THE AUTOCAR

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

EDITED BY H. WALTER STANER.

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THE AUTOCAR.

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"THE AUTOCAR" SUBSCRIPTION RATES.

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Notes.

Unofficial Trials.

Last week we referred to a single day run round the Metropolis which was being promoted under the title of a trial. We should have criticised the scheme more harshly than we did but for the fact that it was promoted by a paper dealing to some extent with motor car matters, and we always endeavour if possible to avoid criticising the policy of a contemporary unless we can refer to it in terms of appreciation. However, this trial is sufficiently mischievous for us to depart from our regular practice, as our objection to it is based entirely upon the fact that it is run by an unauthorised body. We do not care who or what that body may be; if it is not the Automobile Club, or a thoroughly representative society of the whole of automobilism, it should not promote motor trials, more particularly a trial which is only one in name so far as any possibility of detecting wearing qualities is concerned. The Automobile Club is very greatly to blame for not having decided to disqualify every participant in the first unofficial trial which has been attempted since the Automobile Club has become the recognised promoter of reliability runs in this country. As, however, it has chosen to permit the attempts to carry out the drive round London, to continue it will be its own fault if other unofficial and equally useless drives are promoted by all sorts of people for purposes of self advertisement. As to the methods which have been pursued by the promoters of the run, we can only describe them as ill advised, the one idea apparently being to coerce unwilling participants into taking part in the drive. Well-known makers are stated to be starting, or likely to be entered, though the makers say they are not competing; the Society of Motor Manufacturers and Traders has expressed its disapproval of unofficial trials, and yet the thing is forced on in the hope that a sufficient number of cars may be collected to prevent the affair from being an open failure, the idea seemingly being that if the people responsible for the manufacture or sale of a few small cars can somehow be persuaded into entering, others will also do so rather than let their competitors obtain such publicity as may be attached to earning a high score in an event, participation in which is equivalent to an admission that the 1,000 miles club trial is too much of a real test for a car designed for a man of modest income.

Public Conveyance—A Prophecy.

Probably no one has given more attention to the question of motor cars as the rival of the electric tram with its costly railway than Mr. George Barker, the well-known consulting engineer of Birmingham. In this his efforts have been most ably seconded by Mr. H. Barker Lake, from whose pen an article is published in *The Autocar* this week. It sets forth the claims of the motor car running on an ordinary road against those of the electric tram car on a specially prepared tramway more plainly than they have ever been presented before. Although the article is a short one, it represents an immense amount of research and enquiry. While discussing the subject, it will not be without interest to give Mr. George Barker's utterances, which many people who do not understand the matter fully will regard as far fetched, though we think they might more rightly be described as prophetic. Mr. Barker says: "It is becoming apparent to engineers that the ordinary railways will in time only deal with goods traffic and fast through expresses, and that the local passenger service will be on light railways driven by electricity, and principally running along or at the side of main roads, from town to town, while the city service will cease to be trams and become motor 'buses—first, on account of the ever increasing tendency of the public desire to be set down at their doors, which will be more nearly accomplished by 'buses; secondly, because of the much smaller outlay and larger profit. With a

thorough 'bus service nearly every street could be traversed within a radius of four miles of the centre of the city, which would enable people to reach home or town more quickly and easily, and the number of passengers carried would be greater, as some people would then be carried who live between two tram routes, and find it just as quick to walk into the city by a near cut as to walk a distance and then take tram. The cost of an electric tram service for Birmingham will cost more than three times what a better service of motor 'buses would, and although the outlay for the latter is so small, it would pay proportionally twelve per cent. against six and a half per cent. of the former. Moreover, it would save most of the trouble about street widening for double tracks, and gradients too steep, that is at present the puzzle before the Aston Council, as the 'buses would take up less room, and would easily mount any gradient in the principal streets of Aston or Birmingham." The costs given by Mr. Barker refer entirely to Birmingham, where the question of tram *v.* motor is at the moment a burning one, but they apply equally to every great centre of population, in which thousands, or millions, as the case may be, have not yet been lavished on the construction of street railways. At the present time it is not so much a question of merit as of capital. There are enormous interests behind the electric tram, both from the manufacturing and, to coin an expression, promotorial point of view, and the consequence is that the autocar does not have a fair chance. Up to the present, only very small undertakings have been started, most of them hampered by lack of capital, and all of them by want of experience. If a really large system of public motor 'bus services can be started in a great centre of population with a sufficiency of capital and intelligent management, we know that the results will be so generally satisfactory that the public service movement from a motor car point of view will be upon an entirely different footing from that which it now occupies. There is one point which has been brought up by Mr. Barker Lake which should not be missed —that for the same capital outlay many more motor cars than trams can be provided. This means much greater convenience for the public.

The Policy of the Club.

The further announcement which we give this week about the progress of the proposed federation of the provincial automobile clubs shows that the matter is being gone into more deeply than it was when the subject was first considered by the provincial clubs in the early part of this year. In other words, the club, instead of increasing its hold upon the provincial organisations, appears to have lost ground. This is a very great pity from every point of view, and we hope the significance will not be lost upon those responsible for the direction of the policy of the club. We would be the last to infer that the club did not endeavour to meet the country clubs fairly, but the fact remains that they have not succeeded in giving the satisfaction that is necessary to effect a complete amalgamation between the parent club and the local clubs. It would also appear that the clubs have not all of them been treated in precisely the same way; and as it is greatly to be desired for the benefit of automobilism as a whole that close union should exist between the national and provincial bodies, we urge that the Automobile Club should make a further special effort to work in sympathy with the whole of the county clubs. Had it been thoroughly successful in doing this in the past no federation would have been proposed; consequently, it is obvious that

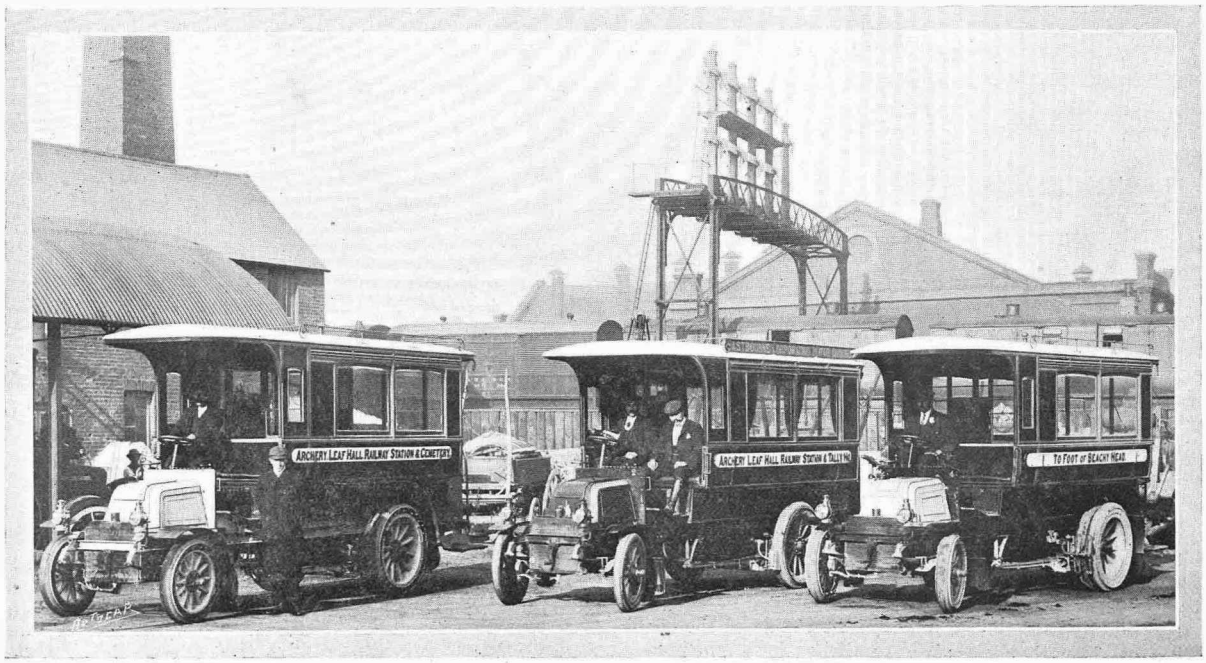


Photo. *G. & R. Lavis, Eastbourne.*

EASTBOURNE MOTOR 'BUSES. The three Milnes-Daimler omnibuses which are being run by the up-to-date Eastbourne Corporation in place of the old horse vehicles. The photograph from which our illustration is reproduced was taken at the Corporation yard before the vehicles started on their day's runs. Appropriately enough the L. B. and S. C. Railway yard forms the background to the picture.

