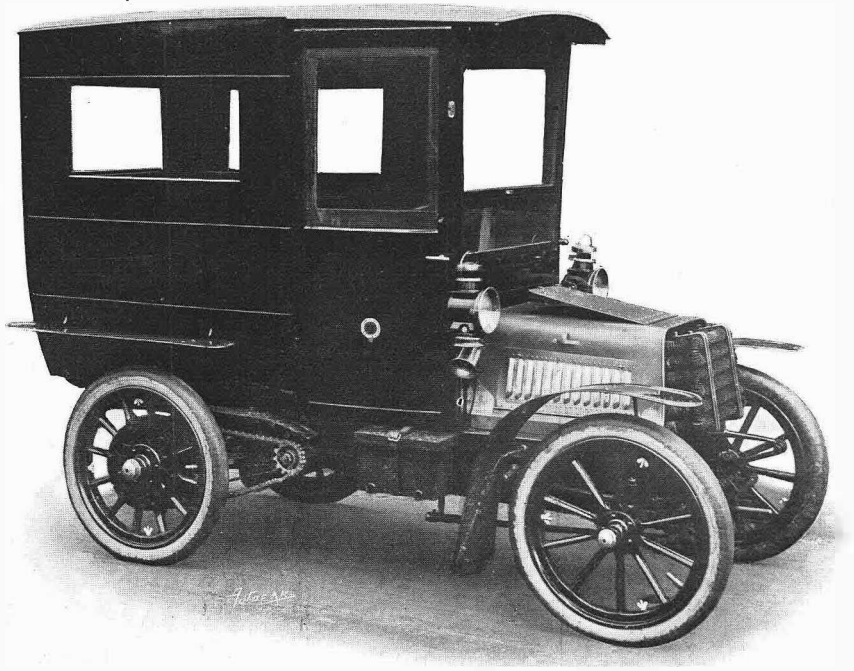
* * *

We hear that an Irish inventor has produced a successful device for the prevention of sideslip. We are not at present able, without breach of confidence, to go into details, but we may say that among the features of the invention are the following: 1. Nothing is attached or connected to the tyre, so that the possibility of injuring or tearing the cover does not arise. 2. It has no effect whatever on the resiliency or elasticity of the tyre, as it only comes into work when the car skids, though quite automatic in its action. 3. It can be attached or detached from the wheel very quickly and carried in the car if desired without inconvenience. We may add that we have not yet had the opportunity of personally testing the apparatus, but it has been tried by a practical motorist, in whose opinion we are able to place reliance, and he assures us that his experience has convinced him that it is practically an impossibility to make a car skid when the contrivance is fitted. We hope to be able to publish fuller details of this device in an early issue.

The Star Engineering Co., Wolverhampton, advise us that they have altered the prices of their 7 h.p., 10 h.p., 15 h.p., and 20 h.p. cars from pounds to guineas, that is, in future the price of the 7 h.p. will be 300 guineas, the 10 h.p. 400 guineas, the 15 h.p. 650 guineas, and the 20 h.p. 800 guineas

* * *

Speaking at the meeting of the Cycle Engineers' Institute, held in Coventry last week, Mr. A. E. Tucker brought some interesting facts to light on catalytic ignition. It will be interesting to those who have a tendency towards this system to know that in a very dry air and with a dry petrol—*i.e.*, a mixture which is perfectly atomised—catalytic ignition is absolutely impossible under any circumstances.



A light delivery van, by the Star Engineering Co. This vehicle is convertible into an ordinary closed carriage when not required to carry goods. It will be seen that it is fitted with a glass window in front. This is removable, as also are the doors with windows which open and close. When required the top can be entirely detached. It is made either in 7, 10, or 15 h.p., and to carry weights according to requirements. It is a most useful vehicle, and one of the first light delivery vans to be made with proper protection for the driver.

