THE AUTOCAR

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

EDITED BY HENRY STURMEY.

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THE AUTOCAR.

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Notes.

The Indiana Bicycle Co., of Indianapolis, is exporting a number of Waverley electric motor vehicles. One week's shipments recently included five vehicles consigned to Paris and a couple to the Automobile Association, Ltd., London. So, although the Pope vehicles will not be seen at the Automobile Club exhibition, there will, at any rate, be the Waverley as representative of the latest type of the American electric carriage.

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In another column we give the statement of accounts in connection with the heavy vehicle trials last year at Liverpool, which will show those interested what such an undertaking costs. We are pleased to learn from Mr. Shrapnell Smith that the forthcoming competition promises to be of even wider interest than the last, a larger number of firms having entered, including one firm of American constructors, so that the trials next month bid fair to be of exceptional interest.

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It is reported that automobiles will soon figure extensively in the operations of the U.S. signal corps. Just now General Greely is experimenting with wireless telegraphy, and if this system is to be of service to an army in the field, it is necessary that apparatus for stations, with strong batteries, capable of developing high voltage, should allow of easy transportation with moving columns, and General Greely believes a great advantage might result if the waggons in which the apparatus is stored should contain for emergency purposes power for their own locomotion. To this end he has advertised for three electric automobile field waggons to carry a minimum weight of 800 lbs., and to be capable of a radius of at least twelve miles.

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In discussing the prospects of autocars as the vehicles of the future, the question of price always starts up as a sort of deterring bugbear. Comparatively with other forms of carriage there may be something in the objection, but, looking at the matter all round, even from the private individual's point of view, the advantages are on the side of the motor car. What is found to be a good thing for the Post Office authorities, or enterprising tradesman, or wealthy landed proprietor, cannot be ignored by others. What is wanted, perhaps more than anything else, is the necessary financial courage to face the initial outlay. The economy and utility of the new vehicle may be trusted to assert themselves.

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On July 5th the Liberty Day of autocaring will dawn in the Isle of Man. Up to the present this in most respects go-ahead little island has been, at any rate so far as its laws are concerned, against the autocar. This shows the evil of petty local authorities being able to set up laws of their own, as no doubt many of our parish councils would do if they enjoyed the privileges which belong to the Manxmen. Some cars are already being imported into the island, and many of them will be used for plying for hire during the summer months. In the meantime, the drivers, we are told, make a show of conforming to the regulations as to traction engines under which the cars languish till July 5th, and are sending cyclists ahead who bear a red flag in front of the automobiles.

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Messrs. Cambier and Co., of St. Maurice, Lille, France, have hitherto confined their attention to the construction of petroleum spirit motor cars. It is now announced, however, that they are engaged on the construction of a steam omnibus, which is to be placed on exhibition at the forthcoming motor car show in Paris. Further, it is reported that the Cambier firm is also constructing a four-seated electrical dogcart. Few details are so far available of the Cambier electrical vehicles. It is stated, however, that the electro-motor employed is of the Postel-Vinay type, and that the accumulators are made under the firm's own patents. The weight of the battery is given as 660 lbs., the capacity of one charge being equal to a run of about forty-four miles.

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Sir David Salomons has been in communication with the French authorities with a view to facilitating the exhibition of English machines at the Paris automobile exhibition, which opens on the 13th, and with satisfactory results, for it has now been arranged that motor carriages, cycles, and generally every product of the automobile industry of foreign manufacture intended for display at this exhibition shall be admitted into the country temporarily free from customs duty, provided the owners enter into an agreement that they will re-transport them within the space of two months after the closing of the exhibition. Arrangements have also been made with the Chemin de Fer du Nord that cars and other automobile goods for exhibition which have paid the full transport rate on the forward journey will be carried free on the return upon production of receipt showing that the full transport rate has been paid, and the voucher of admission to the exhibition of the goods so dealt with.

To-day (Friday), the series of road trials organised by the Automobile Club of Great Britain will commence, the day being set apart for the hill-climbing trials, which will start at about eleven a.m. at the Star and Garter, Richmond. To-morrow (Saturday), the distance trials of electric vehicles will be started from the station of the Richmond Electric Light and Power Storage Co. at about the same hour, and on Monday next the most interesting series of trials will take place, viz., the fifty miles run for vehicles other than electric weighing under one and a half tons, the starting point being the Red Lion, Southall, between ten and eleven o'clock. On Tuesday the trial of heavy vehicles will take place, starting from the Chequers Inn, Uxbridge, at about eleven o'clock, and it is most probable that the trials of vehicles for pure speed over a secluded road will take place some time during the afternoon of Thursday, 15th inst., somewhere in the Plumstead district, if the permission of the London County Council can be obtained. These trials should be full of interest and practical utility.

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Last week the Westminster coroner held an inquest at St. Martin's Church Hall as to the death of a lady named Mrs. Susan Brookes, aged sixty, who was killed by being run over by an electric motor carriage in Shaftesbury Avenue. The evidence was to the effect that at about twenty minutes past seven on Monday evening an electric motor dogcart was being driven by its owner, Mr. Leitner, of 207, Piccadilly, down Shaftesbury Avenue, when the deceased crossed the road, close to the cab-rank near Wardour Street, in front of the vehicle, and was knocked down. Inside the carriage was Major Rolleston, of Newark. The speed of the vehicle was stated to be a moderate one, and it was proved that Mr. Leitner, who himself drove the motor, sounded his "hooter" to warn the deceased when she started to go across the road. The old lady turned back, and then started again, with the result that the fore part of the carriage struck her, although an attempt was made to turn the vehicle aside before it reached her. She was removed to Charing Cross Hospital, where she died from her injuries. The jury returned a verdict of accidental death.

* * *

Any automobilist who may have elected to take the main road from London to Coventry yesterday (Thursday) will be inclined to imagine that the motor-car movement had developed with even greater rapidity than they anticipated, as a whole fleet of Daimler carriages and vans left the works by road to be driven up to London either for the Automobile Club trials or for exhibition at the show. Fifteen carriages, varying from the new light car with its latest improvements of third speed and reversing gear, not to mention springs over the back axle, to the great Post Office vans, made an imposing sight, though, of course, they were only seen together just about the start, as the cars all more or less vary in speed. Many detailed improvements will be noticed in the standard carriages which will be seen at Richmond, though we have little doubt from what we hear that the greatest interest will be centred in the new £200 carriage. This, it will be remembered, is fitted with a three horse-power motor, but a practically similar carriage weighing nine hundredweight all told is being turned out with a four and a half horse-power motor. It is scarcely necessary to say that this car is a flier.

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The challenge of Mr. Winton, of America, which, as stated last week, has been accepted by M. Charron, the winner of the Paris-Bordeaux race, is exciting considerable attention in the two countries. The *New York Herald* (Paris edition) publishes an interview with Mr. Hart O. Berg, of the Columbia Automobile Co. (formerly the Pope Mfg. Co.), in which that gentleman says: "If Mr. Winton wants to race I should like to enter into an automobile contest with him myself, say from Paris to Versailles, with an electric vehicle." Mr. Winton is credited with saying: "It is not the French motors that beat us, but the French roads. A year ago I challenged a Frenchman to a match of 1,000 miles, to be run in the United States. This challenge is always open, and I am ready to back it up with no matter what sum." M. Charron, in reply, says: "I take up the challenge with a bet of 100,000 francs, on which terms I am ready to go to America, unless Mr. Winton should prefer to come to France. I leave the choice to him. But let him reply at once, or he will be looked upon as a bluffer, which is always unpleasant, even in the United States. Let him say 'yes' or 'no,' and let him name the place, France or America; two words are enough."

* * *

It was stated in the general press last week that more people went down by motor car to the Derby than on any other previous Derby Day since the world began. This is not difficult to believe, as there are more cars in the country to-day than there were this time last year, and twelve months hence the increase will be greater—in fact, it was stated by one that over two hundred motor cars passed the Elephant and Castle bound to Epsom between the hour of 9 a.m. and midday. We did not count them, so it is not for us to disbelieve the statement, but we confess we should not have thought it would have been so many. It has even been suggested by certain uncharitably-minded people that some wicked autocarists knew that the count was to be made, and so amused themselves by driving by the Elephant and Castle, turning round a cross road, and repeating the performance. However this may be, it is gratifying to know a very considerable number of cars were on the road, and that no accidents were reported in connection with them. Several accidents occurred, as usual, with the horse-drawn cars, but we have not seen even one of these attributed to the presence of the motor. This on the horsiest day in all England is something to be thankful for.

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A correspondent in a Bristol daily makes a novel suggestion. He is a man who admires a motor car and loves a horse, and it seems to him that they might well work in conjunction. He dwells upon the painful sight so often witnessed on the streets and roads of some gallant horse struggling with an unduly heavy load up steep hills, of which so many are to be found in Bristol. His suggestion is that powerful motor cars should be provided by the Bristol municipality to be stationed at the foot of the steepest hills, which should be held in readiness to hook on and haul up any carts or vans which were heavily

loaded. The horse would, of course, do some of the pulling, but the idea is that the motor car should relieve him of the major portion of the work. A charge of a few pence is suggested, but we are afraid in many cases this would be more than enough to settle the matter, though the idea might take in certain districts, as it would enable one horse to be used, instead of two, the whole thing resulting in the saving of somebody's pockets, but not in any amelioration of the horse's condition. What is wanted is motor waggons, not motor piloting. The originator of the idea suggested that some enterprising local agent of the motor car companies should undertake the matter as an experiment, but we scarcely think any firm is likely to do this.

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In spite of all its drawbacks, the flexibility of the steam engine is a wonderful power in the hands of its users, and, especially in a hilly country, can, as a rule, give points and a beating to any other power for road locomotion. Experimenters have been at work in many directions with a view of somewhat approaching this said flexibility with explosion engines, but until last week we had not heard of any whose efforts had in any way proved successful. Then, however, a new engine was brought to our notice which could not only be driven by light or heavy (after once started) oil, but was self-starting without the use of levers, or the application of outside power, and not only is it self-starting, but it starts and works equally well in either direction, so that reversing is also effected by the engine itself without the use of reversing gear. Besides, it possesses the remarkable feature of an augmentation of the power of the combustible charge at will—in other words, when the engine is working at its normal rate of running, its power can be increased some fifty per cent. without increasing the speed of the engine, and, what is more, without using any more petrol, and this in addition to several other minor points of considerable interest, and not a little value. These are not the mere uncorroborated statements of the inventor, for we have seen the first engine at work, and it bore out all the inventor claimed for it. It is, in fact, now only awaiting capital for its commercial development.

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At a meeting of the Ongar guardians last week one Thomas Atkins enquired if steps could not be taken to regulate the speed of motor cars along the country roads. He said the cars were driven at a great rate, and when they were at a standstill they made a noise and emitted such an offensive smell that horses would not pass them. Their shape and colour, too, were objected to by the most quiet horses. One car which he recently saw in the Tothill district was like a hippopotamus, and painted a flaming red. The chairman of the guardians took no exception to this remarkable outburst, but complained himself that on Sunday he raced a motor car at the rate of twenty miles an hour. Other members indulged in a few equally absurd remarks, when the clerk rather put a damper on matters by suggesting that there were byelaws regarding "these cars," and the matter ended by the chairman gravely stating "We'll see to it." We hope he will. In the first place we trust that he himself will reform, and give up racing with vermilion hippopotami on Sundays, and also that he will endeavour to remove the ignorance and prejudice which evidently exist in the minds of his fellow guardians, but above all, and beyond all, that he will at once advise the autocar world (or, if he cannot do so, perhaps Mr. Thomas Atkins will) what colours horses like. If they object to red, let us know what it is they do like, and we will at once have all our cars, our houses, and, if necessary, our faces, painted the tint which will least disquiet the equine nerves.

* * *

One of ours was favoured with a conversation with Professor Bernard Redwood the other day, who has lately returned from a very successful trip to Indiana, the purpose of which was to report on the petroleum springs there. Mr. Redwood may be considered one of the smartest of the generally smart men who have the interests of the autocar industry at heart. In the course of conversation he expressed himself as certain that the automobile industry had a brilliant and definitely fixed future before it in the United Kingdom. "Once our insular prejudices have been overcome," said Mr. Redwood, "matters will be comparatively easy for the motor car interest, the thing will go on then of its own accord, and will increase by leaps and bounds until it becomes one of the greatest and most glorious of British industries." Asked how long he would give for those insular prejudices of ours to be overcome, Mr. Redwood declared that in his opinion one year more would see a complete victory over them, and manufacturers must then be prepared to meet a steady demand, if not an actual rush, for their wares, which have been proved of a satisfactory nature. Professor Bernard Redwood is not an enthusiast, but knows what motor cars are, having bought and rebought them for his own delectation. He looks at the matter from an unbiassed point of view, and his opinion, therefore, is all the more valuable on that account. It is distinctly encouraging to receive an opinion from such a source, and we hope that all those concerned will take heart and be ready to make fame and fortune when the time arrives.

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The dangers attending the use of the low-built motor cycle on the high seas of traffic in the congested streets of the metropolis are often subjects of comment in the press, but it is not often that one revels in them. While horse-drawn vehicles predominate, this danger must of necessity continue, for it arises almost entirely from the presence of the animals, who not only take up as much space as the vehicles themselves, and thus cause congestion, but are so very much less manageable than the mere machines which supply the motive power to the horseless vehicles. A correspondent of the *Irish Field* thus picturesquely describes the experiences of an occupant of the front seat of a motor quadricycle—low down amongst the cattle—in the London streets: "You find yourself gaily dodging the flecks of foam which fly from the rearing horses; you experience the keen joy of just inclining your head at the proper angle, so as to preserve your ear whole from the tail of a cart or the tip of a 'bus-pole. It's glorious fun; you look quite serenely around; you think how fine it is to go close to carts without touching; you love

to be whisked around corners, and don't much care whether the road is up or not, whether there is a heap of stones or a drain cutting in the way, because by this time you have a sweet and perfect faith in the brakes. Everything amuses and pleases you, and you look forward to the day when you too will have a motor, and take your friends out, and let them see what real good fun it is." However diverting these hair-breadth escapes may be to adventurous spirits, they are not likely to be enjoyed by more sedate travellers, and there is really no necessity for their continuance, if some of the great users of the London streets would boldly tackle the question in a progressive spirit without waiting for public bodies to move. Till they do, we plump, at any rate, for our personal use in traffic, for some kind of carriage in which the occupants are practically as far from the ground as those of an ordinary dogcart.

Smart motor carriages are now to be seen in the Drive every afternoon at the fashionable hour.

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A correspondent enquires if we can inform him of any firm in Great Britain who are makers of small steam motor cars which will carry two to four people satisfactorily and with comfort. He wants something altogether smaller and lighter than any of the machines at present placed on the market by Thornycrofts, Coulthard and Co., Liquid Fuel Engineering Co., or the Lancashire Steam Motor Co.

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A certain amount of rivalry exists between Cardiff and Swansea, and the larger town is very fond of referring to "Little Sister Swansea" as being second best only. One of the Cardiff papers last week, however, had to admit that Swansea had "got ahead of 'em" this time in the motor-car service, and were putting on a new car every month; so that "Little Sister Swansea" would be able to lend Cardiff a couple of cars "for the edification of the Eisteddfodwyr later on." The Yankees who did the billposting for Barnum's Show last week remarked that Swansea was the only town outside of London where they had come across such a well-organised motor 'bus service. "I guess this is a rising town," remarked one of them.

Tours and Runs.

Under this head we shall always be pleased to insert notes descriptive of practical work by users of autocars.

FROM NICE TO PARIS.

By Mr. Pryce Hamilton.

Our party consisted of three persons, myself, Mrs. Pryce Hamilton, and E. Hannell, mechanic. We had a Peugeot machine of an 1896 model, weighing about seventeen hundredweight, which included some spare gear, water, and essence tanks full.

I should not recommend anyone to take a similar trip without a competent mechanic, such as we had. Otherwise, you have to keep watching the pump, and the lamp, and so on, and thereby lose much of the scenery and the pleasure. The tyres of my automobile were solid rubber, and I prefer them to pneumatics for such a journey. One day I found three nails embedded in the tyres, just as if they had been driven in with a hammer. It is rather curious that a nail lying horizontally on the road should change its position so as to be driven into a tyre at right angles. With a tack, of course, it is different. Perhaps this only happens when the nail is lying in a certain position.

It is curious how one gets a certain sort of affection for an automobile that has carried one a long way. It is akin to an affection for a horse. You find after time and study that you can get better results out of your own automobile than another person can, and this creates a sort of attachment. If drivers would study the automobile they are driving, they would not have to put on the brake so much as is commonly seen on the road. In a town, of course, it is quite another matter.

A coaching man takes instinctively to an automobile, simply because he has precisely the same problems to study on the road. Take, for instance, going down hill. Anyone accustomed to a coach knows just when to apply the brake, and when not to do so; just at what point speed may be increased, and what degree of speed may be indulged in, and, generally, when and how to save wear and tear to an automobile. There are times when you may safely and properly stop the engine and run at the rate of thirty miles an hour. I have done twenty-five miles an hour myself. The coaching man, also, knows at what point the engine should commence to work.

Now, in regard to automobiles, I think they have a distinct advantage over a coach on a journey, because you can keep up an average speed of twelve miles and a half an hour (or 120 kilometres a day) in comfort, which you could hardly be expected to do with a coach, unless you have three teams.