the policy cannot have been altogether what was wanted, and we commend its further and most careful consideration to the club. This brings us to another point, and that is the club *Journal*. A good many criticisms have been uttered as to this of late, and it must be confessed that all of them have not been groundless. At the same time, they would not have been heard had the club *Journal* been nothing more than a club organ for the use of the membership as a whole and the membership only. Strangely enough, the *Journal*, though ostensibly for the benefit of club members, is publicly offered for sale; and, consequently, those who criticise it naturally regard it as a motor paper, and not a club gazette. In its present form it is carried on at a heavy loss, and we think it would be far better if it were to restrict its scope entirely to dealing with matters directly of interest to the club as a club. In fact, there is no doubt that the *Journal* in its earlier form, when it was issued when required and not weekly, whether wanted or not, was more nearly in accordance with the members' tastes. At the same time, there are objections to irregularity of issue, but it is a matter well worth consideration whether once a fortnight would not be quite sufficient for all club purposes. Possibly once a month might be found often enough, though we are doubtful as to the advisability of so long an interval as this between the appearances of the club organ of so virile a movement.

USEFUL HINTS AND TIPS.

Laying up a Car for the Winter.

Many correspondents have written us asking for information as to the best methods to employ to ensure the protection of a motor vehicle which is to be laid up for perhaps several months during the winter. As this is a subject which will perhaps be of interest to many of our readers—though the number of automobilists who put their vehicles away for the winter is comparatively small—the methods of protecting the various component parts of an autocar will no doubt be a benefit to many.

The First Step.

When the car is brought in after its final run, and the preparations for putting it away are commenced, the first thing to be done is to remove the cushions, aprons, motor horn or bell, and all the tools and spare parts. The accumulator should be taken from its box, and it would be advisable to remove the coil and all the wires connected with the electrical ignition apparatus. When doing this a rough sketch should be made showing the method of wiring, as when these parts have to be replaced, it is as well to have a definite guide by one, for in the interval between the putting away and bringing out the car, it is the easiest thing in the world to forget the terminals to which particular wires should be connected.

Cleaning the Car.

The vehicle as a whole should then be thoroughly cleaned, and the body washed by means of a hose pipe with a slow running stream, or by pouring water over those parts which require such treatment. A swift jet of water from a hose has a very bad effect on the painting, as it tends to drive any particles of grit into the surface of the varnish, thus destroying lustre. The same applies to dashing water violently from a bucket on to such painted parts. After well washing, the water should be dried up by means of a soft sponge, and then the whole polished with a soft chamois leather. Particular attention should be given to corners and crevices, seeing that the water which may lodge there is absorbed, and such parts well dried.

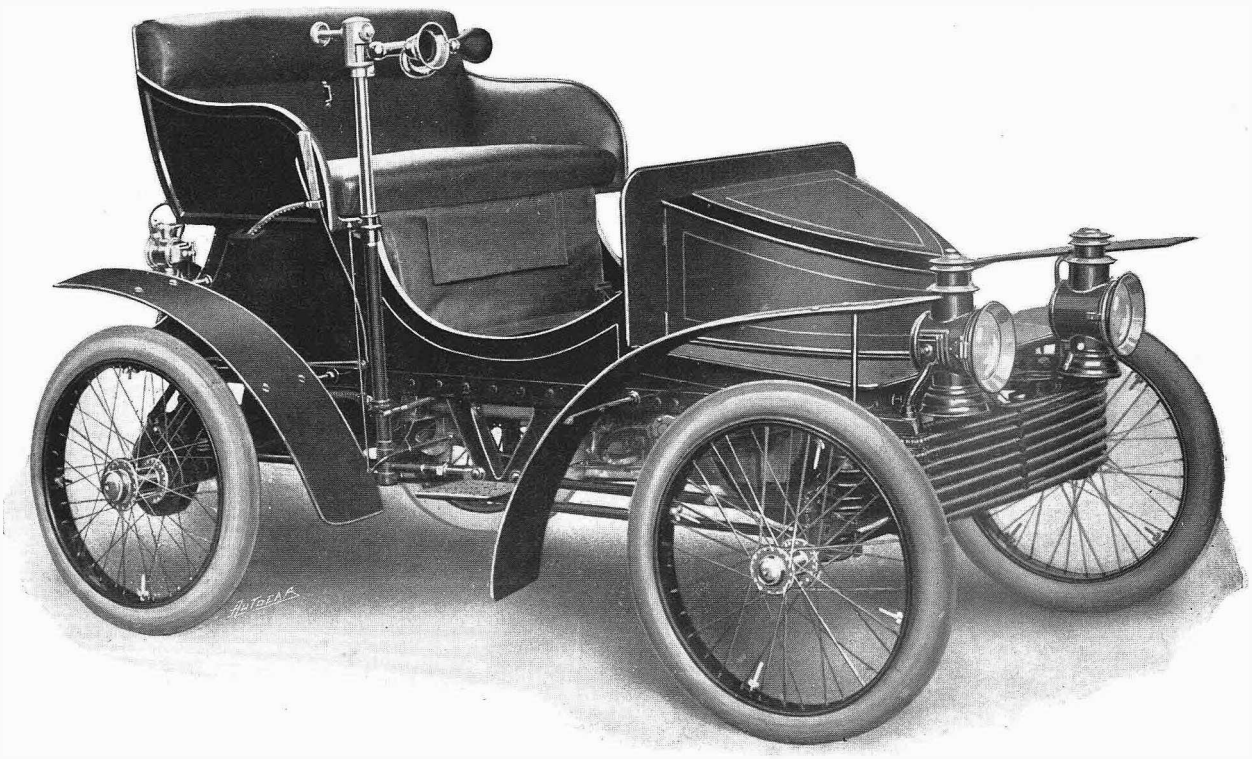
As to the metallic parts, the best treatment for these is to go over them with a painter's brush and paraffin, afterwards wiping the parts so treated with a soft cloth.

Tyres.