Mr. C. J. Glidden, the prominent Bostonian who has made long tours in Europe on Napier cars for the last two years in succession, has been interviewed by the *Boston Transcript*. He informed his interviewer that he had driven 20,000 miles in the United States and Europe. He pointed out that 4,000 carriage manufacturing establishments were required in the United States to supply the demand for horse-drawn vehicles, and expressed the belief that a still larger industry would rapidly develop to keep pace with the demand for automobiles. In fact, Mr. Glidden believes that if it were possible to produce them, ten years from now there would be more automobiles than there are horse-drawn vehicles to-day. Further, Mr. Glidden is reported to have stated that there were 14,000 autocars in the United States to-day, and that he believed if they could be supplied there would be 40,000 before the end of 1903.

The Hon. Charles S. Rolls, presiding at a meeting of the Church Society for the Promotion of Kindness to Animals, in Church House, Westminster, expressed the opinion that immense benefits would accrue to horses by a more general adoption of motor vehicles. Major Poole also remarked that there was hardly anything more important in the interest of horses than the carriage of heavy loads up steep ascents by mechanical means. With these sentiments we are in complete accord.

* * *

In reference to the refusal of certain automobilists recently to pay toll at the Maidenhead Bridge, and the consequent closing of the gate against them, Mr. Joseph Fullbrook, of Slough, calls attention to a statement upon this point made by the Lord Chancellor at the hearing of the appeal in the Windsor case, which was almost on all fours with the present one. It appears that the Lord Chief Justice at the Windsor trial held that, incident to the right to the toll, there was a right to bar the passage of the bridge if a passenger refused to pay. The Lord Chancellor, however, in the Court of Appeal, said: "I should hesitate to affirm the proposition that if you have the right to levy the toll you have also the right to close the gates against any person who will not produce his toll before he passes over." Upon this showing, the toll collector clearly has no right to bar the King's highway: his proper course would be an action at common law. All users of vehicles (motor or horse drawn) should therefore make a point of protesting every time toll is demanded. They should also invite the collector to assert his authority by closing the gate, and demand a receipt for the sums they pay. Mr. Fullbrook offers his assistance to any person against whom an action may be commenced, and he says he will be glad to have the names and addresses of any who in the past have had to pay 8d. and 6d. toll, as there is no reason why the Maidenhead Corporation should not be forced to refund these sums so freely extorted from the public. Mr. Witt, K.C., and Mr. Danckwerts, K.C., who fought the Windsor Bridge case, have been retained for the plaintiff in the action Taylor v. Corporation of Maidenhead to recover toll paid under protest on Dec. 8th, 1902. It will be remembered that we published a photograph of the incident in our issue of Dec. 13th, 1902.

Our illustration is reproduced from a photograph of a lady residing on the South Coast who may be regarded as one of the pioneers of motor cycling for ladies. The machine she uses is a 2½ h.p. gear-driven Singer, and the owner, who has made a very respectable mileage on it running into four figures, speaks very highly indeed of the behaviour and running of her mount. She finds it a capital hill climber and that it only requires little pedal assistance on the steepest grades. Like all other users of this make, she finds the control of the machine, which, it will be remembered, is effected by a single lever without releasing the handle grips—extremely easy. There is no doubt that the Singer position of the engine is particularly suitable for ladies' use, as there is no other motor bicycle made which provides exactly the same dress clearance as on an ordinary pedal bicycle. In fact, we have little doubt, as ladies realise the pleasures of motor bicycling, many more will take up the pastime, but owing to so few machines being suitable for their use many of them scarcely recognise that the pastime is one which can be enjoyed by women without risk.

The North British Rubber Co., Ltd., inform us that they have made arrangements with Messrs. Michelin et Cie., the well-known makers of pneumatic tyres, whereby Messrs. Michelin will manufacture tyres solely for them for sale in the United Kingdom. This tyre will be known as the Clincher-Michelin, and will be precisely the same in quality and construction as the Michelin tyres.