To go from Nice to Paris by coach you must have at least three teams, and not let each team do over twenty miles a day. Suppose you attempt such a journey with one team! You will probably find that on the second or third day something happens on account of bad shoeing or a bad throat; a horse has been in a stable where the temperature is too high, and so on. I can only see in the progress of automobilism a gradual extinction of coaching, or travelling carriages, such as you see in Italy or Switzerland, though this cannot affect driving short distances for pleasure.

Another point, the speed at which you travel in an automobile is so exhilarating! Going through the country so fast, you do not feel the fatigue you would with a team when you have to study how to save your horses all the time. I used to drive in Wales fifty-four miles a day. My coach weighed a ton, and the passengers and luggage made up another ton, and it took six hours to cover the distance, including changes. With an automobile I could do the journey in half the time with half the fatigue. After driving a coach fifty-four miles I had had enough of it; whereas after a journey of eighty miles in an automobile I should not have objected to another thirty miles or so—in other words, one hundred miles is more easily accomplished in an automobile than fifty-four miles with a coach.

You do not feel the vibration after you are fairly started. If you are driving the machine the handles give a certain amount of vibration, but as to the machine itself, you would not notice the motion in the least.

The roads were good and well rolled. Different kinds of material were used in different parts of the country. Here and there were soft spots, but these occasioned no inconvenience.

We received great civility from everybody on the journey. Carts and vehicles invariably gave us ample room to pass, so that on an average a speed of about twelve and a half miles an hour could be sustained, but in flat open country a speed of eighteen miles an hour could be accomplished.

But now for the trip itself.

We left Nice on May 6th, and arrived in Paris on the 17th. The weather at our departure at 10 a.m. was ideal. We were accompanied by some friends as far as Cannes, where we stopped for three hours and lunched. At 3.10 p.m. we resumed our journey, and arrived at St. Raphael at 5.40 p.m., a run of sixty-five kilometres. We stopped at the Hotel des Bains. The road was very good, but hilly, with fine scenery. We ran fully five miles without using the engine. It was more like tobogganing than anything else. We dined with some friends who came to meet us, and then at 9.10 on Sunday morning (May 7th) we left St. Raphael, passed through Fréjus, Le Luc and Flassans, and arrived at Brignoles at 12.20, where we lunched, the run in all being sixty-seven and a half kilometres.

We were *en route* again at 2.10 p.m., passed through Tourves and St. Maximin, and arrived at Aix-en-Provence at 4.55, and put up at the Hotel Négre Coste.

So far, nothing of interest occurred. I remarked that the streets of the small towns through which we passed were wretchedly paved and narrow. Thus far, a total distance of one hundred and twenty and a half kilometres had been accomplished in the day. Any anxiety which I might have had as to obtaining mineral essence was quickly relieved by the sight of signs indicating where it could be obtained—everywhere.

We left Aix at 10 a.m. Monday, May 8th, up hill to St. Cannat, Lambesc, which is a good pull, where you see the whole of the country spread before you as in a panorama. Then a splendid run down on the other side. The country is undulating to Orgon, where we crossed the River Durance—over which there is a very fine iron bridge—and arrived at Avignon at 1.20 p.m.—distance seventy kilometres. We found the Hotel d'Europe very comfortable, though old-fashioned. This last run showed us that we could do the kilometre in two minutes three seconds.

Leaving Avignon at 11 a.m. on May 9th, we passed through Orange at 12.30 p.m., lunched, and then on to Pierrelatte. We seemed to be the only automobilists travelling just then, as we saw no others on the road. We arrived at Montélimar at 4.20, and stopped at the Hotel de la Poste—distance eighty kilometres and a half. On May 10th we left at 10.20 a.m., and reached Valence (Hotel Croix d'Or) at 12.5, the run being forty-five kilometres. Here the brake band on the right side cracked, but the necessary repairs were made in the town.

From Valence, starting at 10.10 a.m., we journeyed on. The country was looking very beautiful and green, enhanced by rain overnight. Passing through Tournon, we pulled up at St. Rambert for lunch. The weather now began to be unpleasant, rainy, and dull. After leaving Valence, we had to travel over a considerable stretch of high land exposed to the strong wind that was blowing, and we slowed down and gradually came to a dead stop. A farmhouse near by afforded some shelter from the wind, and we began to puzzle our brains as to what had happened. Hannell fancied that a spring of one of the inlet valves had come to grief, but they proved to be in excellent condition when examined, and to our surprise the machine worked all right after this brief stoppage.

My idea is that the weather had something to do with this. My friend, the Hon. C. S. Rolls, premier chauffeur d'Angleterre, thinks that perhaps it was due to a stern wind which cooled the tubes. I am inclined to think this is the correct explanation, as I remember the wind was blowing that way at the time, and the farmhouse being a protection from the wind, the tubes regained their normal condition. Then we journeyed all right for a while, but on reaching Roussillon the engine stopped again. We came to the conclusion this time that the stoppage was due to the float in the carburator having caught in some way. It was accordingly taken out and put in order, and we started again in an hour's time. This made us rather late in arriving at Lyons, where we put up at the Hotel de l'Univers. It was very disagreeable entering the town of Lyons. The paved streets were a network of tramlines, which ran in all directions. In wet weather, an automobile swerves a good deal on paved streets, and there is always considerable difficulty in avoiding vehicles in a town like Lyons, the space alongside the tramlines being very narrow. The total distance now accomplished was 500 kilometres, or 312½ miles.

We left Lyons next morning (12th) at 10.5. It was a long, distressing run out of the town over the paved streets, and we cracked the exhaust pipe, which, of course, made a disagreeable noise, so that at Villefranche we had to get a new one. M. Lacroix's iron works came in very handy, for the repairs were effected in three hours.

Arriving at Macon at 6.15 p.m., we stopped at the Hotel de l'Europe (sixty-seven and one-half kilometres), and left on the following morning at ten o'clock, arriving at Chalons at 1.20 p.m. We passed through a most extraordinary place called Tournus. The streets here were narrow, and filled with carts and people, and the condition of the streets was frightful. I do not think I ever saw a town in such a state as that was.

Now we began to get into the Côte d'Or, and found the vineyards very interesting as we passed along, but the horses which brought the stakes for the vines were tethered here and there on the road, and were rather nervous at our approach, so we had to slow down at times.

At Beaune the rubber ring of the pump wheel came off. It was found at once, but it was in such a bad condition that I decided to seek the aid of a saddler in the town. He made a new one of leather, which worked well.

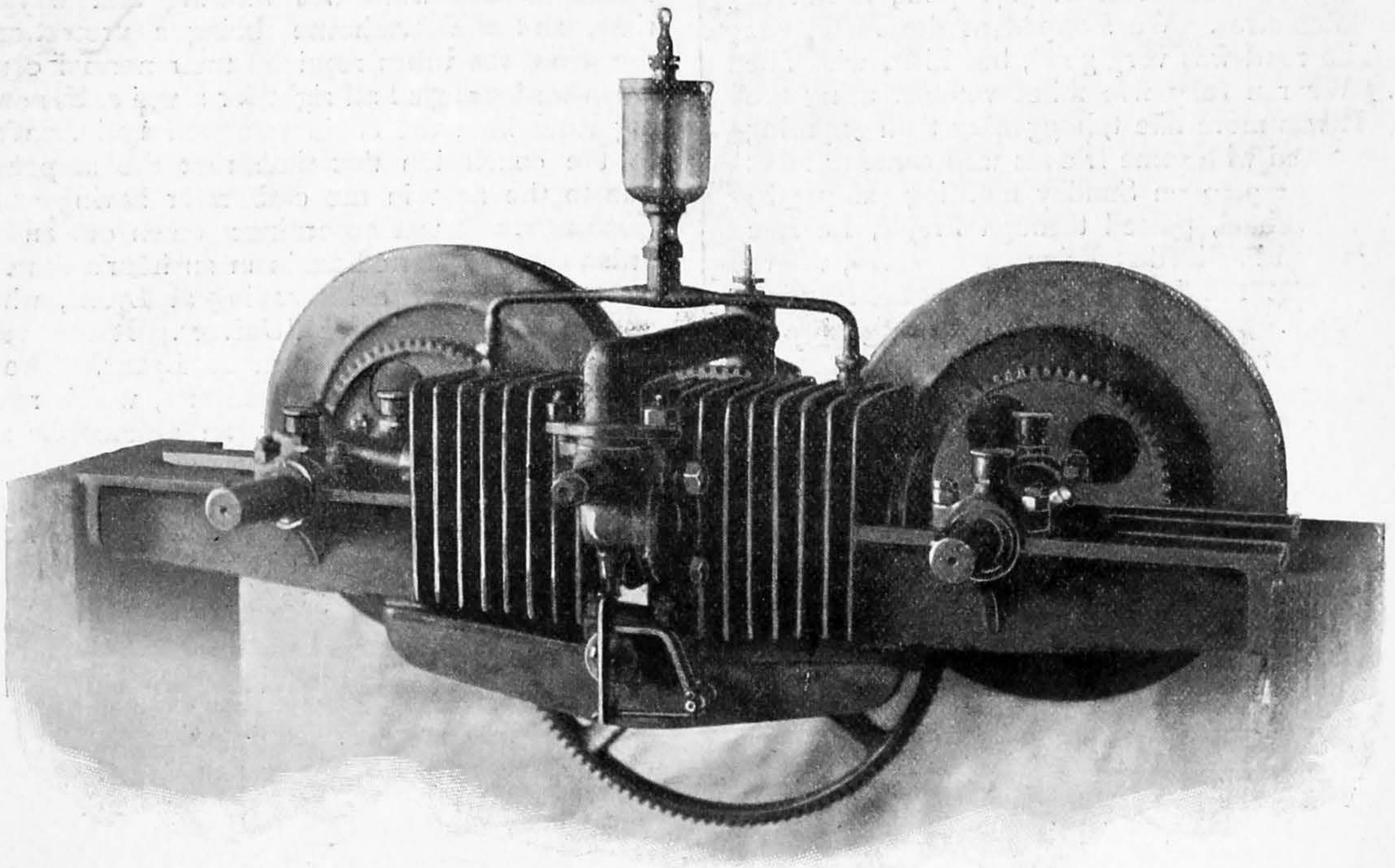
We reached Dijon at 6.50 p.m. on May 13th, and stopped over Sunday at the Hotel de la Cloche. Two cracks in the tyre of the right-hand driving wheel were discovered. The tyre was taken off and sent to a repairing shop. I got them to make two steel flanges, and bolt them on to each side of the spokes. This wheel must have been made of bad material, as the other three showed no weakness.

We left Dijon on the 16th at 10.10 a.m., and arrived at Les Laumes at 1.15 p.m. (sixty kilometres), but were vexed to find the same wheel revealing two more cracks in a different part. We tried to fix it with wire, but the spokes were loose, and we were not able to tighten them. We left at 2.30 p.m., proceeding slowly, examining the wheel as we went along. We found that the wire would not hold at all. On arriving at Aisy we found the cracks worse, and the wheel in such a bad condition that we reluctantly, at a distance of only one hundred miles from Paris, resolved to return very slowly to the railway station and consign our automobile, which had served us so well for such a long distance (765 kilometres), to the goods department, to be forwarded to Paris to Peugeot's establishment.

Although we missed, perhaps, the most attractive portion of the route—viz., through the Forest of Fontainebleau—the trip was a thoroughly enjoyable one.

The quantity of motor naphtha, steline, and automobiline which we used on this trip was eighty-eight litres, which cost us forty-eight francs forty centimes. I should estimate the entire trip at about fifty francs a day. Two servants went by rail each day with the luggage; this brought the total expenses to an average of just 100 francs.—*New York Herald.*

THE HYLER WHITE MOTOR.

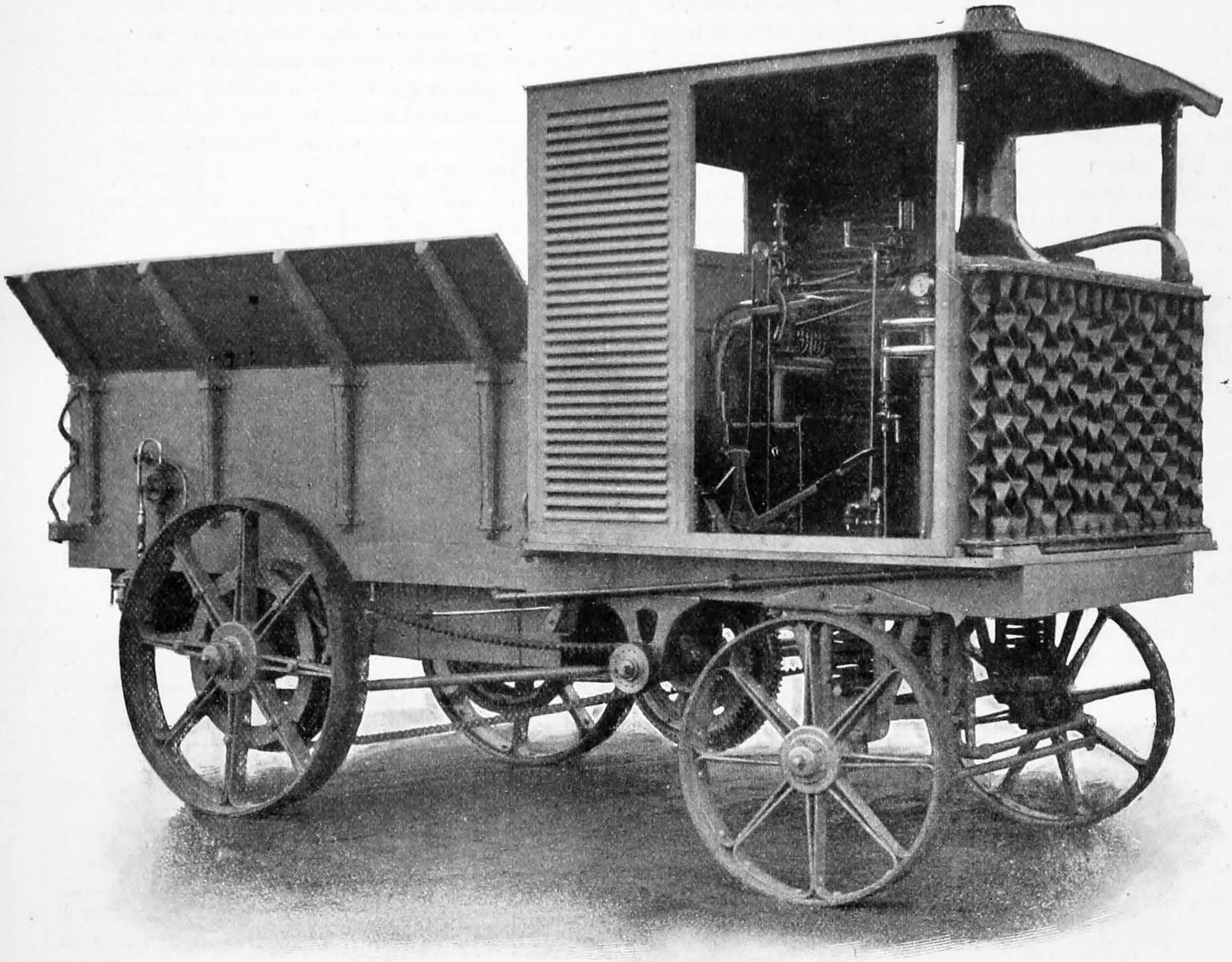


Our illustration shows a motor which is being made by Messrs. John Smith, Grove Iron Works, Carshalton, Surrey. The inventors and patentees are Messrs. F. C. Nunn, A.M.I.C.E., and T. Hyler White. It will be observed that the engine is of the two-piston single-cylinder type, with the explosion taking place between the pistons. The cylinder is 3·5in. bore, and at 800 revolutions a minute the engine gives 3·25 brake horse-power. Though it has been run up to over a thousand a minute, we are assured that it has absolutely no vibration at any speed. The flywheels are each 14in. diameter, and both turn in the same direction. On each crankshaft is a pinion which gears with the toothed wheel, double the diameter of the pinions, on the valveshaft, which runs under the cylinder. Hence the valveshaft runs at half the speed of the crankshaft, Beau de Rochas cycle. The weight of the engine complete with the two flywheels is 1 cwt. 4 lbs., and the length over all 3ft. The photograph from which our illustration is made shows the motor bolted to two uprights for shop-testing. It is proposed to make the pinions on the crankshafts of raw hide, and this will, of course, go a long way towards reducing noise. No water cooling is used on an engine of this size, reliance being placed on radiating plates of large area, as the engine will be placed across the carriage frame in the extreme front of the vehicle. The fuel used is Pratt's spirit, and the makers tell us it gives excellent results, being very clean and vaporising freely, with an absence of smell in the exhaust, or deposit in the cylinders. The ignition on the first engine is by tube, but it is proposed to adapt it for electric firing as well. For governing, the exhaust valve is held open.

AT HOME WITH THE TRADE.

No. 4.

WITH MESSRS. COULTHARD & CO., AT COOPER ROAD, PRESTON.