The tyres should be removed from the wheels, the air tubes carefully examined and tested, and if found to be in good condition they should be treated to a liberal supply of French chalk, and put into a bag or box, and stowed away, preferably in a dark room where an even medium temperature obtains. The covers themselves should be very carefully examined, and all cuts, whether large or small, should be probed and cleaned out, and then solutioned up. If this is not to the liking or beyond the capabilities of the owner, the tyres might be sent to the manufacturers for general overhauling and repairs. This would really be the most satisfactory procedure. For the storage of the outer covers of the tyres, the same conditions apply as to the inner tubes. As their bulk is very much greater than that of the inner tubes, the most handy method of protecting them for storage is to bandage them round with strips of canvas. Some time ago we had occasion to lay by a set of motor car tyres, and instead of using French chalk for the outer covers, we used flowers of sulphur in a very liberal manner. After the tyres had lain by for some four months or so, they were brought out, and looked as fresh and as good as ever. Not only so, but they showed no signs whatever of hardening or cracking, and retained their elasticity to the fullest degree. This was probably due to the fact that sulphur is the principal component used in the vulcanisation of indiarubber. It is noticeable as a general rule that in course of time the sulphur exudes from the rubber, leaving it in a very spongy form, thus allowing air to enter. This hardens the material, so that it eventually breaks up into small patches. We tried the sulphur, therefore, as a matter of experiment on the theory that sulphur thus applied to the outside of the covers would prevent that which was contained in the substance of the rubber itself from working out. We were pleased to note that this theory was borne out in practice. If it is not convenient to remove the tyres from the wheels, then the car should be jacked up and packing put underneath the axles, so that the wheels may be kept well off the ground.

(To be continued.)

THE 5 h.p. VAUXHALL LIGHT CAR.



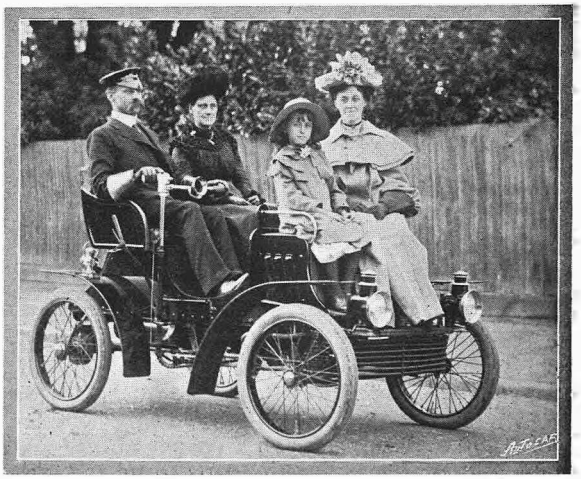
A complete Vauxhall two-seated light car.

THIS cleverly designed, cheap, and well-made little car was frequently met with during the recent thousand miles trials, and on all occasions upon which we have had this car under observation it has behaved exceedingly well. The aim of the designer has been to produce a light car propelled by mechanism of the simplest character, controlled in the simplest manner, and we fancy the reader who peruses this illustrated description to the end will agree that he has succeeded in obtaining his objective to a great extent. The car comfortably accommodates two passengers, and allows ample space for baggage beneath a portion of the seat and upon the rear platform. The illustration above, reproduced from a photograph, shows the little car as it takes the road, but to gather an idea of its constructive and propulsive economy it will be necessary to follow the lettered drawings and the explanatory text which accompanies them. Fig. 1 is an elevation of the car, by which it will be seen that the frame is formed by the side panels or members of the body, which are stiffened for such service by sheet steel flitch plates. The motor is a 5 h.p. horizontal, governed, and water-cooled, set with the cylinder breech rearwards, partly under the sloped footboard, and partly under the bonnet, as seen in the chassis plan (fig. 2).

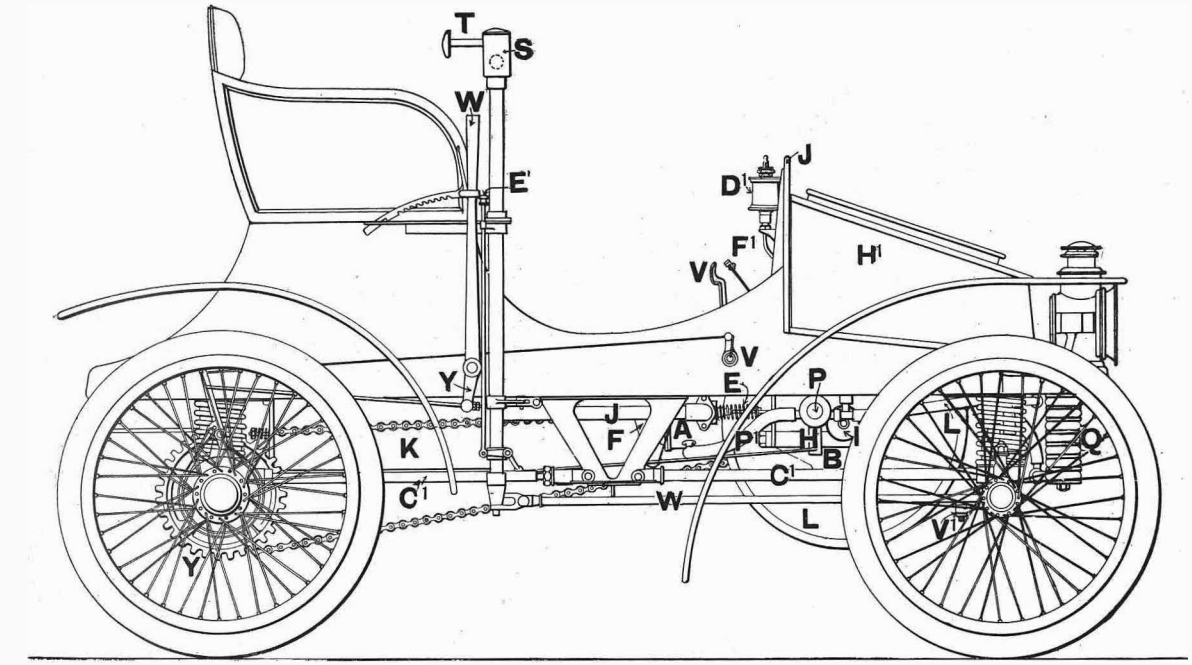
The cylinder has a 4in. bore and 4¾in. stroke, the crankshaft running across the frame and projecting on the near side sufficiently to form an extension for the application of the starting handle. The engine and crank chamber are carried by the two angle iron bearers seen stretching across the frame.

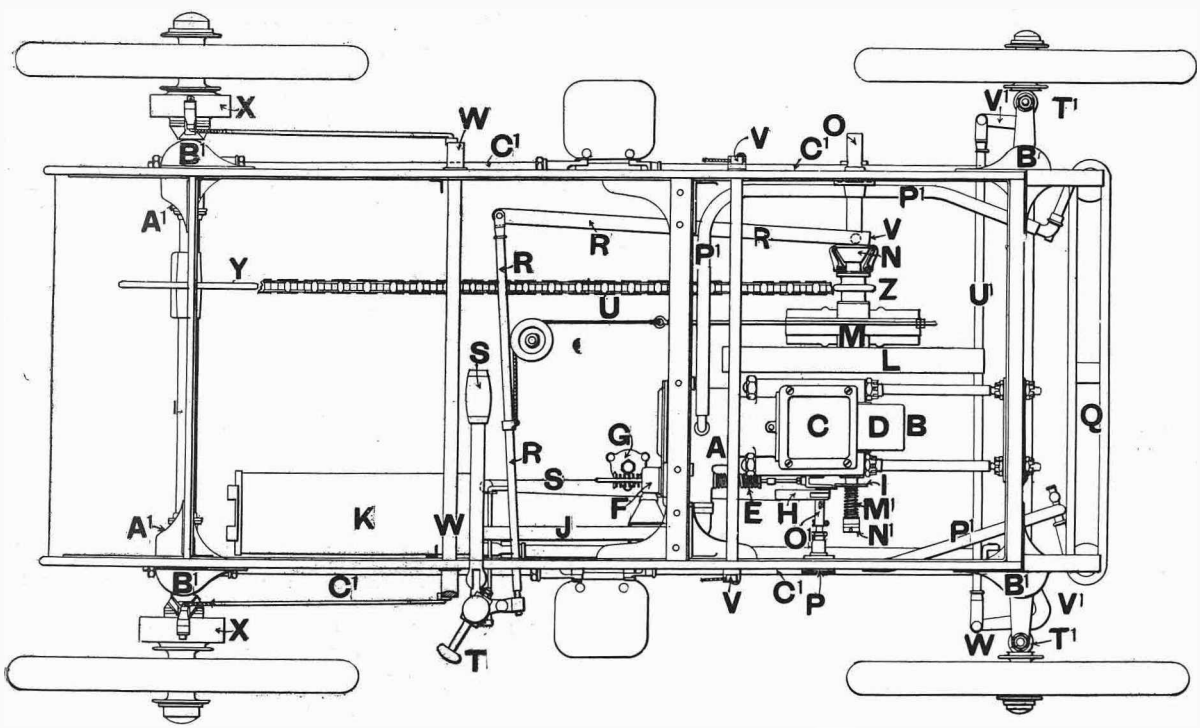
The frame is supported on the axles by spiral springs, which have been adopted with a view to getting the axles right under the angles of the frame, and to obtaining as long a wheelbase as possible. By this arrangement, the centres of steering and driving axles are kept 5ft. 3in. apart. The wheels are prevented from spreading longitudinally by the radius rods C^1 C^1 (fig. 1) and the strong central V-shaped casting seen depending from the underside of the frame in the centre.