* * *

Last week we illustrated and briefly described the unique Napier car which Mr Stuart Ogilvie has had constructed to his order. We have made enquiries as to the form of solid tyres which he is using on the driving wheels, and we find they are 3in. Buffer tyres, made by the Sirdar Rubber Co.—the same, in fact, as they fit to the War Office cars. As Mr. Stuart Ogilvie's vehicle will run up to nearly forty miles an hour, it shows that the old objection that solid rubber tyres could not be safely used for fairly high speeds is being overcome, at any rate so far as the Buffer tyres is concerned. The combination of solid back and pneumatic front tyres is essentially a practical one, and one which appears to be likely to come more and more into use.

* * *

A very handy feature of the Ormonde motor bicycle is the indicator dial on the outside of the petrol tank, which indicates the level of fuel within, so that there need never be any fear of the machine being allowed to run short of petrol. A simple float is used, which works a hand on a dial on the outside of the tank. This is better than a gauge glass, as the latter might possibly get broken. It is a strange thing, by the way, how very few cars have a gauge glass or its equivalent. Speaking from memory, the only machines which have this as a standard fitting are the Wolseley Co.'s cars, and all users of this make agree as to the great convenience of it. Quite a number of owners have had glasses fitted, and considering the detailed attention which is being given to the car and its fittings, we wonder that the device is not more regularly provided.

* * *

The roads in the Heanor district are kept in such a disgraceful state that the Nottingham Automobile Club are advised by their solicitor to take legal proceedings against the Heanor Urban District Council with a view of making them realise their responsibilities in the matter.

SEPT ANS D'AUTOMOBILISME—TOURISME ET CONSTRUCTION.

The above was the title of an interesting and humorous paper read by Baron Henri de Rothschild after the first house dinner held in the Automobile Club's new premises at 119, Piccadilly, on Friday evening last week. Fifty members dined, and that number was not largely augmented by a non-dining attendance.

The chair was taken by Mr. Roger Wallace, K.C., who was supported by Mr. Mark Mayhew, L.C.C., Mr. Alf. Bird, Major Lloyd, R.E., Mr. Worby Beaumont, M.I.M.E., Mr. Staplee Firth, and other members of the club's various committees. Although, as we have suggested, the gathering was a comparatively small one, the popular French automobilist was very warmly received, and appeared gratified at the warmth of his welcome. We have already stated that the paper was interesting and humorous; but, nevertheless, it was disappointing, and that by reason of its title. The Baron dealt chiefly with his own experiences over the seven years, and did not deal with the question of automobile touring from a practical point of view at all; and, as a matter of fact, said nothing specific as to construction. Baron Henri opened his paper by expressing a sense of the compliment the club had paid him by asking him to open the first series of winter papers to be given in their new and handsome quarters, returned thanks also for his welcome at Bexhill, and suggested that it was such that any good sportsman might always expect in England, the "classic land of sport." He warned his audience—and the warning was not unnecessary—not to expect to find his paper technically inspired by a long acquaintance with automobilism. He preferred to address them as an amateur automobilist and a doctor of medicine. He began active motoring in 1895, but his first experiences were hardly encouraging. They did not inspire him with the belief that he was ever likely to become a fervent automobilist. His first trip was made on a 6 h.p. Peugeot—twenty-five miles from Paris to Chantilly—and the journey occupied from four to five hours, so that the average speed ran out at six and a half miles per hour. On this trip he took his first trick at the wheel, or, in those days, the handle-bar, for the Peugeot was then steered by a crossbar something like the handle-bar of a bicycle. His companion, who had been driving hitherto, assured him that nothing was easier. They changed places, and for a time all went well enough. But when descending a hill and letting the car run, a farm cart came suddenly out of a side road, and he made a big swerve to avoid it. He was not exactly sure what took place, but when he arose from the soft plough of the field into which he had been thrown, he found the car overturned in the ditch; but could nowhere discover either his friend or the chauffeur. They were ultimately descried beneath the overturned vehicle, luckily not much hurt. They proceeded by carriage home; and upon learning of the disaster, he was there and then required by his wife and his father-in-law to bind himself by an oath never,

Never to Ride on an Automobile Again.