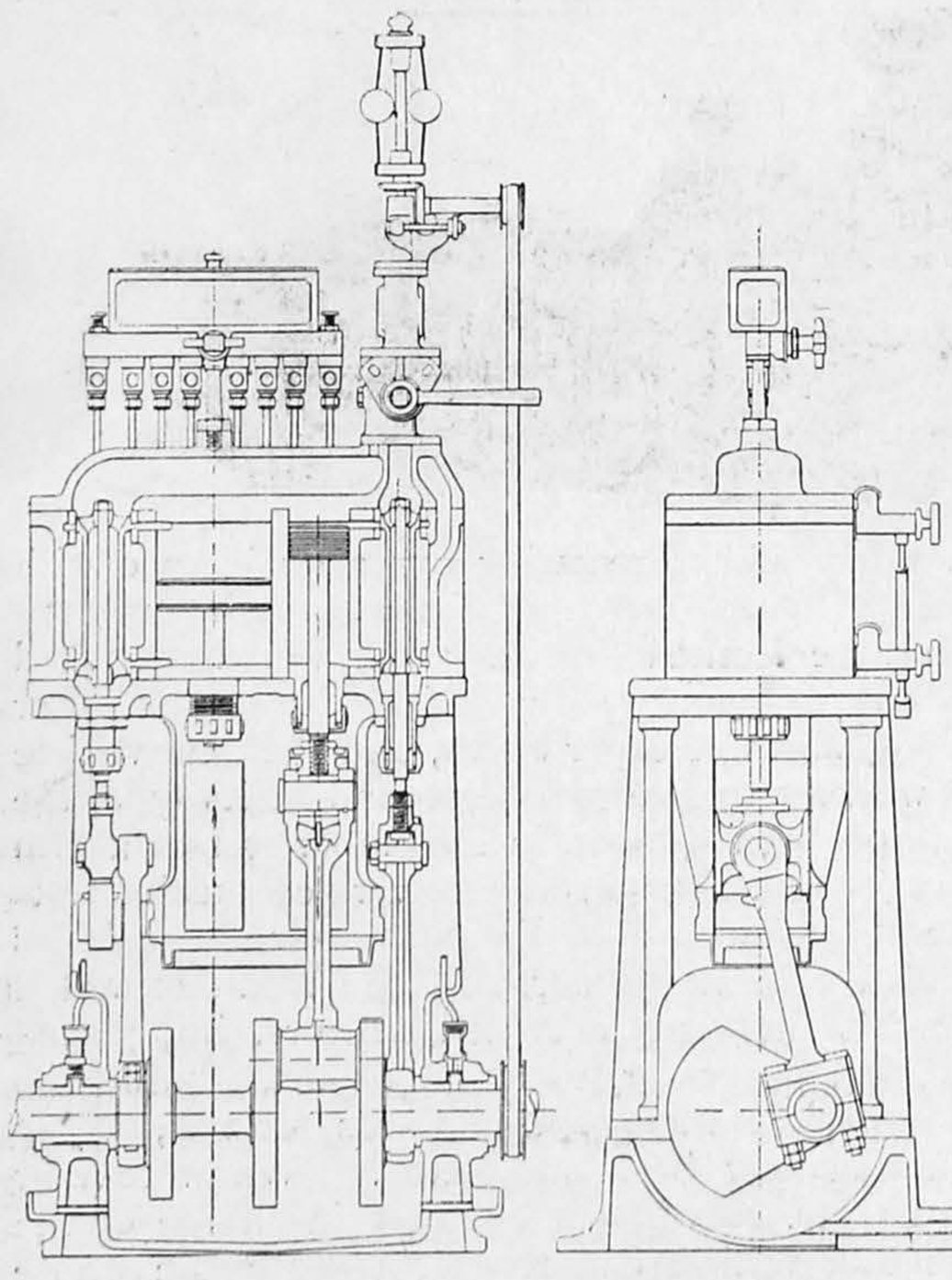


It was a lovely spring morning a month or so since when we last called on Messrs. Coulthard and Co. at their works in Cooper Road, Preston. It was not the first time, however, that we had seen Messrs. Coulthards' works, for those who read the account of our wanderings from John-o'-Groat's will remember that we pulled up at Preston, and the firm were good enough to replenish our tanks with fresh spirit. At that time they were experimenting on a somewhat large scale with the Pennington motors, but since our visit they have given their attention almost wholly to steam, and have especially set themselves to the task of solving the problem of heavy steam traction for produce waggons and omnibuses, and it was with the object of inspecting their latest production in the shape of a three-ton goods waggon that we paid them our second visit.

The works in Cooper Road are not pretentious in outside appearance, but are found to cover a large amount of ground when the visitor gets inside. They are situated on the outskirts of Preston, and within sight of the canal, and are approached and surrounded by roads chiefly of the cobble-stone variety, which enable the firm to put any cars of its manufacture to a most complete test in the way of standing rough work. After renewing our acquaintance with Messrs. Coulthards and J. H. Toulmin, their courteous manager, we learned that they considered they had arrived at a commercially satisfactory result after their long series of experiments, and that the vehicle which we were to see was the second of its type, the first having been shipped in December last to a firm in South Africa, after a series of very exhaustive tests by the representative of the firm over the cobbles and hills in the neighbourhood, the result of which was that he not only accepted delivery, but placed a repetition order for a second of these "Colonial steam carts," as Messrs. Coulthards term it, which vehicle had now been completed. We were now joined by Mr. Norris, the engineer in charge of the firm's motor vehicle department, a gentleman whose services the firm are fortunate in possessing, as he is keenly enthusiastic, and has given the subject a lengthy and painstaking study. By this time a glance out of the window had revealed the fact that the waggon had just come back from a two hours' trial with three tons of pig iron on board, and we wended our way into the road to take stock of her. We found a most businesslike looking vehicle (which we depict in the photograph at the head of this article), capable of carrying a load of three to four tons, and especially

designed for carrying mealie bags. The body of the cart is 9ft. long by 4ft. 2in. wide, and is arranged with detachable sides and end boards, which enable the cart to be converted into almost any type of transport vehicle. The driving wheels are 4ft. diameter, with 7in. face; the steering are 3ft. diameter with 6in. face. The design of wheel is well suited for very rough work, and is the outcome of some two and a half years' experience, and concerning it Messrs. Coulthards informed us that, whatever might be the experience of other firms with their wheels, these had given no trouble, although undoubtedly heavy. The front axle boxes are of special construction, and are bored to receive the axle pins, which run in a ball race. The front axles are case-hardened, and the hind axle is also case-hardened, the travelling wheels being fitted with special case-hardened bushes; keeps are fitted on the hubs of the wheels which effectually retain the oil. The method of adjusting the chain is novel. The chain can be adjusted two inches without altering the pitch circles of the gearing more than 1-64in. Steel horn plates are fitted to both front and hind axles. The second motion shaft is hollow, and contains sufficient oil to lubricate the bearings and the gearing for a considerable time.

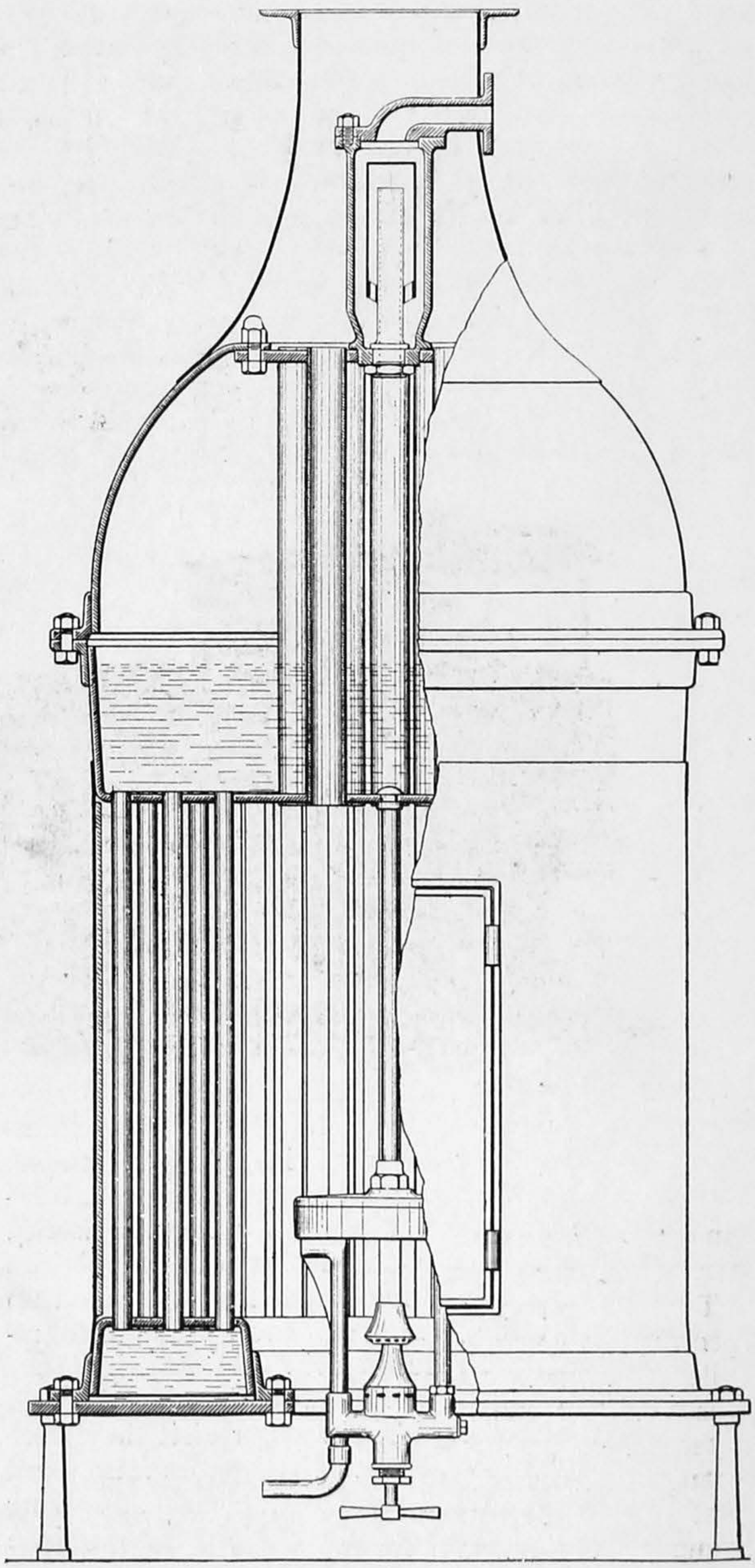
The engine is of the firm's own patent compound high speed type, fitted with balanced piston valves to both high and low pressure cylinders, and the whole of the working parts lubricated from one



THE COULTHARD ENGINE.

central box. Improved metallic stuffing boxes are fitted to the piston rods and valve-spindles. This engine is claimed to have all the advantages of the "open" and "closed" type of engine, and the claim appears to be well borne out. It is enclosed in sheet steel covers, which can be removed in a few minutes. A patent distribution valve of Messrs. Coulthards' own design is fitted on the steam chest of the high pressure cylinder, and this admits of high pressure steam being used in the low pressure cylinder. The amount of steam is also variable, from zero to full power, and with the addition of "open" and "shut." The exhaust from each cylinder passes separately to the condenser. The whole of the operations of control of the engine are performed with one lever, which is well within the reach of the driver.

The cart is provided with two speeds forward of two and threequarter and five and a half miles per



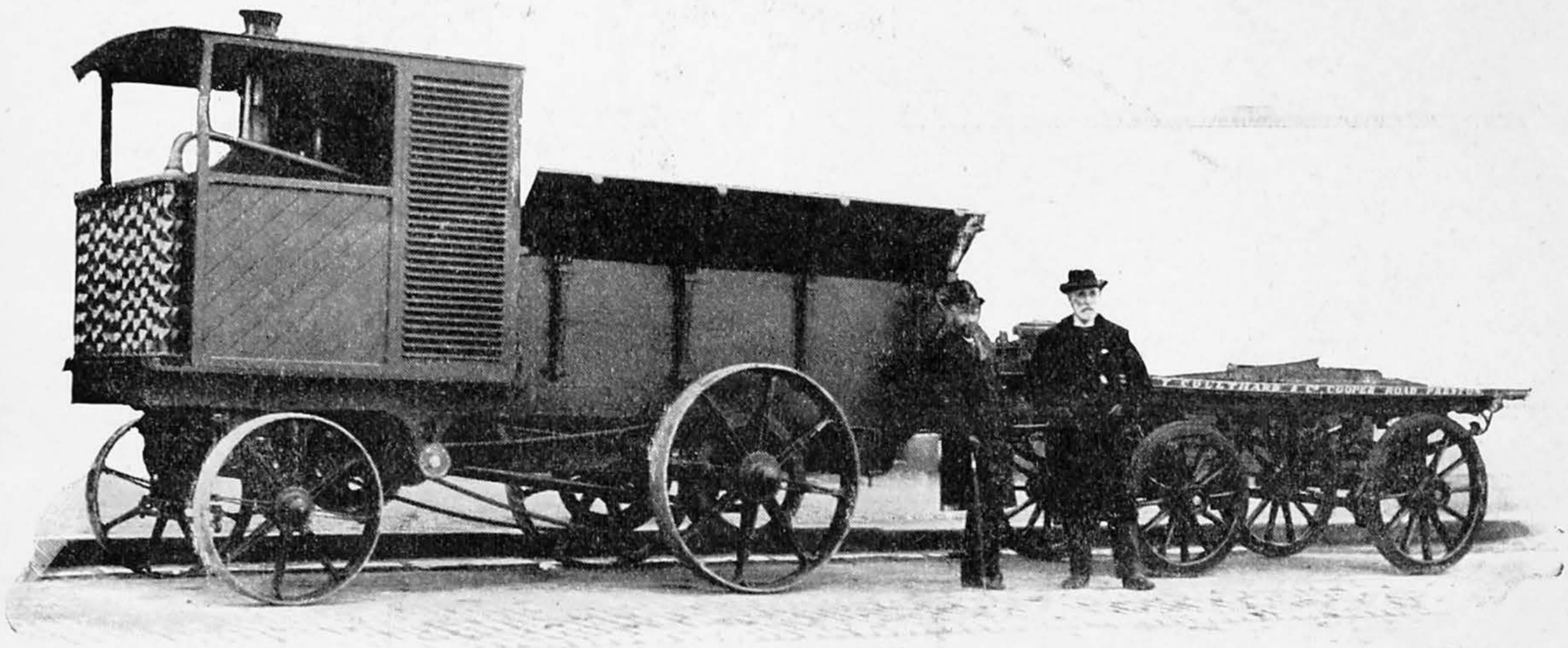
THE COULTHARD BOILER AND BURNER.

hour respectively, and on the reverse the speed backward is two and threequarter miles per hour. Two powerful band brakes are fitted to the hind wheels, which are capable of stopping the vehicle on a gradient of one in ten when fully loaded. An emergency band brake is fitted to the flywheel, and this is also powerful enough to stop the vehicle on a gradient of one in ten. The lever for operating this brake is also used for barring round the engine. A combined air and water pump is geared to the engine

shaft. This pump is fitted with metallic valves throughout, and is provided with two suction and delivery valves for both air and water pump. A semi-rotary hand pump very similar to that used on the circulating system of the Daimler engine is also fitted to the rear end of the cart; the delivery from this pump is coupled to a detachable strainer. This latter pump is not only used for charging the oil tank with oil, but is also used for creating an air pressure in the tank up to ten pounds per square inch, thus enabling steam to be raised very rapidly. A special arrangement is provided for operating the change speed, which is so arranged that it is impossible for two speeds to be in gear at the same time; the gearing throughout is of special bronze, and the teeth are all machine cut. It will be seen by referring to the illustration that the air condenser is now arranged at the front of the vehicle. The reason for fixing the condenser in the front of the cab, instead of in the top, as in previous vehicles, is that a far greater efficiency is obtained by having the condenser in the front, and another advantage lies in the fact that the owners are enabled to remove the cab without interfering with a single joint; the advantage of this is, of course, very great in case of a general overhaul being needed.

The boiler and steam producing system is also a specialty, the firm's own patent circular water tube boiler being used. It will be seen from the appended illustration of this that the flame impinges on the water tubes, and the products of combustion pass through a series of hollow stays to the uptake. The total area of the tubular stays equals the area of the chimney. By partially immersing the hollow stays the heating surface is increased and dryer steam obtained, since the steam mingles freely among the heated stays. It will also be noted that straight tubes are used, which are interchangeable, and admit of easy cleaning. The steam and mud drum can be readily disconnected without breaking perishable joints. The casing which surrounds the water tubes is lined with non-conducting material, and is made in halves to facilitate removal for cleaning purposes. Mr. Norris informed us that they had, without forcing, raised steam to 150 lbs. per square inch in fifteen minutes, the ordinary working pressure of the boiler being 225 lbs. per square inch.

After making a general examination of the car she was put through her paces in the hands of a driver who had had but a day or two's practice with her, and who, so Mr. Toulmin informed us, was not an engineer, but entered the firm's employ as a labourer. Still, taking her three-ton load, she was run on the slow speed to a long hill in the neighbourhood with a gradient of one in twelve, which she tackled splendidly, and was steered and managed with great certainty. After seeing her descend the hill under perfect control, the driver gave us a short exhibition of her speed qualities, though the roads were too bad to render it advisable to continue this long. Upon returning to the works a further illustration of its capabilities was given, for, still retaining its three-ton load, a lorry with another ton on board (see illustration) was hitched on, and away she went gaily, apparently without feeling it, and kept this up for a couple of hours. In all that day she ran three hours with three tons on board and two hours more with four, and the total oil (common paraffin) consumption was twelve gallons; taken in all, a very successful trial.