Any tendency to lateral lurching on the part of the wheels which might be thought likely to occur owing



The Vauxhall car arranged for four seats.





Figs. 1 and 2.—Plan and elevation of the Vauxhall light car.

A, cylinder
B, crank case
C, crank case inspection door
D, crank case cover
E, exhaust valve spring
F, carburetter and inlet valve chamber combined in one
G, float feed chamber
H, contact breaker
I, governor
J, exhaust pipe
K, silencer
L, flywheel
M, Crypto gear for low speed
N, clutch actuating device for high speed
O, crankshaft extension for starting handle
P, circulating pump
Q, radiator
R R, high speed clutch levers
S, steering tiller
T, combined change speed handle and throttle control
U, flexible wire for band brake on Crypto gear
V, foot brake
W W, hand brake
X X, brake drums and free-wheel clutches
Y, back sprocket
Z, front driving sprocket
A¹, back axle bearings
B¹ B¹, corner brackets of frame carrying top end of springs
C¹ C¹, radius rods to front and back axles
D¹, sight-feed lubricator for whole of engine
E¹, advance ignition lever
F¹, accelerator pedal through footboard
H¹, bonnet enclosing the motor
M¹, governor spring
N¹, governor spring adjusting collar
O¹, flexible drive to pump
P¹, water pipes

to the spiral springs is guarded against by strong guides set within the springs and fixed to the frame and axle. These overlap, but do not touch each other, as the springs play up and down. They only bear lightly against the inside of the springs when any tendency to lurching occurs.

The flywheel L (fig. 2) is mounted upon the crankshaft in the centre line of the car, and is, as may be seen, of comparatively large diameter, and of considerable weight, which serves to induce steady and easy running. To the left of the flywheel is found a Crypto gear of the ordinary type, the box M of which serves, in connection with the flywheel L, as the friction clutch when the car is being driven on top speed. This gear box is provided on its inner face with four spring arms, leatherfaced, which, when it is desired to drive on top speed, are forced against the face of the web of the flywheel by means of the actuating device N. This is operated from the control handle T by means of the connecting rods R R.

In fig. 2 the Crypto gear box M is shown in driving contact with the flywheel L, but when the low speed is required the control handle T is swung rearwards, and the Crypto gear box consequently withdrawn from contact with the flywheel. This movement of the rod R R in a right hand direction applies the strong brake surrounding the Crypto gear, and the drive from the engine then passes through the sun and planet wheels to the sleeve upon which the driving chain wheel Z is mounted, a reduction of three to one being thereby attained. As may be perceived, the drive passes from the chain wheel Z to the sprocket Y on the live axle through the chain shown in fig. 2. It will be understood, therefore, that the drive is direct on top speed without intermediate gearing of any sort, so that the energy exerted by the motor is delivered to the road wheels with as little loss as possible. Suitable adjustments are provided to the Crypto gear, brake, and the high speed clutch friction arms.

The jacket water is cooled by passage through a radiator formed of specially fluted solid drawn brass tube, nested as seen at Q in fig. 1. The circulation is maintained by a small gun-metal positive action pump P, so placed as to be readily accessible from the side of the car. The pump is rotated by a flexible coupling O^1 from the half-speed shaft.

The commutator H (fig. 2) is a simple form of brush make and break, and is actuated by the sparking lever E (fig. 1). M^1, N^1, and I are parts of the governor, which is shown in detail in fig. 4, and hereafter described. The silencer K is fitted with a spring outlet valve at its rear end, the spring of which can be seen through the spokes of the rear wheel on fig. 1. The makers claim that the initial sound which issues from an ordinary silencer is the click of the closing exhaust valve, and if this sound is deadened in the silencer the outrushing gases make no noise. We know that this car is particularly quiet on top speed.

The cylinder and crank chamber are lubricated from an adjustable sight-feed lubricator set upon the dashboard. The car is steered by a comfortably placed transverse tiller actuated by the left hand, the right being free to manipulate the single control lever T (fig. 1), the rotation of which throttles the engine, while its radial movement changes speed, as already described. V is a foot pedal applying band brakes to the axle drums X X (fig. 2). Further power may be brought to bear upon these brakes by means of the side hand lever W. These drums and their bands are of unusual width, and are very powerful.

The motor and gear are completely accessible by removal of the bonnet and footboard, and by unscrewing four nuts the forward portion of the crank chamber D can be taken off and the connecting rod and piston withdrawn without disturbing other parts.

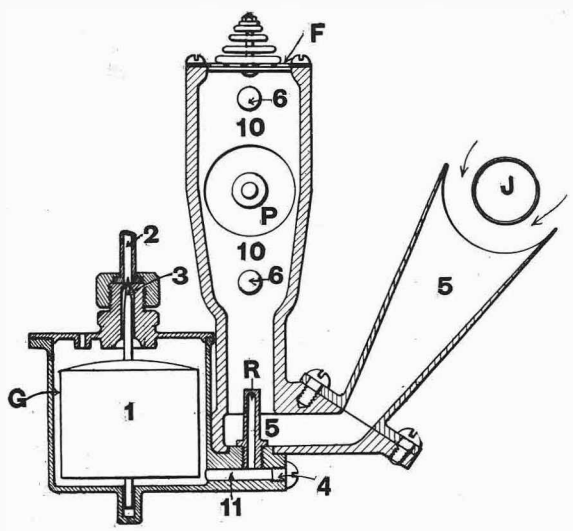


Fig 3. Carburetter and inlet valve.