This, he was glad to say, he had strength of mind enough not to do; and less than fifteen days later, greatly to the indignation and consternation of his relatives, he made a triumphant entry into his country place on a motor tricycle. Again family appeals were made to him, and again he resisted them; and much consternation was caused in the home circle by the subsequent appearance of a 6 h.p. Panhard—the first model turned out—which was fitted with solid tyres and lever steering. He had much difficulty in inspiring his servants with anything like confidence in this car, particularly his valet, who clung tenaciously to the carriage, and persisted in following in the horse-drawn vehicle, so, as he averred, he might be whole and handy in case of any accident. In October of 1896, he undertook a trip of 110 miles to a country house, where he had been invited to shoot, and where he announced he would arrive to dinner. He left Paris at 6 a.m., but before reaching Versailles, some eleven miles, his pump had gone wrong; and by the time he got into the town, his engine was nearly red-hot. After much trouble, he discovered a mechanic, who undertook the job of putting the pump in order; and this being ultimately effected, he got away from Versailles at noon. Soon after leaving, he ran into a dense white fog, which obliged him to reduce his pace to three miles per hour, and was presently the cause of his running into a deep ditch, and wrecking the Panhard beyond all hope of repair. A horse had to be obtained to pull the car out of the ditch, and this having been done, he proceeded to his destination by train, arriving at 1 a.m., and being received with unlimited chaff. A day or two afterwards he was surprised to receive a visit from a would-be automobilist, who proposed to give him £520 for what remained of the car. As the vehicle before ditching had cost but £320, he closed. His next carriage was another 6 h.p. Panhard, and one of the first to be fitted with pneumatic tyres; but the conduct of this vehicle, too, was not without its distinguishing features. Essaying to reach another "shoot," to which he had been invited per automobile, trouble ensued, and he turned up amongst his friends in a donkey-cart several hours late, and after a walk of six miles. He subsequently possessed several cars of various types, but their vibration, smell, and noise were the causes of much prejudice on the part of other users of the road against them.

In 1899 at Nice, when climbing the hill of La Turbie on a 9 h.p. Panhard with his uncle, they were pursued, caught, and

Passed up the Hill

by a huge German car, which his uncle, who hated to be passed uphill by anything in the shape of an automobile, promptly bought. When driving the new acquisition up the same hill a fortnight later, they were again pursued and beaten by a still larger car, and this again his uncle bought. The first of these was a 10 h.p., and the second a 15 h.p., Cannstatt Daimler. Both had been driven by Mr. Jelleneck. Later on, he gave orders for two 24 h.p. Daimlers; and when these were delivered, he was subjected to any amount of bantering in Paris by his friends and others on account of their size. But they always showed everything else the way uphill, and nothing ever went wrong with them. In 1900 occurred the first race on the Riviera and the first hill-climbing competition up La Turbie. Then M. Jelleneck decided to modify and lighten his vehicles, and in 1901 appeared the first Mercedes, lighter and more elegant than any other vehicle of the time. The German cars outstripped the French with vehicles which ran at an average speed of thirty-seven miles per hour; but Mors gave the French makers back their pride of place, only to be again conquered by subsequent vehicles from Germany. He had paid many visits to Stuttgart, and the makers there realised that valuable hints, born of long practice, could be derived from experienced amateur drivers. After referring to some of the terrible accidents he had witnessed, and impressing upon his audience the necessity of great care at turns, downhill, and for the avoidance of sideslips, the Baron, as instancing what the encouragement of automobile racing had done for France, proceeded to give some interesting figures dealing with the value of French automobile imports and exports. These figures were as follow:

AUTOMOBILE IMPORTS.