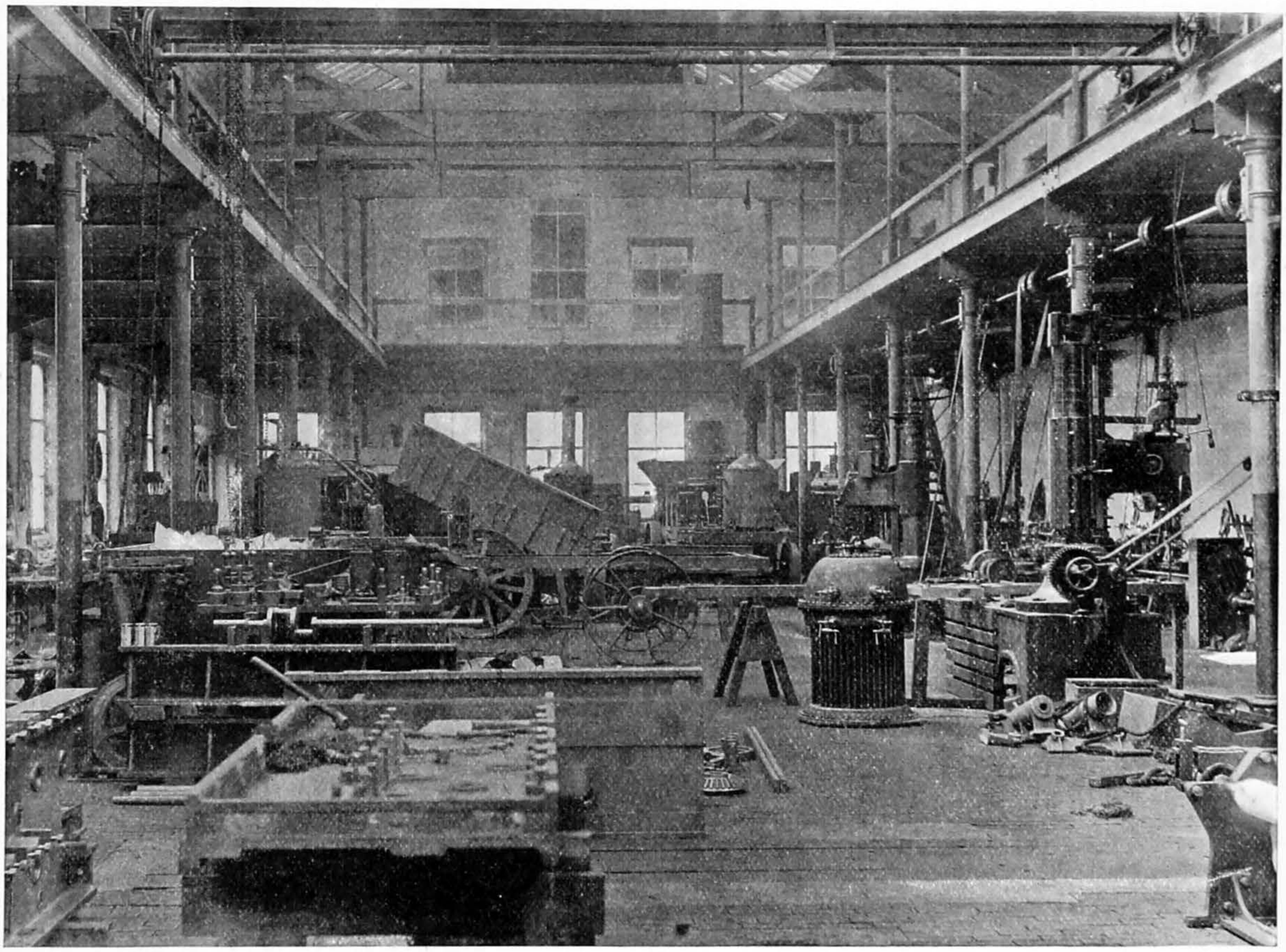


THREE TONS ON BOARD AND ONE TON IN THE LORRY.

In conversation with Mr. Toulmin he informed us that his firm had several enquiries for waggons of this description, and only the previous week had taken an order from a south country brewer for one for beer delivery purposes.

Having satisfied ourselves as to the capabilities of the vehicle, we took a run through the works under Messrs. Toulmin and Norris's pilotage, and after passing through the large machine shops in which the firm's regular business of manufacturing cotton spinning spindles is chiefly carried on, we found ourselves in a roomy shop filled with tools of a larger calibre, some of which were engaged upon crankshafts and other heavy work for the motor car department. The smithy was another shop of considerable interest, owing to the special tools employed there for spindle forging, and, passing from thence across a large yard crowded with huge stacks of pig iron, we were interested to find what a very extensive foundry the firm had in full blast, and to learn from our cicerones the great use they make of it. Here we noticed some large aluminium castings

for motor-car work being made, and then betook ourselves to the shop under Mr. Norris's special wing. This is a fine lofty building with top light and gallery round, erected some three years since specially for motor-car work, and here, needless to say, we found much to interest us. First there were a number of the patent boilers previously described, and we saw one of these fired, raising 80 lbs. of steam inside fifteen minutes, and 200 lbs. in twenty-five minutes more. The "bones" of several new cars were laid down, and in



THE MOTOR CAR SHOP.

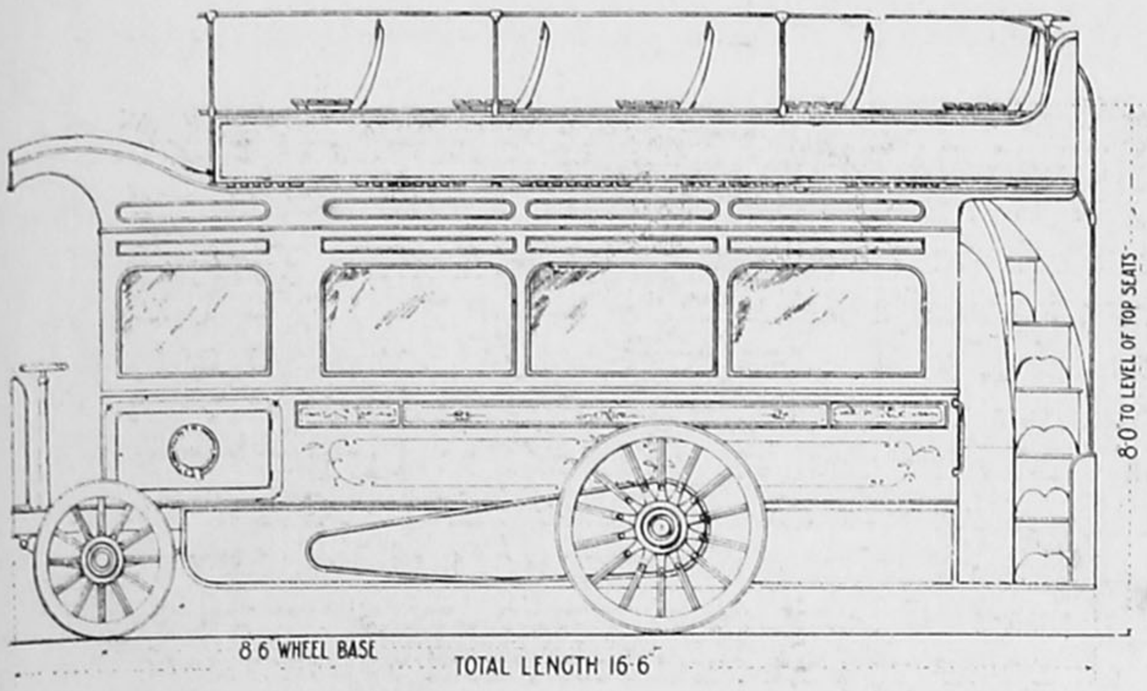
various stages of completion, and we were much interested to note the way in which the comparatively light 4⅛in. channel iron frame of a two ton lorry was tied together at the corners. One car nearly finished was a contractor's tip waggon, and another in a forward stage of construction was being built for the forthcoming trials at Liverpool in July, whilst we were also shown the nearly finished model of a new triple expansion engine modelled on their standard compound with which some of the future vehicles will be fitted, but perhaps the most startling construction of all was the one shown in the annexed illustration. This was the frame of an omnibus originally built for West Australia, and intended to be fitted with a Pennington motor, but since converted to a steamer, and the wheels fitted with 9½in. pneumatic "Pennington" tyres, in the efficacy of which for facilitating comfort and travel over rough ground Mr. Toulmin has great faith. It is shown in the photograph on some very rough ground near the works, surmounting a little "hillock" of one in three, whilst we were informed that such items as half-bricks and 9in. kerbs were waltzed over without a thought.

In addition to heavy goods waggons, Messrs. Coulthards have given some considerable attention to the question of omnibuses, and hope shortly to have a sample vehicle on their new design ready. They are proposing to build both single and double storey 'buses embodying their special constructional features above alluded to, and in design possessing some points of originality.

Hitherto steam-driven motor omnibuses carrying outside passengers have been unsatisfactory owing to the distance from the ground line to the seat level being such as to point at once to their being liable to overturn when rounding corners sharply. Another

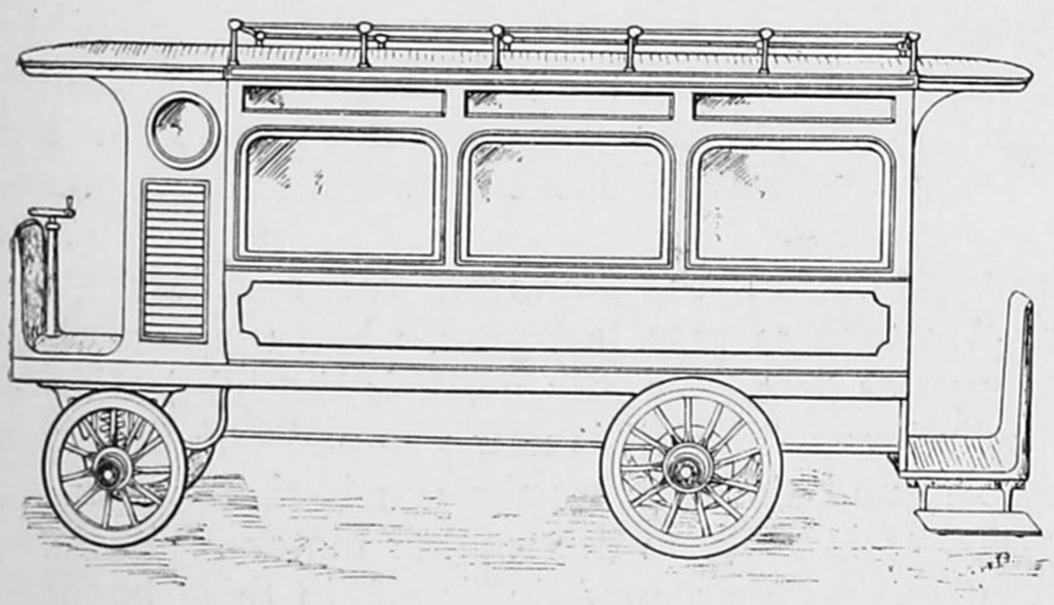
STEEPLECHASING WITH 9½in TYRES

serious objection which has been raised against steam-driven motor omnibuses and tramcars is the disagreeable fumes from the chimney. Having these facts well before them, Messrs. Coulthards have designed an omnibus which, whilst allowing ample room, is only eight feet from the ground line to the outside seats. The appended illustration shows the design of a thirty-passenger omnibus arranged with garden seats. The



THE LOW TWO-DECKED OMNIBUS.

engine will be the new patent triple expansion high-speed type arranged with balanced valves. The boiler is the patent circular water tube type, using oil fuel automatically supplied and regulated, and the 'bus will be provided with three speeds, viz., two and a half, five, and eight miles per hour; the whole of these operations are performed with one lever, and by an improved arrangement it is impossible for the driver to have more than one speed in gear at once. The air pressure to the tank, and the water to the feed water heater, will be supplied by means of a new design of pump worked off the mainshaft. This pump is fitted with two sets of suction and delivery valves, which reduce the chances of pump failure to a minimum. The absence of the usual chimney in this design is very noticeable. An induced current is employed without the use of a fan or any other mechanical means to "draw" the products of combustion from the boiler to the rear part of the vehicle, and the design



THE SINGLE DECK COULTHARD OMNIBUS.

altogether strikes us as being full of promise. We conclude our series of illustrations with Messrs. Coulthards' design for a 'bus without top storey, in which the same general features are embodied. Finally we congratulate the firm on their success with the vehicles they are now turning out, and have no doubt that as time rolls on they will find ample work for the additional large shop which they are already contemplating erecting alongside their present factory. They have wisely kept in the background until their experimental stage was fairly passed, for they early realised the truth of our oft-repeated adage that "autocars take a lot of making," and therefore preferred saying nothing till they had satisfied themselves they had something good and reliable to show.

NAME OF OWNERS PAINTED ON AUTOCARS.

BY JOHN A. WILLIAMSON.

One of your subscribers wishes to know if the following statement of the law, as given by one of your contemporaries, be correct?

The paragraph referred to is as follows: "The owner of an automobile, however, whether he uses it for his private visiting carriage or whether he employs it for trade, must have his name painted on it."

The statement of the law in the paragraph referred to is incorrect. A private autocar is not required to have the name of the owner painted upon it.

The matter is dealt with in regulation Article II. (6), issued under the Locomotives on Highways Act, 1896. Under that regulation the following light locomotives require to have the owner's name painted on the right or off side, and also the weight:

(1.) A light locomotive drawing, or constructed to draw, another vehicle.

(2.) A light locomotive constructed or used for the carriage of goods.

(3.) A vehicle drawn by a light locomotive constructed to carry goods. (Article III.)

(4.) In the case of a light locomotive weighing unladen one ton and a half or upwards, *the weight of the light locomotive only painted thereon.*

Under Section I. (C) of the Act of 1896, "a light locomotive is deemed to be a carriage within the meaning of any Act of Parliament, whether public, general, or private, and of any rule, regulation, or byelaw made under any Act of Parliament, and if used as a carriage of a particular class shall be deemed to be a carriage of that class, and the law relating to carriages of that class shall apply accordingly."

Under the London Hackney Carriages Acts the name and address of the owners of "waggons, wains, carts, cars, drays, and other such carriages" must be printed thereon. This would apply, of course, to a light locomotive, notwithstanding it was a private vehicle, if it were used as a waggon, etc., within the Metropolis.

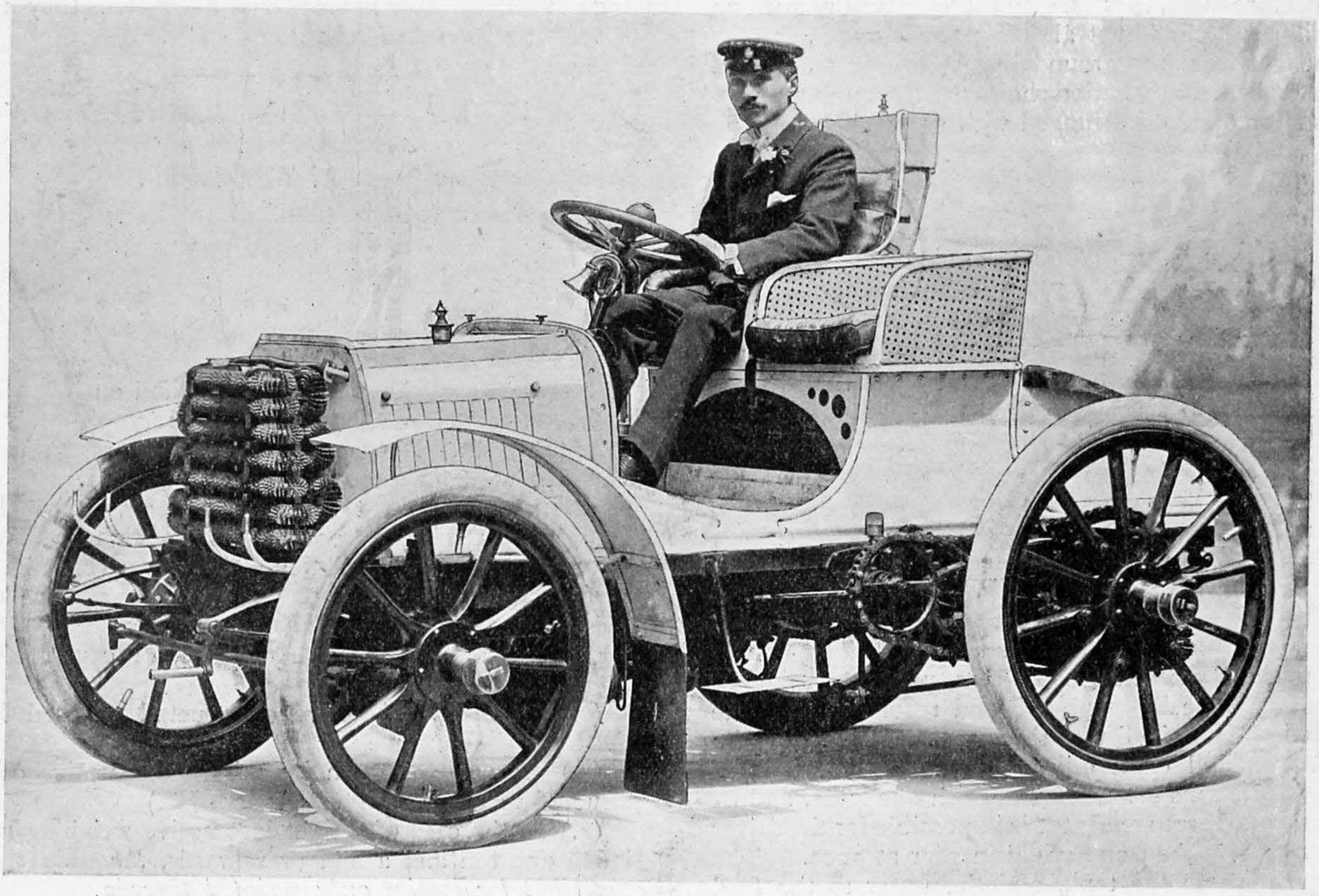
Outside the Metropolis the Highway Act 1835, Sec. 76, applies, and the vehicle upon which a similar liability is imposed is therein defined as a "waggon, cart, or other such carriage."