J, exhaust pipe
R, petrol jet
G, float feed chamber
F, automatic extra air inlet
S, flexible steel wire to control handle
1, float
2, petrol feed
3, needle valve
4, wash-out screw
5, hot air intake
6 6, studs securing carburetter, etc., to cylinder

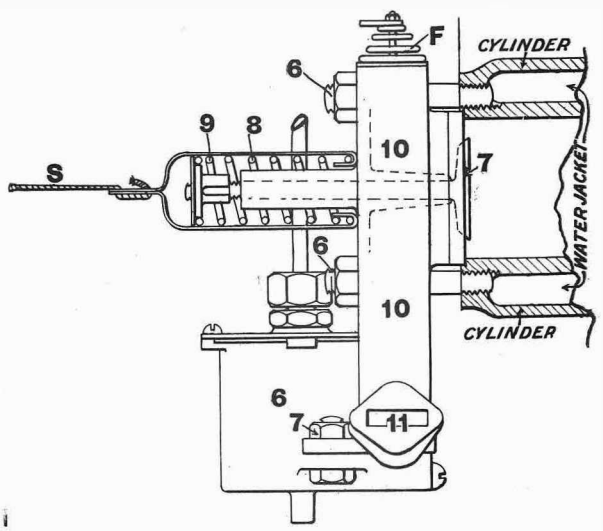


Fig. 3a.

7, inlet valve
8, inlet valve spring
9, inlet valve spring compressing stirrup
10 10, mixing chamber
11, petrol passage to jet

Stiff lamp-brackets are provided by the upward extension of the vertical bolts securing the radiator nest in its position on the frame.

The wheels have been built with a small number of large diameter spokes and big hubs, and the amply wide mudguards are kept well clear of both body and wheels. This has been done in view of the fact that the owner of a small low-priced car of this description is likely to do most of his own cleaning

Figs. 3 and 3a give the details of the simple form of combined carburetter and induction valve, the construction of which is made readily comprehensible by the figure and its references. The engine is throttled by the control of the tension of the induction valve spring, which is rendered stiffer by compression through a pull on the stirrup shown encircling same, by the flexible wire S, which passes up the control lever standard to the control lever T (fig. 1), as shown in detail in fig. 5. F (fig. 3, 3a) is an automatic air inlet valve, which admits extra air in proportion to the speed of the engine. The combined carburetter and inlet valve is secured to the cylinder by the two studs 6, 6, and is held up by them against a ground joint, as shown. The device affords the engine perfect mixture at any speed or load.

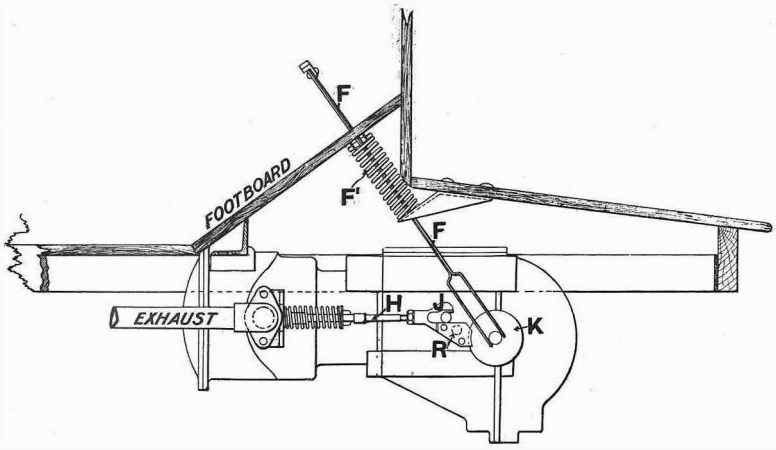


Fig. 4.

Accelerator pedal.
F F, accelerator pedal through footboard.
F¹, accelerator pedal spring.
G, crankshaft
H, exhaust valve spindle.
H¹, knife-edge plate.
J, exhaust valve cam race carrying knife-edge.
K, governor disc, sliding laterally on crankshaft under knife-edge to cut out.
L, governor centrifugal weights.
M, governor spring.
N, sliding collars.
O, half-speed shaft.
P P¹, half-time gear.

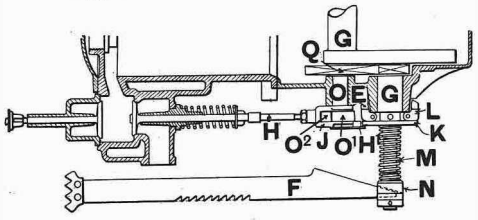


Fig. 4a

The elevation and sectional plan in figs. 4, 4a comprehensively shows the detail of the simple but nevertheless ingenious form of governor employed. The governor balls L fly outward when the engine exceeds the speed for which the governor is set, and pressing upon the disc K force the same outward against the compression of the spring M.

On the outer face of the jaws of the exhaust valve-lifting rod H is set a knife-edged plate H^1, so that when the disc K is thrust outward by the governor, and the exhaust valve is open, the knife edge of H^1 rests upon the periphery of the disc, so that the roller O^1 in the base of the exhaust lifting rod jaw is held clear of the exhaust cam J, and the valve is kept open. When the speed of the engine again becomes normal, the governor allows the disc K to return to its original position, and the knife edge plate H^1 falling against outside it, as shown in the figure, the exhaust valve is again capable of closing.

The governor can be set to operate at any desired engine speed, or can be cut out altogether by the operation of the accelerator pedal F. The collar N (fig. 4a) is loose on the extension of the crankshaft G, and is made with two slots to take the wedge-shaped extremities of the accelerator pedal F F. The further this pedal is depressed, the more the collar N is thrust inwards, and the greater consequently is the compression of the governor spring M. This arrangement is both simple and ingenious, and functions most satisfactorily.

Figs. 5 and 5a are a sectional plan and elevation of the steering tiller and control lever, with its attachments, and can readily be comprehended by means of the lettering and reference. We think we may congratulate the makers of the Vauxhall light car upon having designed and turned out a neat, efficient, and cheap vehicle, which should find many friends.

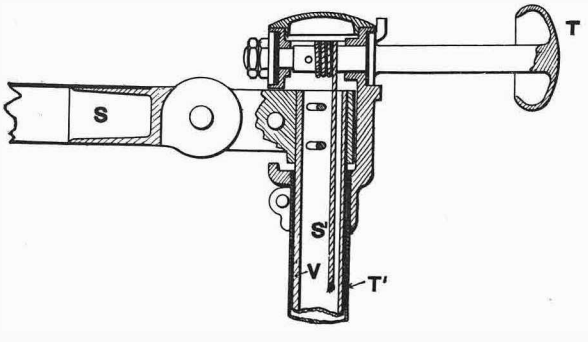


Fig. 5.

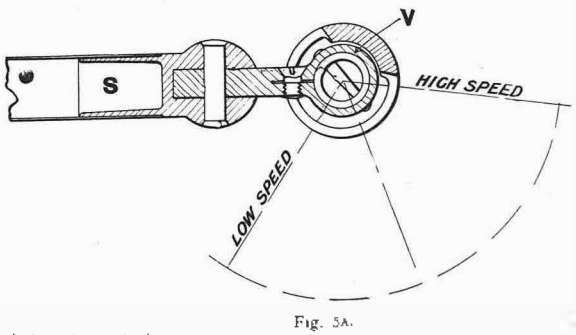


Fig. 5A.

Steering, change speed, and throttle control.
S, steering tiller (hinged to lift up)
S, flexible wire rope to inlet valve
V, internal tube connection to steering gear
T, change speed handle and throttle control
T¹, external tube connection to change speed gear

A FORECAST OF THE NEW ACT.

By Roger H. Fuller.

ON JANUARY 1ST, 1904, AUTOMOBILISTS WILL COMMENCE A NEW ERA UNDER THE MOTOR CAR ACT OF 1903. MANY OWNERS OF AUTOMOBILES, HOWEVER, HAVE ONLY A VAGUE NOTION OF WHAT WILL BE REQUIRED OF THEM, AND SOME HAVE NOT EVEN GIVEN ANY ATTENTION AT ALL TO THE PROVISIONS OF THE NEW ACT. THAT BEING SO THE DISSEMINATION OF INFORMATION ON THE SUBJECT IS VERY DESIRABLE.