1900.	388,000 francs	=	£15,520.
1901.	516,000 ,,	=	£20,640.
First ten months of 1902.	780,000 ,,	=	£31,200.

AUTOMOBILE EXPORTS.

1900.	7,259,000 francs	=	£290,360.
1901.	13,414,000 ,,	=	£536,560.
1902.	26,551,000 ,,	=	£1,062,040.

In giving these figures, the Baron pointed out that the sums quoted did not nearly represent the gross amounts received by the French trade, for the reason that the imports and exports are valued by weight by that department of the French Government which answers to our Board of Trade here. The vehicles, parts, etc., are appraised in bulk at ten francs = 8s. 4d. per kilogramme, the kilo-

gramme being 2.2046 lbs. English. Thus cars weighing 500 kilogs. are set down at the value of 5,000 francs = £200, 750 kilogs. at 7,500 francs = £300, and so on, which from the point of view of the actual selling price, is absurd. Cars weighing 1,000 kilogs., and racing cars of crack manufacture, have been frequently sold on a basis of 12s. to 10s. per kilog. It is, of course, impossible to arrive at the exact proportion of the above sums which have come out of the pockets of the British public, and have consequently been lost to British manufacturers; but the figures are so monumental that they should be published broadcast, and forced upon the observation of the ignorantly prejudiced wherever met.

The Baron then went on to state that the total number of firms engaged in the construction of automobiles in France was seventy, having turned out 12,000 cars, and employing no less than

45,000 Hands.

Taking into account the number of men employed in accessories and the tyre trades, the total overtopped 180,000, earning an average wage of £72 per annum. In 1902 tyres to the value of £600,000 and £120,000 had been sold in France by the Michelin and the Continental firms respectively. By the above showing, he thought he might claim that in France the construction of automobiles and their appurtenances had in the past few years developed into a national industry. The great strides in perfecting the vehicles were due to the encouragement of racing; for in order to shine in speed competitions the builders had made efforts to improve their vehicles, which most assuredly they never would have made for private individuals.

The Baron's remarks on the health side of automobilism are given elsewhere, and with them he concluded his paper amidst much hearty applause.

There was no discussion, but a member asked Baron Henri if he would indulge them with any prophecy as to future speeds; and in reply the Baron said that he had been shown the new 40 h.p. vehicle in course of construction by M. Serpollet, which had been tried, and which had travelled at a speed of ninety-two miles per hour. On the Promenade des Anglais at Nice, M. Serpollet hoped to achieve a rate of progress equal to one hundred miles per hour. With regard to vehicles propelled by combustion engines, he had just returned from Stuttgart, where he had been shown the new engines constructed for the Gordon-Bennett cars. They were of 100 h.p., and would be fitted to vehicles which would be very terrible instruments to look at. The cars would be over ten feet long, the driver would sit above and in rear of the back axle, and the inclination of the steering-pillar was such that the steering wheel was quite vertical. These vehicles were expected to travel at a speed of one hundred miles per hour; but he had discussed the question of the conduct of a fast car at speed with his friend the Chevalier René de Knyff—the finest and most courageous driver in the world—and it was his opinion that the limit of human control was reached, or very nearly reached, at a speed of ninety-eight miles per hour.

The Chairman moved a hearty vote of thanks in a well-turned and complimentary speech, which was seconded and supported by Messrs. Alfred Bird, Mark Mayhew, and Worby Beaumont.

CLUB DOINGS.

Proposed Club for the Eastern Counties.