Under the latter section it has been decided that the "cart" or "carriage" therein referred to is *ejusdem generis* with waggon, and that a light spring cart, though frequently used for the conveyance of agricultural implements, does not come within the section.

In conclusion, I may say I know of no statute, bye-law, or regulation which requires a light locomotive used as a private carriage to have the name of the owner painted thereon.

The firm of Roch, Brault, and Co., motor-car builders, 50, Rue St. Ferdinand, Paris, has just been dissolved.

THE WINNER OF THE PARIS-BORDEAUX RACE AND HIS CAR.



We are able this week to publish an illustration of the victorious Panhard car which was driven by M. Charron from Paris to Bordeaux in the wonderful time of 11h. 43m. for the 353 odd miles. The motor is a four-cylinder Panhard of the standard type, giving twelve horse-power. It is really two of the firm's six horse-power motors coupled together in the same way as they couple their four horse-powers for the eight horse-power car such as the Hon. C. S. Rolls and other speed enthusiasts use. The axles, wheels, springs, and all parts of the framing subjected to wear have been reinforced and strengthened to withstand the extra weight and power of the twelve horse-power car as compared with the eight horse-power. The system of lubrication is as usual, save that all the lubricators are in front of the driver at the back of the dashboard, and are about four times larger than those previously fitted, so that very long runs can be made without any necessity for oiling, whilst the system of lubrication is always under the observation of the driver. Messrs. Charron and Girardot had the back wheels of both their machines smaller than usual, and the cars so arranged that the centre of gravity was kept as low as possible, so that the machines were extra stable when deviating from a right line at speed, and it was also possible to use somewhat larger driving chain wheels on the countershaft—no mean advantage. The carriage illustrated is equal to an average speed of fifty-five kilometres (thirty-four and three-eighth miles) an hour, but it has been driven from Tours to Chatellerault, seventy-one kilometres, in seventy-one minutes. It will be remembered that it was but yesterday that some enthusiastic French sportsman said it would not be long before he possessed a car which could be driven at a kilometre a minute. At that time most people smiled at his enthusiasm. The first five carriages which arrived at Bordeaux were all of the same type as M. Charron's, the Count Bozen de Perigord, it will be recollected, racing under the name of Orchambault.

In addition to the well-known radiator with cooling flanges, which is fitted low down at the back of the eight horse-power Panhard, it will be seen that there is a system of cooling pipes right in front of the motor bonnet, where the refrigerating effects of the atmosphere have their fullest effect. The only noticeable improvements in the Panhard carriages since the Paris-Amsterdam race last year, when the new wheel steering was first generally used, is the lubricating of the cylinders. The oil is now pumped into the crank chamber, and the disc cranks run it right up to the buckets, as is usual in the smaller motors. There is, of course, nothing new in itself in this, but it is arranged that the lubrication shall be proportioned to the exact requirements of the motor, as there is a small belt driving the lubricator pump from the motor-shaft, so that as the speed of the engine is increased the flow of oil is proportionately greater.

The tyres are as now usually fitted by the Panhard firm. It will be remembered that M. Charron had trouble with one of his once on the journey, but M. Girardot's car ran right through without the least difficulty. As we foreshadowed a fortnight or so before the race, engine power did not prove itself everything, for it will be recollected that the Panhard cars were

by no means the most powerful in the race. The twenty horse-power Peugeot, it is true, suffered ill luck, but the sixteen horse-power Mors did not show up anything like so well as the twelve horse-power cars, though they were very well placed. We hear that after the victory M. Charron was offered £2,000 for his victorious carriage, but that, in the glow of enthusiasm naturally excited by his wonderful performance, he refused to part with it.

Some amusement has been caused in automobile circles by a so-called representation of Charron's car, published last week, in which he is shown seated in a comparatively small machine with lever steering and without coolers on the front; in fact, it appears to be the racer he used in the Paris-Bordeaux race, 1898, whilst the background is near the start at Versailles, so that the photograph could not have been taken at Bordeaux at the finish, as stated. We do not fancy that, demon as Charron has proved himself at speed steering, he would undertake to drive a car at the terrific speeds which he accomplished over different stretches between Paris and Bordeaux with lever steering, and most men who know anything of the matter at all believe that if he had attempted it he would not now be numbered among the living.

A SEASIDE MOTOR CAR.

The photograph from which our illustration is made has been sent us by Mr. Miller Metcalf, of 107, Bold Street, Liverpool. It shows the first of the motor *char-à-bancs* which he has placed on the road connecting Seacombe with New Brighton. This was started on Whit-Saturday, and on its first trip conveyed the New Brighton niggers from Seacombe. These minstrels caused great excitement on the road by singing gaily as the car progressed under the guidance of Mr. Miller Metcalf. The fare for the run, which is two and threequarter miles, is sixpence, the car taking from ten to twelve minutes to cover the distance. We understand the 'buses on the same route occupy 25m. to half an hour. The difference in time is particularly noticed by the residents. Some of them could scarcely believe the car had been the full distance when they met it returning with a fresh load, as they had become so used to the older and slower methods; in fact, we are told the 'bus drivers believe that their reign will shortly come to an end if only a few more cars are put on the road, and some of the more go-ahead of them are making enquiries as to how they can acquire the art of motor car manipulation and driving. We should mention that the car is made by the Motor Manufacturing Co., Ltd., of Coventry.

It will be remembered that some months ago a statement was made that Paris-Singer, Ltd., would shortly open a depôt in the fine new premises recently erected at the point of the angle of Knightsbridge and Brompton Road. At the time a denial was made, and there was evidently truth in it, for after months of whitewash on the plate glass windows and much expectancy locally, bills have this week been pasted above the whitewash announcing the shop to let. Thus another fairy tale falls to the ground.

CARRIAGE BUILDERS AND MOTOR BUILDERS.

Since that obsolete Act was withdrawn relating to motor-driven vehicles, and the new regulations put into force, there have been what some would have us believe to be vast strides made in the advancement towards the general use of mechanically-propelled vehicles. But the question arises: Have we advanced successfully? Have the engineers done all they can to meet the requirements of the already existing and well established trade of carriage building, and the generally acknowledged wishes and fancies of the carriage riding public, which coachmakers have studied for so many years, so as to produce those elegant designs in carriages that the public have become so accustomed to? On the other hand, have carriage builders generally studied the needs of the engineer, and all the difficulties he has to encounter? No doubt they have, as far as possible, varied widths and built to dimensions of framework, cut away for, and cased in, all unsightly machinery, only to make it more unsightly by spoiling the artistic outline they have striven so long to preserve, and which carriage riders admire so much. It is evident that the carriage builder and the motor engineer do not understand each other yet, hence the failure to produce any elegent motor car designs, but only mechanical contrivances, devoid of all art, perhaps beautiful to the inartistic mind of the motor engineer draftsman, who, of course, is so mathematically correct that anything is beautiful that will fit over the machinery. But carriage building is an art, and carriage draftsmen have hitherto studied art more than science. Now, why should they not study mechanical engineering in theory, if not in practice? Surely, a course of practical engineering would be beneficial in future designing. The architect has to be conversant with the sciences that apply to all parts of the building he designs, as well as being acquainted with some of the workshop practice; and so it will be with the motor vehicle draftsman of the future, otherwise the motor carriage will be treated as an expensive novelty for occasional use, depreciating in value to a remarkable degree by keeping—more so than the bicycle, which, a few years ago, many carriage builders stocked for cash down, because of the large profit held out. Now, with the motor carriage the risk is too great, but when mechanical engineering is more thoroughly understood by those who control the management of our coach factories, and we have more popular designs than at present, motor parts may be stocked and fitted up by the engineering smith on the premises. But the present style of motor cars are not in favour for private use, although it must not be overlooked that custom and use go a great way, and it is possible to become familiar with an unsightly object, and even to adopt such, because fashion or convenience forces us to do so. For example, the safety bicycle, when first introduced and compared with the ordinary bicycle of that time, was not nearly so graceful. So it may be with the motor, but improvements must take place, and some of the motor car builders recognise this, and they are trying to get coachmakers for their works.

Now, the difficulties the motor builder has to contend with are very great. He has, first and most important, to obtain a substitute for the horse, in other words, the motive power, and that power has, to some extent, to carry the weight of the horse; whereas the horse carries its own weight, and more, its weight adds to its power. Again, with motors, the object seems to be to get the weight as low as possible—quite proper for safety—hence the low wheels. But is it forgotten that a long spoke is a long lever, and the force of motion will act on that lever when once started? But there are three difficulties—starting, stopping, and hill-climbing; for the last named small wheels are claimed to be of much assistance. Steel or wire wheels are favoured by the engineer. In this matter he should give way to the coachmaker, and remember that a carriage is wanted, and not a cycle. The belting should be in the centre, and as close as possible, and cased in. The springs depend much on the style of vehicle. The usual carriage springs are preferable if they can be applied; where they cannot, the seating arrangements may be isolated from under part by spiral, coil, or cradle springs.

The body of a motor has hitherto been considered a secondary matter, so much so, that some have not considered it at all until the trial came, and then found that there must be somewhere to sit. A wood worker is called into requisition, a box of some kind is knocked up, seating accommodation and leg room are curtailed, the body is kept as small as possible, apparently to display the mechanical contrivances of the under gear, tank, etc. Now, this should not be, and a carriage draftsman, with his artistic skill, would obviate all this, and, from a commercial point of view, make it more saleable. Weight also is claimed to be of little consequence with some engineers, so far as under parts are concerned, but when the body is considered, that has to be very light, consequently too frail to stand the vibration it will be subjected to.

Some maintain that motor vehicles should be designed upon lines of their own, quite distinct, and regardless of any existing methods of carriage building. If this is to be the future procedure in motor car building, then it will become a distinct trade, in the same way as did cycle making, and carriage building will still remain an art as it is to-day, and that art will be maintained for supplying the needs of the wealthy, who can afford to indulge in the luxury and comfort of a carriage apart from the novelty of a horseless car, while the motor builder will cater for those who require conveyances for commercial purposes only.—*Carriage Builders' Gazette.*

THE AUTOCARIST'S DIARY.

June 1st.—Paris cab trials commenced under auspices of Automobile Club de France.

June 9th.—Automobile Club hill-climbing trials. "Star and Garter," Richmond, 11 a.m.

June 10th.—Automobile Club electric distance trials. Start from Richmond 11 a.m.

June 12th.—Automobile Club fifty miles distance trials. Start from Southall 11 a.m.

June 13th.—Automobile Club heavy car trials. Start from Uxbridge 11 a.m.

June 13th to July 3rd.—Paris autocar show at the Tuileries (Automobile Club de France).

June 15th.—Probable speed trials. (Automobile Club.)

June 16th.—Rehearsal of driving competitions (Automobile Club) at Richmond. 4 to 7 p.m.

June 17th to 24th.—The Automobile Club Show at Old Deer Park, Richmond.

June 23rd.—Show banquet Automobile Club of Great Britain.

July 3rd to 15th.—Autocar exhibition at Agricultural Hall, N. (Messrs. Cordingley and Co.)

July 3rd.—Spa-Brussels-Antwerp race.

July 16th to 24th.—The great Tour de France (2,350 kiloms).

July 29th to August 2nd.—Heavy vehicle trials, Liverpool.

FRENCH JOTTINGS.

This has been a very busy week for the chauffeurs, what with the motor cab trials, the automobile fête at Longchamp, the daily rush of cars, most of them incomplete, so far as concerns the carriage work, which takes place between Paris and Versailles to qualify them for exhibition at the forthcoming Tuileries show, and the numerous other "functions" which have brought together those interested in the sport, pastime, and industry. The champion chauffeur has also given his patronage to the movement, for out of an ideally blue sky the sun has been making it hot for his big family of scorchers, and while in Paris the cars have been covered with flowers, along the country roads they have been hidden by the clouds of dust which rise in their wake. The autocar movement is now seen at its best. The season is in full swing, and everyone is in Paris. And, as everyone that is someone nowadays drives an autocar, or rides a motor cycle, the number of self-propelled vehicles to be seen within a twenty miles radius of the city is phenomenal. Now and then the chauffeurs indulge in paperchasing, which is becoming a very popular sport, and on Sunday several went to the Forest of Fontainebleau, when a course of about twenty-five kilometres had been marked out with paper. The course was a very puzzling one, and most of the competitors found themselves utterly at sea, while no little sensation was caused by some miscreant laying a track of paper up to the edge of a precipice. The winner of the event was M. René de Knyff, who only made two mistakes in the route, and returned in about thirty-five minutes. M. de Knyff is very successful in these events, for some time ago he won a paperchase at Saint-Germain.

The floral fêtes are always assured of success if only they are favoured by the weather. The annual cycle meeting organised at Longchamp for the lady dramatic artists has had additional interest given to it by the introduction of the automobile, and at the end of the races, which attracted a very large and aristocratic crowd, the gaily-decorated autocars and motor cycles drove past with remarkably picturesque effect. Each theatre in Paris was represented by an autocar containing lady artistes. The decorations were very costly, some of the vehicles being completely smothered in choice flowers, and one of them was decorated in the form of a gondola containing musicians in Neapolitan costume, playing mandolines. The last car was a motor coach, looking quite a mastodon among the others with its big scaffolding of flowers. After the drive past banners were distributed. During the halt an accident took place, happily without any serious consequences. The driver of an autocar had just left his seat when the car started off alone, and knocked over a voiturette containing two children. The youngsters escaped by a miracle, for the voiturette was smashed to pieces. It is quite incomprehensible that such accidents should be possible. After the one or two similar incidents that have taken place in the past, it might have been thought that every vehicle would have the simple and effective device of a small lever attached to the starting lever to key into a toothed segment. As regards the sport at the Longchamp meeting, there were events for bicycles, tandems, road skates, and petroleum tricycles, the last named being won by Mlle. Léa Lemoine, who carried off the race last year. A floral fête is also to be held in the Tuileries Gardens during the show, if permission can be obtained, so that horticulture must be regarded as another industry which has directly benefited by the introduction of the automobile.

A bolt from the blue could not have dropped more unexpectedly, or caused a greater sensation, than the arrest of Count de Dion and the closing of the Automobile Club in the Place de la Concorde. The circumstances which led up to the arrest are no doubt now well known. While the Monarchist demonstration was taking place in front of President Loubet's stand at Autueil, Count de Dion entered the fray, and, brandishing his stick, joined with the other members of the aristocracy in calling upon M. Loubet to resign. The *sergents de ville* laid hands on him, and the Count, who is a man of great physical strength, fought desperately until he was overcome by numbers, and was carried away with a score of other members of the upper ten in a prison van. Had it been an automobile, the indignity would not have been so great, but at such moments a man has little choice in the matter of conveyance. The day following the incarceration of the Count de Dion, the police made a descent upon the Puteaux works, and on the Count's private house, and searched for anything which might throw a light upon the part that the Monarchist clubs are supposed to have played in the Sunday's demonstration. It does not appear, however, as if the police were particularly successful in their search. They then went to the Automobile Club on the same errand at the moment that several members were taking their midday lunch. The chief of police announced his errand, and requested the members to leave the premises, which they did with a very ill grace, going to a neighbouring restaurant to finish their interrupted meal. The whole place was thoroughly searched, and a few papers, apparently of little importance, were carried away. All the servants were ordered to leave, and the club was closed, a seal being put on the door to prevent anyone entering.

The closing of the club is the more inexplicable, because the A.C.F. is one of the very few clubs in Paris which do not concern themselves in any way with politics. The club has only one object in view, the development of the autocar movement, and it has always steadfastly carried out this programme. The members belong to all shades of political thought,

and it is obvious that the club could not go outside its limited, but expansive, programme, without causing a lot of friction. Moreover, the Count de Dion is the only member who was in any way implicated in Sunday's demonstration. He acted entirely on his own responsibility, and it is extremely unfair to inflict vengeance upon the thousand odd members who, for the most part, did not know that anything was in progress at Auteuil on Sunday. Again, it is to be remarked that nothing has been done to the Monarchist clubs which remain open, and the Government has launched its thunders upon the only club which has not mixed itself up in politics. It is impossible yet to say what sort of fate is reserved for the A.C.F. The police are said to have intended to make a very exhaustive enquiry, especially into the situation of the foreign members, and until this is completed, it is not probable that the club will be allowed to open its doors. Meanwhile, this measure of the police could not have come at a more awkward moment. At present there are three committees at work, one for the motor cab trials, another for the accumulator trials, and a third for the Tuileries Exhibition, and all the papers concerning these various events are locked up in the Automobile Club. The motor cab and accumulator trials will continue without interruption, as the documents are not urgently needed, but how is the exhibition committee to complete its arrangements for the forthcoming show? The time is drawing very close, and not a moment must be lost. All sorts of rumours have been afloat to-day, one to the effect that the Automobile Club has been dissolved by order of the police, but, so far, this has not been confirmed. At the last moment I hear that during an interview of Baron de Zuylen with the Prefect of Police, M. Blanc declared that a distinction was made between the Automobile Club as a social body and as a "society for the encouragement of the automobile," and that in its latter capacity the A.C.F. would have every facility to carry out its arrangements for the forthcoming show.