On the 1st of January, 1904, the private owner who drives himself must go to the nearest post office and pay for the Inland Revenue license (if the car is under one ton unladen) ... ... £2 2s. od.
He must then register his car with the county council or county borough council, and the council will then assign to it a separate number, the registration fee being ... ... £1 0s. od.
Owner's license to drive a motor car 5s. od.
Driver's license to drive a motor car (if employed). Proof regarding applicant's age being over seventeen years will probably be asked for ... ... 5s. od.
Numbers will probably cost ... 8s. od.
Inland Revenue license for male servant (if employed) ... ... 15s. od.

£4 15s. od.

So before a car may be taken out on the road at all, be it voiturette or touring car, the above amount must be expended.

The next step will be to ascertain from the county or county borough council a list of roads in your county or district which are scheduled as being under 16ft. in width and which the Local Government Board have defined as being in their opinion specially dangerous for motor car traffic.

These you might ink in red in your ordnance survey map, and also show what portions of the road are scheduled with notice-boards forbidding a speed of more than ten miles per hour.

Having done this for a radius of, say, twenty miles round where you live, you can commence to mark in the same way your maps for England, Scotland, and Ireland.

As to the question of speed, which the new Act has raised to twenty miles per hour (except in places referred to in the regulations made by the Local Government Board limiting the speed to ten miles per hour), if that speed is going to be allowed without police traps, nothing will go further to allay the bad feeling now existing between the police and autocarists, but if police traps are still to be maintained, I am sure by the time the summer of 1904 is on the wane a large falling off in users of motors will be noticed.

A word on police traps, which, by the way, are peculiar to England, and exist in no other country.

Do chief constables, backed by the magistrates in this country, realise at the present moment that by continual police traps they are gradually driving the touring car out of England?

Owners will not much longer endure this annoyance and persecution. Does any automobilist dream for a moment, despite twenty miles per hour under the new Act, that with identification marks the police traps will cease? A successful police trap pays for the trouble involved! The rates benefit. In future it will be unnecessary to stop you or even for the constable to hold up his hand. Your number will be taken, and the summons will be found at the address under which you are registered, and you will be charged (corroborated by one other man) with going twenty-one miles per hour—say on a day's run of one hundred or two hundred miles. What answer have you? None. Result: Heavy fine. Second offence, probably committed on the same day. Result: Heavier penalty and license endorsed. Third offence, license revoked (car for sale, and loss impossible to estimate). These three offences may all be committed (?) on the same day.

I have driven 10,000 kiloms. in France, Spain, Switzerland, and Belgium with numbers on my car, my number being registered, and my English address is on all my *permis* in full, but I have never had a summons because I have gone thirty-one kiloms. an hour instead of thirty kiloms. (the French legal limit).

To-day what is the result if one's autocar runs into a police trap? The usual cross swearing and the ruffling of tempers on both sides; a bad feeling is engendered between police and public. Who suffers in the long run? The autocarist gets fined at once, and the police lose a good friend—a bad state of things which should not be.

Let us hope therefore that police traps will disappear in 1904 and the new Act be scrupulously adhered to by all autocarists.

I would ask all clubs, depots, garages, hotels, and private stables, etc., where cars are kept, to obtain from Messrs. Eyre and Spottiswoode a copy of the Motor Car Act of 1903, and fix it up in their buildings so that all can read and study its provisions.

Great ignorance is, I regret to say, abroad in regard to the change now due in two months time, and it is necessary that the automobile and daily press should give correct information of the state of things likely to be brought about by the working of the new measure.

I look in vain for any preparations for notice-boards in the suburbs of large towns. What is the Local Government Board doing in the matter? Is it adopting any special size board, or any special colour, or is it waiting patiently until the local authorities ask what sort of board is to be erected and what is to be its shape, colour, and size?

What a chance the Local Government Board have of distinguishing themselves during the winter months by going, say, fifty miles round London in official automobiles and noting during the drive dangerous positions which require a warning board, so that when requested by local authorities to schedule certain portions of road as dangerous they may be in a position promptly to reject the request or accede to the same.

When the spring comes round I am sure automobilists will drive intelligently with due regard to the warning boards, and if the authorities think it necessary to put a police constable on or near those portions where speed is limited to ten miles per hour they will not complain. But let police traps disappear. They are doing incalculable harm, and if continued will still further strain the relations between the police and the public. For automobilists are not the only victims of the organised persecution which has been practised upon them in the past. Strong evidence exists that certain villages in Surrey, which have been made notorious by recent police traps, are losing trade and custom in consequence of their almost total desertion by persecuted autocarists and cyclists.

MOTOR 'BUSES FOR LARGE TOWNS.

TRAMWAYS DOOMED. By H. Barker-Lake.

ALTHOUGH THIS ARTICLE DEALS MAINLY WITH THE TRAMWAY PROJECT AS APPLIED TO ONE CITY, THE POINTS RAISED ARE ALMOST WITHOUT EXCEPTION APPLICABLE TO OTHER CENTRES OF POPULATION.

A SCHEME is on foot for the installation of a new electric tramway system for the Aston district of Birmingham, but the promoters are beset with grave difficulties, on account of the narrow streets and heavy gradients—so much so that it is doubtful whether they can possibly carry out their original scheme. Indeed, one portion of the intended line is to be referred to the Board of Trade for advice, only the main portion being proceeded with at a total estimated cost of £174,000. Much larger sums are on the *tapis* for the City of Birmingham tramways; population, 522,182. Cities which rank with Birmingham for size have also spent enormous sums in electrical tramway equipment: Leeds (population, 428,953) cost in round figures £1,863,183; Liverpool (population, 684,947), £3,582,405; Glasgow (population, 735,906), £2,041,036.

Public opinion has not been sufficiently awakened to the existence of cheaper and more effective modes of transferring passengers from place to place than by a network of tramways, with the cumbersome vehicles and costly lines inherent to all such systems.

While there is no disputing the fact that electrical tramways are a great advance upon steam or cable systems, and that the overhead system is cheaper and more easily supervised than any, it is also true that even this system has served its purpose, so far as thickly-populated centres are concerned. Where these systems exist in cities and towns, they will no doubt remain until they are antiquated, and the rails will hardly be worth the cost of taking up to make good the streets and roads.

After allowing that tramways have served their purpose, we cannot get away from the fact that there never was a tramrail laid in any city or town, street or public road, that was not from the time it made its first appearance a great nuisance and continual inconvenience both to man and beast, for the simple reason that it is impossible to design a rail that does not inconveniently contrast with the surface of any known road.

We live in an age of rapid progress, and it is often difficult to keep pace with invention. Those corporations where tramways do not already exist will be well-advised, therefore, to defer the evil day as long as possible, for the reason that motor omnibuses are destined in a short time not only to supersede the present horse vehicles, but, when once properly inaugurated, entirely to supersede tramways within a radius of four miles or so of all large cities. The time, in fact, has arrived when such a course is perfectly practicable without any exceptional risk; the motor omnibus has passed beyond its purely experimental stage.

The present seems to be a golden opportunity for putting a good service of motor 'buses on busy thoroughfares of great cities. An opportunity presents itself at Aston. Aston should pause before committing itself, as there is no doubt that nearly £100,000 of the money proposed to be spent would be saved by the introduction of a motor 'bus service. Besides this, such a service would pay twelve per cent. upon the small capital expenditure necessary to establish it, as against five or six per cent. only from an efficient overhead electrical system. This estimate is not overdrawn.