On Wednesday last week a meeting was held at the Great White Horse Hotel, Ipswich, to take preliminary steps with the view of establishing an Automobile Club for the Eastern Counties. Mr. F. L. Bland was placed in the chair, and among those present were Mr. J. Reginald Egerton (acting as hon. secretary to the movement), Captain Smith, Mr. A. Hackblock, Dr. Moseley, Mr. W. T. Pretty, Dr. Longworth, and Mr. Edwin C. Sayer, while among those who wrote signifying their approval of the proposed club, and regretting their inability to attend the meeting were the following: Major Carthew, Mr. Stuart Ogilvie, Rev. H. Wilkinson, Mr. E. G. Archer, Mr. S. W. Wright, Mr. A. Cockburn, Mr. E. F. Quilter, Major Howey, Mr. Lindsay Scott, Mr. G. Millbank, Dr. Whitwell, Dr. Rowe, and Dr. Vincent. Considerable discussion took place as to the scope which the proposed club should take, the general opinion being expressed that its aim should not be of a social character, but rather one for the promotion of occasional runs in concert, and the safeguarding of the interests of motorists whenever and wherever possible. The district covered will be the counties of Norfolk, Suffolk, Essex, Cambridgeshire, and Huntingdon. Mr. Egerton has kindly consented to discharge the secretarial duties *pro tem.*, and intending members should write to him at 80, Christchurch Street, Ipswich.

The Midland Automobile Club Annual Dinner.

The members of the Midland Automobile Club held their first annual dinner at the Grand Hotel, Birmingham, on Saturday last. The president of the club, Mr. J. Broughton Dugdale, of Wroxhall Abbey, occupied the chair, and among those present were Messrs. J. A. Holder, C. Vernon Pugh, J. Whitfield, Allan Whitfield, G. Thompson (hon. treasurer), F. Lanchester (hon. secretary), H. Austin, F. W. Lanchester, E. Lewis, G. Iden, etc.

The health of "The King" was honoured on the proposal of the Chairman, who remarked that his Majesty was the greatest friend of automobilism in this country. In proposing "The Club," the Chairman referred to their constantly-increasing membership, and said they had amongst them many who helped in a great measure towards the prosperity of this country—the manufacturers. At this time of the year they did not make such use of their cars as in the summer months, but it was the time when they endeavoured to correct some of those little failings they had noticed in the past. There were many present that evening whose faces he saw at the Paris Exhibition, studying what our neighbours across the Channel were doing. He coupled with the toast the name of Mr. Frank Lanchester, the secretary of the club. (Applause.) Mr. Lanchester humorously responded. Mr. C. Vernon Pugh proposed "The Visitors," coupling with it the name of Mr. Shrapnell Smith. Referring to the chairman's remarks anent the Paris Exhibition, Mr. Pugh said that what struck him as remarkable about it was not the originality of the French makers, but their faculty for copying—(hear, hear)—and he returned with a very high opinion of the exhibits of the English makers. (Applause.) Mr. Shrapnell Smith responded. The other toasts were "The Press" and "The President," the latter being submitted by Mr. J. B. Siddeley. During the evening the medals won in the hill-climbing competitions at Gorcot Hill and Weatheroak Hill were presented; while the cup presented by Mr. J. A. Holder, and won by Mr. Harvey Du Cros, jun., at Sunrising Hill, was on exhibition.

EARL'S COURT SHOW.

Yesterday (Friday) the motor show at Earl's Court Exhibition Buildings, S.W., promoted by the Stanley Club, was opened, and remains open till to-day week, Saturday, the 24th inst. Among the more important exhibitors of cars will be found the British Automobile Commercial Syndicate, British-Germain Motor Car Co., Burlington Carriage Co., Duryea Co., Etablissements Prunel, Evart-Hall, Gardner-Serpollet, Hewetson's, Ltd., Lanchester Engine Co., Motor Manufacturing Co., Motor Traction Co., New Automobile Co., Speedwell Motor and Engineering Co., the Velox Motor Co., and the Watsonia Co. In addition to these, there is a particularly fine selection of motor clothing by Mr. C. R. Base, Lovegrove, A. Dunhill, and Burbery's, Ltd., tyres being well represented by important firms like the Talbot and the Goodyear. Accessories are strongly represented by firms like Lucas and Miller, while Rothschild et Fils show what can be done in the carriage and body building side of the industry.