A sense of impartiality obliges me to confess that the electric cabs of the Compagnie Générale des Voitures do not appear to be working so satisfactorily as might have been expected. This may not be so much the fault of the cabs as of the drivers, who try to get too much out of them. The cabs ought to run for eight hours, and I suppose that the drivers do not take sufficient account of their limitations to get back to the charging station before the batteries are exhausted. However this may be, one frequently sees a stranded cab, and the sight of a helpless vehicle being pulled along by one of the company's electric tractors is becoming rather too common. Again, on the greasy *pavé* the cabs have a tendency to get out of control on a down grade, and slip round when the brakes are put on, and under these circumstances the driver needs exceptional coolness to keep the vehicle in hand. It was through a driver losing his head that an accident took place this week. The man was conveying two artists up a steep road to Montmartre when he stopped, saying that his motor could not take them to the top. The fares told him to turn round and take another direction. On doing so the cab started off at a great speed, and the driver got so frightened that he actually forgot to make use of the three brakes, any one of which would have brought the vehicle to a standstill. At the bottom of the incline the cab dashed into a baker's shop, knocking down the front, but the driver and the fares had jumped out and saved themselves from injury. These accidents are the more regrettable as they can be easily avoided with a little ordinary coolness and presence of mind. No doubt a good deal of allowance must be made for the inexperience of drivers, and as soon as these get thoroughly used to their cabs there will be no liability of any accidents taking place that may imperil the safety of the fares. The public like the cabs, and when they are in perfect working order they will be a great success.

Charron means business in taking up the challenge of Mr. Winton, of the Winton Motor Carriage Company. He has posted a big deposit, and is ready to race the American either in France or America, though in the latter case he naturally looks for his expenses. He is willing to meet Mr. Winton under any condition with the sole stipulation that the match will be run off in long stages, say of three hundred kilometres each, as it is in these long runs that the qualities of an autocar are brought out, and not in the short journeys, where an inferior vehicle may get the advantage in speed and be overhauled and repaired in the intervals. The ratification of the match depends entirely upon the American, but there is a good deal of scepticism here as to whether he will come to terms. He appears to be backing out as gracefully as he can by seeking to put off the match indefinitely, on the ground that he has not got a racing car ready. If he is so unprepared he ought never to have issued the challenge. Mr. Winton must know perfectly well that he has not got the slightest chance against Charron and his racing Panhard car, and the way in which Charron posted his money and insisted upon high stakes has put him in a corner from which he seems too glad to escape.

At the time of our last visit to the basement of the Automobile Club's premises the trials of accumulators had not been inaugurated, but as the finishing touches were being given to the installation it is probable that by now they will have been started. The closing of the club's premises, temporary though it may be, will not interfere with the trials, because a separate entrance opens into the basement where they are held. The installation is composed of a platform running on four wheels, and these are supported by four other wheels, which are driven by a dynamo. These four driving wheels are cast with ridges so as to give a jerking and vibrating movement to the platform to resemble as much as possible the motion of a vehicle on the ordinary roads. The wheels of the platform are kept in position by wood blocks. The batteries are placed on this platform, and above it is a frame carrying the switches and the connections with the meters so as to determine the industrial efficiency of the batteries, that is to say, the difference between energy furnished at the poles and the potential during the discharge. The batteries will be subjected to this vibrating motion for five hours a day for five days a week, during which the batteries, connected up in series, will be subjected to a varying discharge by means of a commutator composed of a drum and a

number of levers. The drum revolves once in half an hour, and on its surface are a number of segments which raise and drop the levers so as to obtain discharges varying from twenty to one hundred ampères during irregular periods. On the sixth day the batteries will be discharged in tension at a constant rate of twenty-four ampères for five hours. On the seventh day the batteries will rest. This will be continued for six months, unless before then the whole of the batteries will have been destroyed. The competitors are as follow: F. Heimel, Vienna, Titan accumulators; J. G. Hathaway, of London; Société Belge de l'Accumulateur Tudor; Société des Métaux; Société des Accumulateurs Phénix; Société Française de l'Accumulateur Tudor; Société des Soudières Electriques; Compagnie Générale Electrique; Pope and Son, Manchester; Lagarde; Société des Accumulateurs Fulmen: Société Cruto, Italy; and the Compagnie des Accumulateurs Blot. These trials will be extremely interesting as giving some definite data as to the duration and efficiency of the accumulators, but we shall only learn the results during the course of 1900.

Correspondence.

BELTS AND JOCKEY PULLEYS.

[782.]—I am much obliged to Mr. J. H. Knight for kindly giving his experience of the jockey pulley system. Much weight must, of course, attach to anything stated by one who knows so much about oil engines and autocars; but in the car I have ordered, which, by the way, is an Orient Express, described by you last week, the ample size of pulleys will, I hope, prevent trouble from slipping.

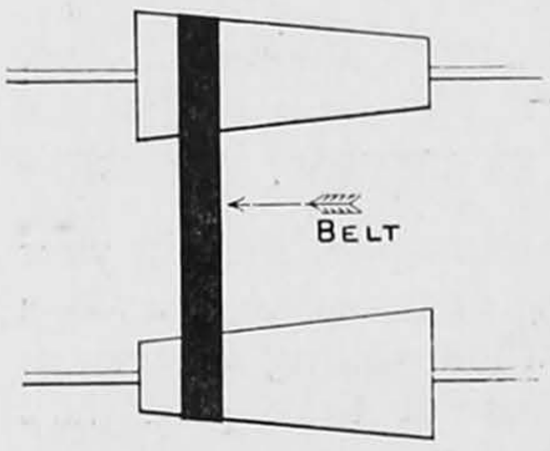
I trust someone will take up the chain and gear case problem, and I hope we may get a little information as to the best and safest way to procure petrol in the country.

There are many autocarists about the country who would no doubt be willing to supply petrol to a touring brother, and I should like to suggest that a neat sign, say on tin, might be adopted to show where a friend in need lives. For instance, one of my lodges is on a main road, and I should not object to keeping one or two gallons there, to be supplied at cost price, and I should not object to have a small plate, after the style of the Cyclists' Touring Club badge, placed there. Of course, the sign must be neat, unobtrusive, and registered. COUNTRY HOUSE.

[783.]—A week or two ago "Country House" wrote an interesting letter regarding some details of a motor which was being made for him. For driving purposes a jockey pulley was to be used, and he anticipated it would work well. Another correspondent, however, pointed out he had found by practical experience that by using this method the belts and pulleys became too smooth to grip.

There is no doubt this detail in a motor is of great importance, and, so far as I know, a satisfactory method has not yet been discovered. Practical men will therefore deal gently, I hope, with any flaw they may see in the following suggestion:

In some machinery two cones are used to drive and vary speed. One cone is the driver and the other is driven from it by a belt. They are, of course, just modifications of fixed drums and pulleys, and are placed opposite to each other on parallel shafts. When the belt is running on the large end of the driving cone it is then on the small end of the driven, and the speed of the latter is at its greatest. When the belt is moved towards the small end of the driver it necessarily travels towards the large end of the driven, and the speed is thus lessened. To anyone who has seen two such cones working it is very simple. The belt on those I have seen has invariably been tight, and only moved along the cones slowly. In an autocar this would not do, as the variations of speed and stoppages must be effected quickly. By using a jockey, however, the belt could be made of a suitable slackness, and when a variation of speed was required the jockey (flanged) not only could guide the belt to the required position, but, by the same movement, slightly lift the belt so as to make it pass easily along the cones.



The two cones would be equivalent to, but simpler than, the drums and pulleys at present used, and they would save two belts and a slack pulley.

With the exercise of some ingenuity, I think, reversing gear could be adapted to this method; but it is possible that in the limited space of an autocar the length of the cones might be an objection. With a slack belt, however, the taper on the cones might be made very quick, and so permit of the latter being made short.

To anyone who has not seen such cones working, the above rough sketch explains them. A. B.

RUNS OF NON-START ABSOLUTE.

[784.]—A short time ago a suggestion appeared in your columns that drivers of autocars should make public any particularly good run they had had without stopping the car, the accounts of such runs to come under the heading of "Runs of Non-stop Absolute."

To my mind, and I feel sure to the minds of many others, this was an excellent suggestion, and, if carried out, should go far in pointing out the pitch of perfection to which motor cars have now been brought, and would well illustrate the pleasant side of the question. But there are two sides to every question (I claim no originality for this statement!), and, as everyone knows, the motor car has its dark side, but, as I am happy to say, that side is every day rapidly decreasing.

"Runs of non-start absolute." This sounds paradoxical; how can it be a run, if you do not start?—but what's in a name, "A rose by any other name would smell as sweet," and I think the heading I have chosen sufficiently expresses what I mean it to. There are times when the best behaved motors "go wrong," and, I am sorry to say, actually stop, though unless you are near a board school at twelve o'clock, or a factory at "knocking-off" time, the chances are the motor will carry you on till you reach a locality where the possibilities of an obnoxious crowd are better.

Now let us suppose the motor has stopped; we try various experiments, fiddle with the valves, test the petrol, take out the sparking plug (get a shock in putting it back), try the compression, but all to no purpose. Eventually, however, we do find the cause of the trouble, put it right, and go on our way again.

Now, if at a future date the motor stops again, what do we do? Why, run over the various points which have previously given trouble, and among these we very likely find the trouble again.

Now we have gained a certain amount of useful knowledge, that, if put on paper, would be useful to other people. Therefore, I say, when you are giving an account of your runs, do not suppress any trouble you have experienced, but put it all down, and, if possible, say how such trouble was remedied. It will help other people, and help the manufacturers, who can then see more clearly where the faults in the car lie.

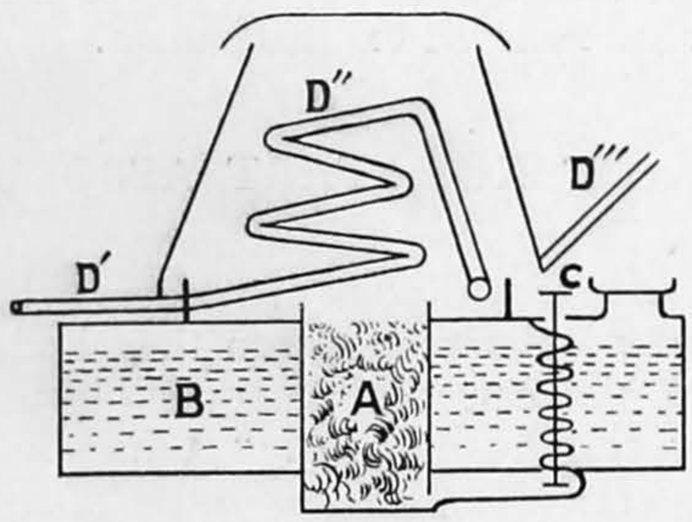
DUDLEY GRIERSON.

June 5th.

A DE DION STARTER.

[785.]—I have noticed the correspondence in your columns *re* difficulty at starting or restarting De Dion type and other spirit motors when, during a previous long run the lighter portions of the spirit had evaporated, the carburetter had again become cold.

The use of the apparatus herewith described would obviate this, and perhaps allow of spirit of rather higher specific gravity being used. The drawing is almost self-explanatory. A, tube packed with cotton wool. B, container for methylated spirit. C, valve



Elevation

Plan

admitting methylated spirit from B to A. D′, small tube leading from bottom of petrol tank so as to keep D″ always full of petrol. D‴, continuation of D″ leading to inlet pipe of engine above level of spirit (petrol) in tank.

Action: Press spring-closed valve C. This admits methylated spirit to A. (The cotton wool in A will always absorb the same amount of spirit whether B is full or nearly empty.) Light spirit in A by match pushed through automatic striker. The heat will vaporise petrol in D″, the vapour passing to engine and enabling it to start at once. The spirit in A will burn out in a minute or so, by which time the motor tank will be warm enough (from the exhaust coil) to keep things moving.

P. C.

M. WEIGEL'S CHALLENGE.

[786.]—Having just returned to town, I have been handed the issue of *The Autocar* for the 27th May, and find Mr. Jarrott's letter therein. I regret I did not see it during my stay in Paris, as I should have answered it previously.

My ignorance of this letter caused me to write the letter that appeared in the last issue of *The Autocar*, and, as will be seen, I have expressed a desire to meet Mr. Wridgway on the path.

Notwithstanding, I shall be pleased to race Mr. Jarrott from Purley to Brighton and back, and not wishing to take advantage of my two-speed gear, I will give Mr. Jarrott the concession of simply racing him, man and motor against man and motor, without any conditions at all, or with conditions, or any way he likes, so long as there be a race.

I am so tired of the subject that I will concede everything so long as there is some racing and not all writing.

I shall take the opportunity of writing Mr. Edge during the course of the week, and come to an understanding with him.

I trust, however, this second match will not prevent Mr. Wridgway meeting me on the path.

In the meantime, and until these two matches are over, I trust I will be left in peace until I ask for more, as I have had four different letters from four separate individuals, with four distinctly different types of machines, within the last ten days, each stating they can break the "Gailliardet" hour record, and want to race me. Why on earth do they not break the record and leave me alone? When I want more matches I shall take the liberty of asking you, sir, to publish them. So I hope my correspondents will have patience and not quite kill me with their attentions.

In the meantime, I can rest content with pending arrangements with Messrs. Wridgway and Jarrott.

D. M. WEIGEL.

[787.]—I have great pleasure in accepting M. Weigel's challenge for one hour's race at the Crystal Palace before the end of June, providing that he agrees to run it under the Motor Car Club's rules; and I am now endeavouring to arrange same with Mr. Baily, the hon. sec. of the Crystal Palace cycle track.

June 3rd. C. G. WRIDGWAY.

THE PANHARD AT THE CRYSTAL PALACE CONTESTS.

[788.]—Having had a number of enquiries as to why my Panhard carriage did not come in for an award at the above contest (Class D), it may be of interest to state that when rounding a sharp corner at high speed one of the chains flew off, owing to its being too slack (I had only arrived by road from Paris shortly before, and, being pressed for time, neglected to properly adjust them); I then had to stop to replace the chain, thereby being disqualified, and losing the medal. My time for the course, however, although I had to stop the car, dismount, replace the chain, and start again, was 6m. 59 3-5s., or but 27 3-5s. outside the winner's time.

I was afterwards courteously invited to "go for record" at the termination of the van trials, but a

marshal detained me at one of the stoppages to argue as to my disqualification, and it took a little time to convince him that I was not claiming a medal, but merely going for time. I was also considerably delayed by one or two vans that had not yet got clear of the course, yet my time on this attempt was 5m. 34 3-5s., being well inside the fastest time of the other cars that took part in any of the contests.

CHARLES S. ROLLS.

South Lodge, Knightsbridge, S.W.

BRITISH MOTOR LICENSES.

[789.]—On May 19th we received the following letter from the British Motor Co.:

R. Moffat Ford, Esq.,

The Motor Car Co., 93 and 94, Long Acre, W.C.

Dear Sir,—It has come to our knowledge that you are buying and importing into England machines fitted with De Dion motors, upon which no royalty has been paid to ourselves, and which are not properly licensed by or under our patents. As these machines, as you are no doubt aware, are specifically covered by patents and rights for which we have paid a very large sum of money to Messrs. De Dion and Bouton and others, we must ask you to supply us with an account and full particulars of all machines fitted with De Dion motors which you have imported or dealt in, and which have not been licensed by us for use in England, together with cheque for the amount due by way of royalty at the rate of £5 per motor, being our fixed royalty upon the same. We must also ask you to let us have a list of the persons in whose possession these machines now are.

We would point out that Messrs. De Dion and Bouton are able to supply by special arrangement with us their motors, which will have affixed a plate properly licensing the cycle or vehicle for sale and use in England.

We must ask you to let us have this information within a week from this date. Yours truly,

(Signed) THE BRITISH MOTOR CO., Chas. Jarrott, sec.

to which we replied:

Messrs. the British Motor Co., 40, Holborn Viaduct, E.C.

Gentlemen,—Your favour of the 18th inst., addressed to our Mr. Moffat Ford, is to hand. We have handed the letter to our solicitors, Messrs. Richardson and Co., 49a, Lincoln's Inn Fields, W.C., who will, if necessary, reply to it.

In the meantime we will ask you to write direct to these gentlemen should you have any further communications to make on the subject.

We are, yours truly,

THE MOTOR CAR CO., R. Moffat Ford, manager.

In spite of this reference to our legal advisers we received personally a solicitor's letter on the 4th inst. as follows:

R. Moffat Ford, Esq.,

The Motor Car Co., 93 and 94, Long Acre, W.C.

Dear Sir,—I am instructed by the British Motor Co., Ltd., to take proceedings against you for infringing their patent rights by using a motor covered by their patents in the United Kingdom, such proceedings involving the delivery up of the motor and damages for the infringement as well as costs. However, my clients authorise me to say that you can avoid these proceedings by paying to me here by Wednesday next at noon the royalty they charge for the use of such motors, viz., five pounds and ten shillings costs. Should you avail yourselves of this offer, which is made without prejudice, the motor must have affixed in a permanent manner, not to be removed or used on any other machine, and to their satisfaction, their plate (which will be supplied without charge), and showing that the machine is duly licensed by them.