Nor is this all, for tramrails cannot be laid everywhere, and where they are laid they monopolise the road. Such a monopoly means congestion of traffic, especially on the main routes, which are often fed by branch lines. Moreover, a vehicle on a fixed track cannot deviate from its direction so as to clear the traffic, and in case of breakdown the whole street is quickly blocked.

On the other hand, the motor omnibus simply takes its place on the road like any other vehicle, but with the great advantage that it can be manipulated within less space than the old horse 'buses, and can be pulled up more quickly. Its range of speed and the facilities for its regulation enable it instantly to take advantage of a clear break in the stream of traffic and to pass safely through tight places, none of which advantages are offered by a tram service inside a city boundary. There is also the further great advantage that a motor 'bus can traverse roads or streets without any necessity for the surfaces having any previous preparation whatever, and it can pick up and set down passengers anywhere. What, then, is the case against motor 'buses, and why are they not tried in a liberal and forward spirit? Why, in the face of these facts, and having waited so long for the results of the experience of other places, should the citizens of Birmingham spend £1,000,000 or more for a system the success of which must be doubtful and of temporary duration, to find themselves still behind, while other towns take the forward lead? The problem will still, of stern necessity, have to be faced in a graver measure of installing an improved traffic system. In the face of these facts a great responsibility rests upon both the Birmingham and Aston authorities to examine into all available data and institute further enquiries before such expenses are incurred.

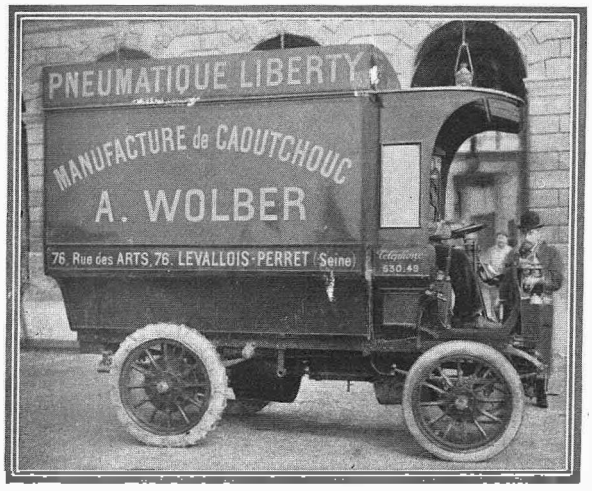
CONTINENTAL NOTES AND NEWS.

HEAVY CAR TRIALS.

It seems a far cry to 1898, when the cab and heavy car trials were regarded as one of the principal events of the year, and attracted a large number of entries of all types of vehicles, comprising cabs, waggons, omnibuses, and lorries propelled by steam, petrol, or electrical motive power. That was the time when everyone was looking to the motor car to solve the problem of economically transporting heavy loads. Engineers and representatives of carrying companies came from all parts of the country, and also from abroad, and France seemed then in the proud position of showing the way in heavy vehicles, as it was already doing in pleasure carriages. But, singularly enough, this promise has never been fulfilled. Since 1900 the annual trials have been rapidly declining in importance. The makers have not supported them, for what reason it is difficult to say, and last week the trials narrowly escaped being a failure. There were only eight vehicles by five different makers competing. De Dion-Bouton had an elegant coupé, a big delivery van, and a lorry. There were also a Gillet-Forest omnibus and town delivery van; a De Dietrich omnibus; a new delivery van by the Société des Automobiles Ariès, 39, Quai d'Argenteuil, Villeneuve-la-Garenne (Seine); and a forecarriage attached to a cab constructed by M. Colin. If the trials attracted only a small number of cars, they were sufficiently interesting to make it regrettable that they did not receive far more support. The three town and country courses were the same as those on which the trials took place in previous years, and it was intended that the vehicles should run over each of them twice, but, owing to the Dourdan meeting clashing with the trials, they were suspended on two days, so that they only lasted four days instead of six. We tried the De Dion delivery van, which has been constructed for the Wolber Pneumatic Tyre Co. It is propelled by a single-cylinder motor of 8 h.p., and carried a load of 14¾ cwts. In this, as well as in the lorry (which had a two-cylinder engine of 16 h.p.), the usual De Dion system of transmission is employed, but the speed is reduced not only on the differential, but also on the internally-toothed drums on the hubs of the driving wheels, to which drums are also fitted band brakes. The power seemed to be remarkably low for a van of this size, and it was with considerable interest that we watched its behaviour on the country journey. Crossing the Seine at Pont Bineau, we struck the long up-grade of granite setts at Courbevoie, which was covered with a thick slimy mud, and further on the road was under repair, which sufficiently explains its conditions in wet weather. Having had previous experience with heavy vehicles on this route, we knew that under ordinary circumstances it would require extremely careful driving, and there is nothing more trying than to drive a heavy car over greasy granite through the thick traffic. We were thus able to appreciate the value of the Parsons non-slipping chains which were fitted to the driving wheels. With these

The De Dietrich omnibus which took part in the Heavy Car Trials. M. Georges Forestier, Engineer-in-Chief of French Roads and Bridges, and chief organiser of the trials, is standing in front of the car.

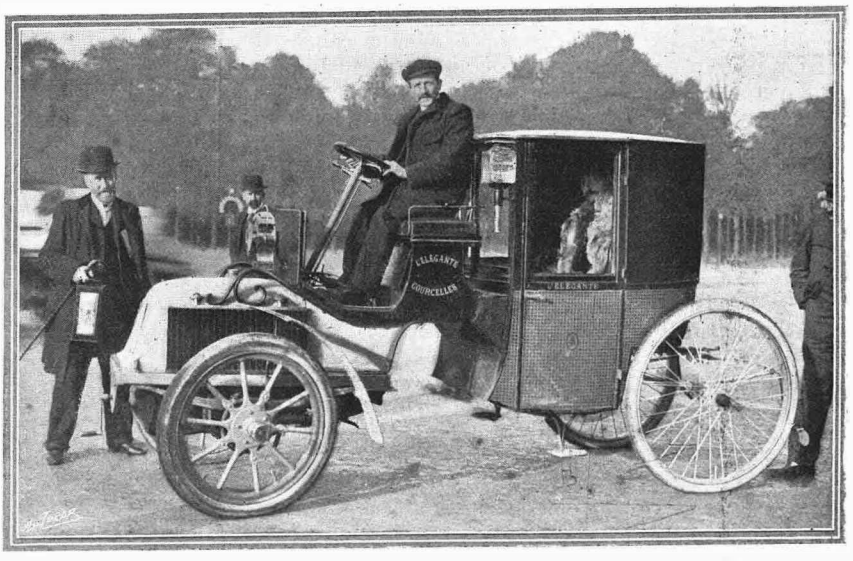
attachments, the van negotiated the slippery setts without the slightest trouble, and at no part of the journey did the van show a tendency to sideslip.



A single cylinder 8 h.p. De Dion-Bouton commercial van, the driving wheels of which are fitted with the Parsons non-skidding device.