Should I not receive the £5 10s. by the time stated I shall commence the proceedings without further notice, and if you wish to avoid the unpleasantness of personal service of the process, you can send me the name and address of a solicitor whom you instruct to accept service on your behalf.

Yours truly,

(Signed) A. S. RAMSKILL.

We do not wish to make any remarks on this matter; we merely avow our intentions of having the matter thoroughly thrashed out for the benefit of the British motor industry in general, and should any of your readers feel inclined to give us the benefit of their moral support when the proper time arrives we should be glad to hear from them.

Should such readers favour us with their communications on the subject they will have the satisfaction of knowing that they cannot fail in so doing to earn the gratitude of those who are genuinely concerned in the progress of the kingly sport of automobilism, including your humble servants

6th June. THE MOTOR CAR CO.

R. MOFFAT FORD, manager.

The Electric Vehicle Co., of New York, is arranging to place orders for the construction of two hundred more cabs. There are to be twenty-five of the ordinary coupé pattern, seventy-five hansom cabs, fifty full-extension broughams seating four persons each, and fifty threequarter extension broughams accommodating three persons each, the last two being new styles of vehicles. A new building in Forty-second Street, near Third Avenue, is to be used as a construction and repair shop, and a charging station is to be built down town and another on the east side, the company to operate one hundred vehicles from each station.

* * *

Says a writer in *To-Day*: "Motor cars seem gaining ground definitely. I know of one rich man who has put down all his carriages and horses, and invested in a perfect stud of motors of all kinds. A certain American millionaire who is renowned for his worship of the horse in almost every form of the *culte*, has taken to driving a motor car as a new excitement, and finds it pleasurable. The advantages of these machines, moreover, are especially beginning to be realised in the country. For long distances, or for bringing up load after load of luggage in the same day, they can, and no doubt will, beat the horse out of the field."

* * *

There is no doubt that the motor car is quite the coming craze. The rage for bicycling is over, and ice-rinking is quite out of fashion, having been relegated to the lower classes; while as yet there is no other amusement except the automobile to take its place. In Paris all the smart women seem to prefer to dispense with their horses, and here in London the Duke of Marlborough, the Duke of Manchester, and others seem to be doing all they can to start the fashion of the motor car. Not that it needs much starting, for a ball like that once set rolling will go very far, and by this time next year the motor cycle and the motor car will be everywhere seen.—*Vanity Fair*.

Flashes.

The latest automobile term in France is "chauffard," which is equivalent to the scorcher in cycling phraseology.

* * *

Adolph Fisher, of New York, and Kenneth A. Skinner, of Boston, have signed an agreement to ride a motor tricycle race between New York and Boston.

* * *

The McLachlan Gasoline Motor Co., of Adelaide Street West, Toronto, is a new concern in Canada which has begun the manufacture of gasoline motors for horseless carriages, etc.

* * *

Messrs. Rochet, Schneider, and Co., autocar builders, of Lyons, France, have just taken out a patent in respect of a new speed changing and reversing device for motor vehicles.

* * *

Messrs. Lehmann and Bros., the original makers of the British Association standard screw thread, will remove their works in a few weeks from Hampshire Street, Torriano Avenue, N.W., to Hampshire Works, Walthamstow.

* * *

La Société des Ateliers Dechamps, 31, Rue Frère Orban, Brussels (Nord), has taken up the manufacture of motor tricycles. The machines are equipped with a genuine De Dion motor of one and three-quarter horse-power.

* * *

The Twyford Vehicle Co., with a capital of £200,000, has been organised in Pittsburg, U.S.A., to manufacture automobiles. The company propose to erect a plant for the manufacture of autocars under the patents of Robert E. Twyford.

* * *

That well-known old racing cyclist, C. Terront, is keeping up with the times, for on the 17th inst. he is to attempt a record ride on a motor tricycle between Paris and Brest. In his time he was one of the most successful of long-distance cyclists.

* * *

An autocar service is in contemplation for Mablethorpe and Sutton-on-Sea, the popular East Coast watering-places, and to connect them with Alford. As both the other Lincolnshire seaside resorts have cars running, Sutton and Mablethorpe cannot afford to be out of it.

* * *

According to a French paper an electrical fire service waggon has just been completed at the works in Paris of the Etat Major des Sapeur-Pompiers. No details of the vehicle are so far available, except that it is expected to attain an average speed of fifteen miles per hour when carrying eleven firemen, hose, ladders, etc.

* * *

It is stated that Major R. P. Davidson, of Highland Park, Ill., U.S.A., is anxious to arrange with some firm for the construction of a motor gun carriage. He has been in negotiation with the Duryea Co. in America, but they "have not the time to undertake any experiments in this line." Here is a chance for Mr. F. R. Simms if he is able to devote the necessary time.

The Stirling County Council have taken up the question of regulating the speed of autocars within their jurisdiction.

* * *

Messrs. Dennis Bros., of Guildford, manufacturers of the "Speed King" cycles, have commenced to make motor cycles, and promise an autocar to carry two persons at an early date.

* * *

Some mechanics who have been unsuccessful in obtaining employment in the cycle trade, owing to lack of labour, have made their way to Paris to reap the benefit of the motor boom in that city.

* * *

Messrs. Simkiss and Knighton, of the California Engineering Works, Derby, who themselves are always glad to assist autocarists in their neighbourhood, have arranged for Messrs. Blunt and Evans, chemists, of Market Place, Derby, to keep a stock of Pratt's motor car spirit.

* * *

Lord Charles Beresford was ridiculed when he recently said that half the volume of carriage traffic consisted of the horses, but he was right. The cure of congestion is the use of motors without horses, and, of course, cycles. It is not speed that causes congestion, but the lack of it.

* * *

A motor carriage is now plying for hire as a public stage coach to and from Putney and Richmond. The fare is 6d. either way, and during the past (its first) week the patronage has been kindly. Whether a permanency will be established depends, of course, on the taste of a fickle public, a suspicious factor.

* * *

Mr. C. G. Wridgway, late of the Griffiths Cycle Corporation, who has taken part successfully in more than one motor cycle race, has been secured by Messrs. Pennington and Baines for a period of five years to manage their foreign sales department. As Mr. Wridgway has had considerable Continental business experience his services will no doubt be of the greatest use to his new firm.

* * *

USEFUL KNOWLEDGE.

Firing device—A field battery.
Suction valve—Bank Holiday.
Delivery valve—The G.P.O.
Starting arrangement—Getting a railway ticket.
Steering pillar—Lord Salisbury.
Working drawings—Wages on pay day.
Check valves—Police courts.
Spring arrangement—Similar to winter.

* * *

Mr. W. Miller-Metcalf, of Liverpool, writes: "In reference to the motor car service I have started between New Brighton and Seacombe, I received a letter in reply to my application for a license stating that the Health Committee refused to consider the same. I then made enquiries, and found that the Wallasey Urban District Council, not being a borough, do not control the highways. I am therefore applying to the county council for permission. I shall then apply to the District Council for an ordinary hackney carriage license, which I understand they cannot refuse." This may be of use to some of our readers.

THE AUTOMOBILE CLUB SHOW.

The particulars given last week of the Automobile Club driving competitions at the forthcoming show may be supplemented by the following:

The driving competitions will be held daily at 4 p.m. (not at 5 p.m. as already announced). As prizes the committee offer a silver cup to the amateur competitor who shall during the period of the show take most prizes in driving competitions, whilst prizes consisting of silver cigarette cases, match boxes, pencil cases, etc., will be given to the winner of each competition every day.

A novel competition will be the zigzag posts race. Open to amateur drivers in motor carriages (not cycles). To be run in heats of two. The two competitors to run over identical courses. The courses will consist of posts placed at varying distances, which have to be passed alternately on the near and off sides. Winner: The first in without a foul; or, if both foul, the one with least fouls; or, if fouls be equal, the first in.

Other competitions will be obstacle races for carriages and cycles, a backwards race, and a professional obstacle race.

Competitors are invited to attend the trial races, which will take place on the show ground at 4 p.m. on Friday, 16th June. Tickets for the admission of competitors to the rehearsal may be had by application to the secretary prior to the 14th June.

Trials of Private Motor Vehicles Belonging to Members of the Club.

The Show Committee, understanding that members who own private vehicles wish to submit them at the forthcoming efficiency, hill climbing, and speed trials, have decided that members shall be at liberty to enter vehicles for these trials under the following conditions:

1. That the vehicles shall be *bonâ-fide* private vehicles; that they shall be the property of the member entering them, and that he shall not be financially interested as manufacturer or agent or director in any company or firm connected with the manufacture of the vehicle entered.

2. That the fee for entry shall be one guinea per trial. That is to say, one guinea for the efficiency trial; one guinea for the hill-climbing trial; and one guinea for the speed trial.

3. That the vehicle entered need not be exhibited at the show.

4. That owners desiring that their vehicles should be entered for the special prizes hereinunder mentioned shall inform the secretary accordingly, in writing, on or before Saturday, 10th June.

5. That vehicles entered for the trials shall be submitted to the judges at the show at any hour during the period of the show which may be indicated to the owner by the secretary.

6. That, subject to the above, the rules on form K shall apply to the trials of privately-owned vehicles.

The committee have decided to offer the following special prizes for privately-owned motor vehicles:

1. A silver cup for the best privately-owned electrically-propelled motor carriage.

2. A silver cup for the best privately-owned steam-propelled motor carriage.

3. A silver cup for the best privately-owned oil or spirit-propelled motor carriage.

Carriages to be eligible for these awards must have been entered as private carriages for the trials, and must have satisfied the conditions of the trials. Further, they must weigh under one and a half tons unladen. Motor tricycles and motor quadricycles are not eligible for these awards.

Members are reminded that a special enclosure will be provided at the show for the accommodation of motor vehicles belonging to members of the club. The enclosure will be in close proximity to the track, and arrangements will be made for afternoon tea to be served to members and their friends in this enclosure.

The committee trust that owners of motor vehicles will arrange that their carriages shall stand in this enclosure as often as possible during the period of the show, even though the owners are unable to attend themselves, as it is desired that as large a display as possible of motor carriages should be in the enclosure at all times.

Motor vehicles which are left in the enclosure will be removed by the committee's servants at night and placed under cover.

THE MOTOR CAB TRIALS IN PARIS.

As the second annual motor cab trials in Paris are still in progress, it is preferable to reserve our opinions upon the performances of the vehicles until they are terminated, but, so far as they have gone, the Commission presided over by M. Forestier, chief engineer of the Ponts et Chaussées, who is indefatigable in carrying out his heavy task, has every reason to be satisfied with what has been done in improving the cabs and delivery vans during the past twelvemonth. It is true that there is nothing particularly new in the cars. In fact, on the first day it appeared as if the trials would be a trifle monotonous. The novelty of the thing had worn off, and there was nothing particularly exhilarating in going over the same three routes as last year, when every inch of the ground became engraved upon one's memory. But these trials are not intended to be pleasure trips. They are, indeed, desperately scientific. From this point of view they promise to be very instructive. Twelve vehicles are taking part in the trials, that is to say, three Jenatzy cabs and a delivery van by the Compagnie Internationale des Transports Automobiles, four Jeantaud cabs, a van by Mildé et Mondos, a Kriéger victoria, a Panhard cab and delivery van. The competing vehicles are, therefore, much the same as those of last year, with the exception of the Mildé et Mondos van, which appears in this competition for the first time, and the Panhard and Levassor vehicles, which have taken the place of the Peugeot cab.

The charging station for the electric vehicles is again situated at the Clément works at Levallois-Perret, where a shop has been specially set apart for them, and a very complete electric installation has been laid down. On the first day each car was weighed on arrival, and was then sent along a kilometre course to ascertain the speeds to be got with the different gears, after which they went to Mont Valérien, where the brakes were tested. This operation will again be repeated at the end of the trials, so that it will be better to delay giving the results until then. Up to the present the vehicles have been covering the

different routes under extremely satisfactory conditions. The cabs and vans have run more regularly, and have made faster times than last year, and mechanical derangements have been very few in number, and of little importance. The Jeantaud hansom, which secured first prize in its class last year, is the only vehicle which has had any accident, and some hours were lost in changing the motor, which had gone wrong, but the cab afterwards ran splendidly. The Panhard cab has carried off honours so far as concerns speed, for it has arrived first at the controle each day, but singularly enough the motor began to seize at the exact spot where the Peugeot cab had a similar accident last year. After a short rest and plenty of lubrication, the vehicle resumed its journey. The petroleum motor was remarkably economical. A great deal of economy has also been effected in the electric vehicle, not through any change in the mechanism, but rather through small improvements in detail. Unfortunately, the figure showing the consumption will not be communicated until some time after the trials, but we hope to be able to procure sufficient data to enable us to make a comparison between the results of this year's trials and those of last year.

THE CONTROL OF MOTOR RACING.

The following letter has been sent by the Automobile Club to the National Cyclists' Union, dated 30th May:

"Dear Sir,—Referring to your letters of the 15th and 17th inst., I am directed to inform you that the committee is meeting from time to time, and is carefully considering the rules affecting motor racing, etc.

"As the rules deal with a new form of locomotion the committee find it necessary to give them considerable thought, but as soon as the rules have been drafted a copy shall be forwarded to you.

"I am, dear sir,

"Yours faithfully,

"C. JOHNSON, secretary."

"The Secretary,

"National Cyclists' Union."

The Paris *Matin*, in all seriousness, declares that the real object of the promoters of the demonstrators on Sunday was to kidnap the President. In support of this statement it declares all the details of the plan had been carefully thought out, and a powerful autocar was in waiting near the racecourse in readiness to make off with the captured president at full speed.

THE LIVERPOOL SELF-PROPELLED TRAFFIC ASSOCIATION.

1898 TRIALS OF MOTOR VEHICLES FOR HEAVY TRAFFIC.

I have pleasure in appending a statement of the receipts and disbursements in connection with the above, duly certified by our honorary auditors, Messrs. Lloyd and Walker, Chartered Accountants, 5, Castle Street, Liverpool.

E. SHRAPNELL SMITH, honorary secretary.

Dr. **1898 TRIALS ACCOUNT.** **Cr.**

Statements of Receipts and Expenditure to the 13th May, 1899.

RECEIPTS.

	£	s.	d.
To Subscriptions	589	18	0
,, Entry Fees	35	14	0
,, Badges, Maps, and Diplomas	22	6	9
,, Light Carriage Tickets	80	5	0
,, Reports	45	10	2
,, Banker's Interest	1	5	2
,, Balance	47	9	2
	£822	8	3

EXPENDITURE.

	£	s.	d.
By Awards	225	0	0
,, Report, including blocks	113	13	6
,, Light Carriages	95	10	10
,, Printing and Stationery	88	6	6
,, Badges and Diplomas	50	19	6
,, Postages and Telegrams	49	14	11
,, Depots and Offices	41	1	1
,, Utensils and Equipment	36	0	6
,, Route Maps and Placarding	34	0	0
,, Advertising	22	8	10
,, Office Staff	19	7	3
,, Observers' Expenses	17	10	4
,, Hon. Sec.'s Travelling Expenses	17	10	0
,, Police Attendance	8	11	0
,, Bank Charges	1	15	3
,, Deficiency on Dinner and Entertainment a/c	0	18	9
	£822	8	3

*By Balance brought down—	£	s.	d.	£	s.	d.
Due to Hon. Sec.	35	3	10			
Account owing	11	5	4	£47	9	2

DINNER AND ENTERTAINMENT ACCOUNT.

	£	s.	d.
To Special Subscriptions	110	0	0
,, Dinner Tickets	67	4	0
,, Balance to General Account	0	18	9
	£178	2	9

	£	s.	d.
By Adelphi Hotel Account	150	13	9
,, Euterpean Orchestra	13	18	0
,, New Empire Theatre	13	11	0
	£178	2	9

LIVERPOOL, 26th May, 1899. Examined with the vouchers and found correct.

LLOYD & WALKER, Chartered Accountants, Auditors.

* There are on hand 220 reports, the sale of which will, it is estimated, defray the above deficit.

MR. J. T. THORNYCROFT ON THE LEGAL BAR TO BUILDING AUTO-WAGGONS.

At the Institution of Civil Engineers' Conference on Wednesday morning last a paper was read by Mr. Thos. Parker, M.I.C.E., on the relative advantages of different kinds of power for tramways, light railways, and motor-car traffic, both heavy and light. The motor-car and auto-waggon sides of the question were but lightly touched upon by the lecturer, but in the course of the brief discussion Mr. J. T. Thornycroft, F.R.S., drew attention to the difficulties which at present surrounded the design and construction of motor waggons for the carriage and haulage of heavy loads. Mr. Thornycroft was of opinion that the economy of the self-propelled vehicle for the carriage of goods was in proportion to the useful load carried, and he was regretfully brought to the conclusion by the results of a considerable experience gained during the past few years, that it was very difficult, if not impossible, to construct an auto-waggon capable of transporting a useful load of from three to five tons which should not exceed the present legal tare of three tons.

In the matter of heavy loads it was pretty generally conceded that economy was on the side of steam, and as it was also highly desirable to construct transport waggons having a load capacity of more than from three to five tons, it was regrettable to be forced to the conclusion that it was impossible to do this with the law in its present position. To conform to the statute, even in relation to vehicles capable of carrying three tons, it has been found necessary to make considerable employment of such expensive materials as aluminium, nickel, and other high-grade steels, and special alloys, in connection with the highest class of workmanship throughout. The first cost is thus much higher than is at all desirable, and even by resource to the above expedients it is more than difficult to keep within the present limit of weight. Mr. Thornycroft pointed out that so far back as 1832 a House of Commons Committee reported that "as they," *i.e.*, steam coaches, "admit of greater width of tyre than any other carriages, and as the roads are not acted on so injuriously as by the feet of horses in common draught, such carriages will cause less wear of roads than coaches drawn by horses."

Mr. Thornycroft was strongly of opinion that, in lieu of fixing a definite tare limit for transport auto-waggons, it would be infinitely more reasonable and useful to define a maximum load per inch width of wheel tyre, and he cited the example of the most successful makers of heavy steam-driven vehicles in France, where no regulations of tare limit, speed, or number of vehicles, hampered them, and who had a ratio of tare to nett (or weight of vehicle: useful load) of from about one and a half to three for passenger vehicles. Mr. Thornycroft was of opinion, after considerable experience, that an entirely satisfactory steam-propelled vehicle to carry three tons useful load could be built to a tare of four tons, and maintain a commercial speed of six miles an hour with ease.

Mr. Thornycroft was inclined to an an amendment of the law in the following terms: "For five-ton loads carried on one vehicle at tare not exceeding four and a half tons; if on two vehicles, tare not to exceed five and a half tons, or, as suggested above, make the tyre width a factor of the axle load. At Chiswick the Steam Carriage and Waggon Co. had built a number of vehicles under the present existing difficulties, and they had proved successful, but, nevertheless, such an alteration of the statute as he suggested would greatly facilitate the construction and further introduction of heavy-load auto-waggons. The steam dust carts built by them for the Chiswick vestry had done excellent service during the past two years, and a vehicle of their own, which had commenced running in daily work so recently as January of this year, had already covered 3,000 miles on the road, and performed 8,500 nett ton miles at an absolutely inclusive total cost of threepence per nett ton mile.

When the desired alteration in the law came about, as all hoped it would very shortly, auto-waggons for heavy load transport would at once become producible on a large commercial scale, at prices satisfactory to buyer and builder.

DISPUTE ABOUT ELECTRIC BATTERIES.

In the Queen's Bench Division of the High Court of Justice, on Friday last, the case of the Headland's Patent Electric Storage Battery Co., Ltd., v. Lehwess was before Mr. Justice Ridley.

It was an action brought by the plaintiff company, whose registered office is 12, Pall Mall, S.W., against Dr. Edward E. Lehwess, of 10, Clanricarde Gardens, W., to recover the sum of £95 17s. 6d., the price of fifty horse-power type No 3 traction cells, and oak-containing boxes and rollers, and for five containing boxes and fusing connections. The defendant alleged that the plaintiffs never sold to him, and that he never bought from the plaintiffs the goods in question. He also alleged he agreed with the plaintiffs that they should lend him, free of charge, on behalf of the Association, a set of accumulators, which were to be according to specification, and which were guaranteed to give off one hundred and ninety ampères, and such accumulators were to be tried for one month on a certain carriage then being constructed for the Association, with a view to the Association purchasing them, if, on trial, they were found to be satisfactory and according to specification. Defendant further pleaded that the accumulators were unsuitable for the work required, and instead of giving off one hundred and ninety ampères, only gave off one hundred and five, and the Association then offered to return them, but the plaintiffs refused acceptance.

The Judge, after hearing the evidence, gave judgment for the plaintiffs for the full amount claimed with costs.

A stay of execution was granted for a fortnight on the defendant giving notice of appeal within that period.

THE UNIVERSAL MOTOR CARRIAGE AND CYCLE CO.

Winding-up Petition Dismissed.

The affairs of the Universal Motor Carriage and Cycle Co., Ltd., were before Mr. Justice Wright in the winding-up branch of the High Court on Wednesday last, the petition being presented by a shareholder, Mr. E. J. Morris, who asked for a compulsory order.

Counsel stated that the company was formed in June, 1896, with a capital of £200,000, of which £119,000 had been issued, and £103,000 had been paid up. The company was formerly called the British Motor Carriage and Cycle Co., but they were restrained from using that name, and "Universal" was substituted for "British." The ground of the application was that no meeting of the company had been held since the statutory meeting, nearly three years ago; no balance sheet had ever been shown, and the accounts had not been submitted to the auditor since 1897. Petitioner also said that the company had no assets except some letters patent, which were of no value, and that it had suspended business more than a year ago. £16,000 was alleged to be due in respect of calls.

He was supported by another contributory holding fifty fully paid shares.

Counsel for the company opposed the application. The secretary had filed an affidavit stating that the reason why no general meeting had been held was that litigation was pending between the British Motor Company and the Universal Company, and the directors were not in a position to say if their assets were of any value. Mr. Justice Stirling had decided partly in favour of the Universal Company, and negotiations were now pending which might result in the sale of the patents of the company held by the Courts to be good. It was incorrect to say that the substratum of the company had gone. The directors had held meetings, and it was neither just nor equitable that the company should be wound up.

His Lordship, in giving judgment, said it was a singular case. The evidence was flatly contradictory, but he must believe the evidence of the secretary of the company. It was true no business had been carried on during the whole existence of the company, as it had been involved in a struggle for its life. It had to fight an action, during the continuance of which it could not possibly do any business. That litigation ended, partly in its favour, towards the end of last year, and he was told that there was a possibility of the company being able to make some arrangement for carrying out the objects for which it was constituted. Under these circumstances he did not think the holder of fifty fully paid shares should say that the venture should be terminated. No doubt the petitioner had his grievances. He ought to have been more fully informed than he was, but it was too soon for him (the judge) to take upon himself to say that the company not only had no business, but never had any. It ought to have a fair chance. Therefore, he would dismiss the petition, but without costs. Another reason for dismissing it was that he did not think the petitioner would get anything by a winding up.

Answers to Correspondents.

J. BROWN.—We have not overlooked the matter, which is only awaiting the necessary space.

E. F. K.—Pretty full particulars are given in this issue as to when and where the trials will take place..

P. HAMILTON.—You have our best thanks. We are pleased to hear of your satisfaction with autocaring.

H. RAVENSHAW.—You will notice your query is fully answered by our legal expert in another part of this issue, as it raises a point of general interest.

P. B. HUTCHINSON.—Very many thanks. One would scarcely imagine that such ignorance and prejudice could exist in these so-called "enlightened" days.

J. A. C. (Sleaford).—Many thanks for your letter. We shall be very much interested to hear how you get on with the new car, and shall be glad to have your experiences.

J. H. I.—We do not know of anyone in Great Britain who is at present making a small steam car of the type named. The Americans are already going into this pretty extensively, and the cars have been described in recent issues, though none of these seem suitable for more than two people, and have not yet appeared on this side of the Atlantic.

P. C.—We think the best book you can obtain is "The Gas and Oil Engine," by Dugald Clerk (Longmans, or from our publishers, 15s.) It is not absolutely up to date, as we believe the last edition is some two years old. For all that it is the best you can get at the moment, and you will no doubt be thoroughly well acquainted with what has been done since. We have inserted your letter, as we think the matter is one of considerable interest.

W. M. MORRIS.—(1.) It certainly ran rather more smoothly, but, of course, it was not a lengthy trial which we had, and it is impossible to say whether a machine is better or worse than another without one has had both in one's own hands for a considerable period. The impression all round is that it is better. (2.) The one we tried was not quite so noisy. (3.) These were made by the firm themselves. (4.) This we are not at present at liberty to answer, as the matter has been confided to us on the strict understanding that we should not mention it until permission was given to do so.

Miscellaneous Announcements.

All advertisements inserted in this column must be strictly prepaid.

Under this head we are prepared to insert advertisements of autocars and other goods for sale, situations vacant and wanted, patent rights, partnerships, businesses for disposal or wanted, and other miscellaneous announcements of a like character. The charge for each insertion is 2s. 6d. for thirty words or less, and 6d. for every six words or less in addition, and a discount is offered of one free insertion in a series of thirteen, i.e., a 2s. 6d advertisement will be inserted thirteen times for £1 10s., etc. All advertisements or series of advertisements inserted in this column must be strictly PREPAID, *and must reach* COVENTRY *not later than* MIDDAY *on* WEDNESDAY *to ensure insertion.*

Numbered Addresses. *—For the convenience of advertisers, letters may be addressed to numbers at* THE AUTOCAR *Office. When this is desired, 2d. will be charged for registration, and three stamped and addressed envelopes must be sent for forwarding replies. Only the number will appear in the advertisement. Replies should be addressed "No. 000, c/o* THE AUTOCAR, *19, Hertford Street, Coventry," or if "London" is added to the address, then to the number given, c/o* THE AUTOCAR, *3, St. Bride Street, Ludgate Circus, E.C.*

Deposit Department.—*Persons who hesitate to send money to unknown persons may deal in perfect safety by availing themselves of our Deposit System. If the money be deposited with* THE AUTOCAR *both parties are advised of this receipt, and upon intimation of the arrival and acceptance of the goods, the money is forwarded less a charge of 1s. for registration, and a deposit fee of 1¼ per cent. on the value of the transaction. All deposit matters are dealt with at Coventry.*

All advertisements inserted in this column must be strictly prepaid.

SITUATIONS WANTED AND VACANT.

GOOD all-round Mechanic, experienced in tube and electric-ignited motors, and driving same; certificates for advance machine drawing, good testimonials, offers services.—Apply P., 51, Hampton Street, Birmingham.

THE SHARE MART.

WILL accept £50 for 349 deferred shares in the London Motor Van and Waggon Co.—No. 1,500.

WHAT offers for fourteen ordinary and 341 deferred shares in the London Electric Cab Co.?—No. 1,499.

FOR Sale.—Ten £10 shares in the Daimler Motor Co. Wanting immediate cash, will accept £45. No. 1,498

AN opportunity for speculation.—Advertiser is open to consider any reasonable offer for 150 British Motor Co. ordinary shares; 100 preference (five per cent.) and 100 four per cent. debentures.—No. 1,501.

CARS, &c., FOR SALE AND WANTED.

WANTED, to hire a De Dion tricycle for a week or so; would purchase if satisfactory; advertiser understands the working; state terms.—DR. BEESLEY, Exeter Road, Exmouth.

WANTED, to purchase motor car, to carry two or three, with hood preferred, spirit engine, and electric ignition, must be in good order, solid tyres; not motor cycle.—Write, full particulars and price, J. E. STEVENSON, Timber Merchant, Derby.

WERNER Motor Bicycle to be sold, cheap, perfect order.—Apply FRANK F. WELLINGTON, 58, Rosslyn Hill, N.W.

ROOTS and Venables' latest paraffin car, to hold two; to be sold, £100.—Apply FRANK F. WELLINGTON, 58, Rosslyn Hill, N.W.

MOTOR Char-à-banc, by Daimler, or can be used as a lorry, will carry twenty persons; to be sold cheap.—Apply FRANK F. WELLINGTON, 58, Rosslyn Hill, N.W.

DAIMLER Waggonette for sale, quite equal to new, very fast car, to carry four or six; to be sold cheap.—Apply FRANK F. WELLINGTON, 58, Rosslyn Hill, Hampstead, N.W.

ONE Daimler 5½ h.p. Delivery Van, fitted with spare pleasure body, winner of silver medal Crystal Palace, new in August; to be sold cheap.—Apply FRANK F. WELLINGTON, 58, Rosslyn Hill, N.W.

TWO Benz Cars, to carry two persons, in working order; one the winner of the gold medal at the Crystal Palace. Call and try them. Free trials to buyers.—Apply FRANK F. WELLINGTON, 58, Rosslyn Hill, Hampstead, N.W.

PANHARD and Levassor Motor Waggonette, to carry eight persons, fully licensed as a stage carriage to run in London, quite equal to new, a rare chance; to be sold cheap.—Apply FRANK F. WELLINGTON, 58, Rosslyn Hill, N.W.

DAIMLER Waggonette, nearly new, seat six, handsome car; £300, 5½ h.p. (Kent).—Apply No. 1,537, *The Autocar* Office, Coventry.

FOR Sale, Bollée, in splendid condition; very powerful. Can be seen and tried by arrangement.—Apply C. HATHAWAY, Avondale, Stoke Park, Coventry.

DECAUVILLE Car for sale, to seat three, nearly new, little used, very handsome, pneumatic tyres.—SIMKISS AND KNIGHTON, Engineers, Parliament Street, Derby.

1899 Beeston Quadricycle, for two riders, Dunlop tyres, almost new, having been ridden only about 100 miles; good reason for selling; bargain.—PRINCE, 198, Stretford Road, Manchester.

INTERNATIONAL Phaeton for sale, or exchange for large car; only reason for selling, not large enough for use; can be tried any time.—F. PARKER, Motor Car Works, High Street, Slough.

GENUINE De Dion motor tricycle, new twelve months ago; for sale cheap.—Particulars of "A" DEPARTMENT, Cycle Components Manufacturing Co., Ltd., Componentsville, Birmingham.

BOLLÉE, with or without canopy, exceptionally fast and powerful, bargain; also a De Dion Motor Tricycle, quite new, and cheap. Trials solicited.—MOTOR AGENCY, Ryley Street, Coventry.

SECOND-HAND International Car for sale, cheap, three h.p., fitted with new Connolly tyres, about two years old; can be seen and tried. What offers?—SPEEDWELL MOTOR CO., Reading.

FOR Sale, Coventry Socialette-Bollée, with phaeton body, to take two, condition as new; trial by appointment; offers, as owner has purchased a large car.—C. E. GREENALL, Walton Hall, Warrington.

MOTOR (2 h.p. alternating), by Langden Davies, to suit 100 volt circuit, with starting switch and resistance; has never been used; £20.—ILIFFE, SONS & STURMEY LTD., *The Cyclist* Printing Works, Coventry.

BEESTON Motor Tricycle, tube ignition, double front forks, extra petrol tank, mudguards, cyclometer, clutch to detach motor from tricycle; £50, perfect condition, seen any time.—ARTHUR BLYDE, 24, Milton Street, Sheffield.

1899 International Benz Dogcart, Brampton chain, Connolly tyres, automatic chain lubricators, regulating lever, plated top rail, fast and powerful car; £150, free trial.—JOHNSON & SON, St. James Street, Lynn.

BENZ Ideal, £95; 1¼ h.p. Beeston tricycle, electric ignition, £45; 1¾ h.p. De Dion motor tricycle, £68; carrier, suit tradesman, with box, without motor, pneumatic tyres; £14 10s.—COBORN CYCLE AND MOTOR CO., 363, Mile End Road, E.

DAIMLER Phaeton for sale, 5½ b.h.p., near to new, will take any hill, has been running in Lake District and Derbyshire; fittings, electro silver-plated; upholstery, best morocco; owner purchasing more powerful car.—Can be seen at our London Showrooms, 219, Shaftesbury Avenue, London, W.C.

THE Motor Car Company, 93 and 94, Long Acre, London, W.C., are the great British and International market and exchange for the disposal of motor cars and motor cycles of every make and description. Among those motor cars in stock to be seen and tried at any time are the following: 8 h.p. twin Daimler motor waggonette phaeton, most luxuriously fitted and equipped, speeded to thirty-five miles an hour, £500; very fine sporting phaeton, with Daimler motor working up to 5½ h.p., £260; genuine German Daimler Victoria, with hood, exceedingly pretty and useful little car, no chains or cog gearing, £200; 6 h.p. Benz Victoria, with luggage carrier, and many improvements, £180; very fine Modèle de Luxe dogcart phaeton, with spare tanks, lamps, and various improvements, £160; Decauville car, to carry two, with spare seat for third party, almost new, with all tools and accessories, takes the Savoy Hill with three people, geared up to seventeen miles an hour, £160; absolutely new De Dion motor quadricycle, Express Parisienne, with all tools and accessories, £112; second-hand De Dion quadricycle, convertible into tricycle, very fast car and good hill-climber, lamps, spare tank, automatic lubricator, and all accessories, £85; absolutely new De Dion tricycle, with all latest improvements, £75. Other cars are continually arriving; write for latest illustrated price list; cars received *en dépôt* for exhibition and sale; testimonials from delighted clients all over the country; all tools, accessories, spare parts, etc., supplied and kept in stock; skilled engineers sent anywhere to teach or repair. Telephone, 2,771. Gerrard.—THE MOTOR CAR COMPANY.

GENERAL TRADE ANNOUNCEMENTS.

TRANSFERS for Autocars.—Write for sketch (free) and prices, enclosing wording, to ILIFFE, SONS & STURMEY LTD., Coventry.

JULIUS HARVEY & Co. supply steam, oil, and electric motor vehicles of every description; illustrated catalogues on application.—11, Queen Victoria Street, London, E.C.

PLATINUM used ignition tubes wanted, and platinum scrap of all kinds purchased, best prices, by DERBY AND CO., 44, Clerkenwell Road, London, E.C. Established 1797.

PATTERN and Model Makers.—We have had a large experience in motor work; light patterns a speciality; brass and aluminium founders.—GOODWIN & SON, 16, Charles Street, Hatton Garden, E.C.

THE King quadricycle (convertible), seats two, £105; the King tricycle, £80; King's P.T.S. autocycle (seats two), £84; leather suits, combination waterproofs, densimeters; agents wanted.—THE KING MOTOR CAR CO., 70A, Rye Lane, Peckham.

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