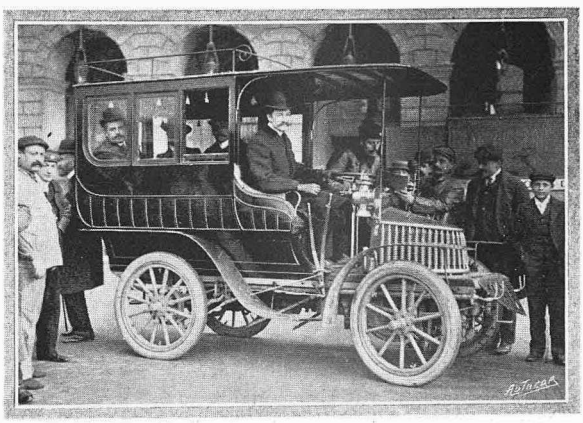
The course took us through Maisons-Lafitte and the Forest of St.-Germain to Poissy, and then back to St.-Germain and on the road to Versailles. Just beyond Marly we had to take the famous Cœur-Volant—a gradient of about a thousand yards in length, with a rise of about one in eleven. The van took its load up without the slightest difficulty in eight minutes. The whole journey of thirty-seven and a quarter miles was accomplished without incident at a speed ranging from seven and a quarter to eight and three-quarter miles an hour. The consumption on this day was 15.940 litres, though on the last day, when more time was taken on the journey, the consumption was reduced to 8.530 litres. The speed of the lorry with a load of three tons was only a little inferior to that of the van. It was geared for seven and three-quarter miles an hour, and it is evident that when dealing with such heavy loads the owner would be quite content with a lower speed if he could reduce his consumption, and the consumptions ranging from 15.580 litres to 17 litres would certainly have been reduced had the lorry been designed to travel at, say, five miles an hour. This has been the experience at all the trials. The makers do not take sufficient care of the consumption, but aim at transporting loads in the shortest time possible. The lorry with a three-ton load had solid rubber tyres, and the wheels of the van were shod with pneumatic tyres.

The De Dion coupé is one of the most elegant little vehicles on the market. It has a tubular frame, and is fitted with an 8 h.p. motor. Comfortably and even luxuriously finished and upholstered, one is likely to have the impression of its being rather a costly vehicle, and, therefore, it was surprising to find that it comes well within the range of moderately-priced cars. A still more remarkable thing about this little carriage was its low consumption. We do not think that in any other trials has the consumption been anything like so low as that of the coupé, and we should think even that it is not far from reaching a record of economy. Of course, as regards the consumption per ton mile, it would be beaten by lorries carrying heavy loads, but this is an unfair comparison with private carriages which necessarily have to carry no more than two persons. The results in the way of economy were largely due to careful driving, for the conductor of the De Dion coupé was probably the only man who was competing in the trials with a view to securing the lowest possible consumption. Automobilists could do many worse things than follow trials and watch the men who get the greatest economy. They will get more hints in a few hours than they would otherwise learn in as many months. The motor was never run at more than its normal speed, except very occasionally when it was necessary to squeeze through traffic or to mount particularly steep gradients like the Rue de Magdebourg; and after an hour or so of steady running, when it seemed as if the carriage had all it could do to maintain a regular eight miles an hour gait, it came as a surprise to find it suddenly sprint forward to get clear of other vehicles. The driver never advanced ignition more than was absolutely necessary. The coupé kept up with the other traffic, and maintained practically the same speed as cabs drawn at a brisk trot. After all, the average owner does not require to travel at much beyond this speed, if by so doing he can effect a great saving in his fuel bill. The coupé was easily passed by the Colin cab and other



The Colin tractor fitted to a fiacre. A 9 h.p. De Dion motor is employed, and the change speed gears afford three forward and one reverse speeds, these operating through a countershaft and chains the front driving wheels, which are also the steerers. No alteration to the cab is necessitated.

vehicles, which all travelled faster and came out with much higher consumptions. The coupé did the thirty-seven and a half miles in about four and a half hours, and its consumption was 3.780 litres, or 6.65 pints. On the same course, the motor of the Colin forecarriage of the same power consumed 8.420 litres, and, as we have shown, the 8 h.p. De Dion on the van consumed on some occasions more than four times the amount of the coupé, simply because the maximum power had to be got out of the motor on every up-grade. The difference caused by running the motor at high speeds was remarkable. As regards the other cars, the only novelty was the Colin forecarriage. Since the failures of this type of mechanism in the past, there are very few makers who have been giving any attention to the forecarriage, and it had been generally supposed that its deficiencies outweighed any advantages it might possess in the way of adaptability to ordinary vehicles. The Colin arrangement certainly seems to be the best of the kind yet introduced. Probably one of the causes of failures in the past was the absence of any rigid connection with the body of the vehicle, and the idea it conveyed of being a more or less inelegant piece of machinery crudely attached to the carriage in the place of the horse. The new forecarriage, on the contrary, has distinctly the appearance of forming part of the vehicle. It is built up of an armoured wood frame, with an 8 h.p. motor, with the power transmitted through the change-speed gear to the differential gear on the countershaft, to the ends of which are chain wheels connecting with the front axle. The forecarriage is solidly bolted under the footboard of the cab. It may perhaps be questioned whether private owners of carriages would care to transform their vehicles into automobiles when they can afford to purchase standard types of cars; but there is a great opening for a forecarriage which is capable of being economically adapted to the thousands of cabs that are now running on the streets of Paris. The companies cannot afford to sacrifice this material for the purchase of autocars, but they would be willing to adapt forecarriages if they could find any advantage in doing so. The maximum distance covered by a cab in daily service is estimated at sixty kilometres, for which at least two horses are necessary. The Colin cab covered the sixty kilometres in four hours with 8.420 litres of petrol, and it is for the companies to see whether they would realise any economy over horse traction. The Gillet-Forest



A Gillet-Forest eight-seated omnibus.

vehicles, as usual, ran with absolute regularity on the town courses, the omnibus carrying 650 kilogs. and consuming 9.350 litres, and the van transporting 8¾ cwt. with a consumption of 9.040 litres, though these totals varied on different days, and on the last day fell to below nine litres. The Ariès van had a low consumption of 7.140 litres, which fell on one occasion to a shade below six litres, and the De Dietrich omnibus went over the country course with a ton load at more than twelve miles an hour with varying consumptions, the lowest being 12.360 litres, though on one occasion it rose to

A two-cylindered 16 h.p. De Dion petrol engined lorry with a three-ton load on board.

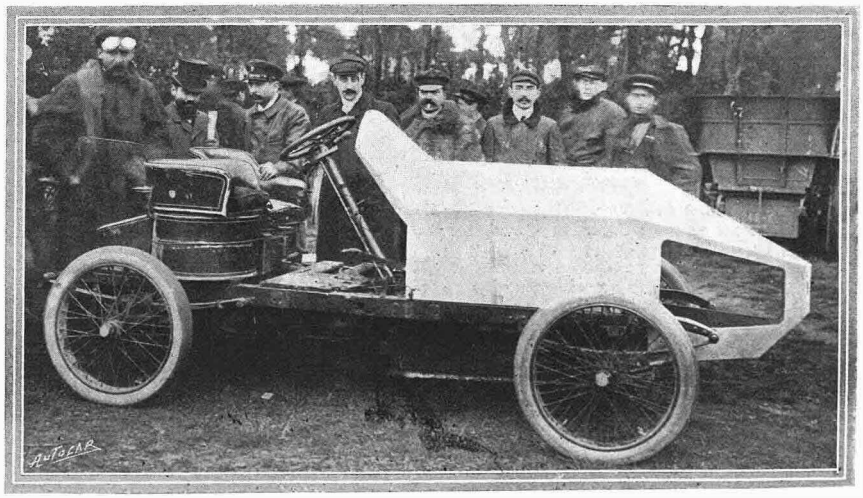
20.8000 litres, when it travelled at a much higher speed. The Gillet-Forest vehicles were fitted with the new Michelin flat tread tyres, and others had non-slipping treads, but we did not have the opportunity of seeing the effect they had on the particularly greasy roads during the trials. The De Dion coupé had ordinary Michelin tyres, and the slipping was at times a little too pronounced to be comfortable.

The Dourdan Meeting.

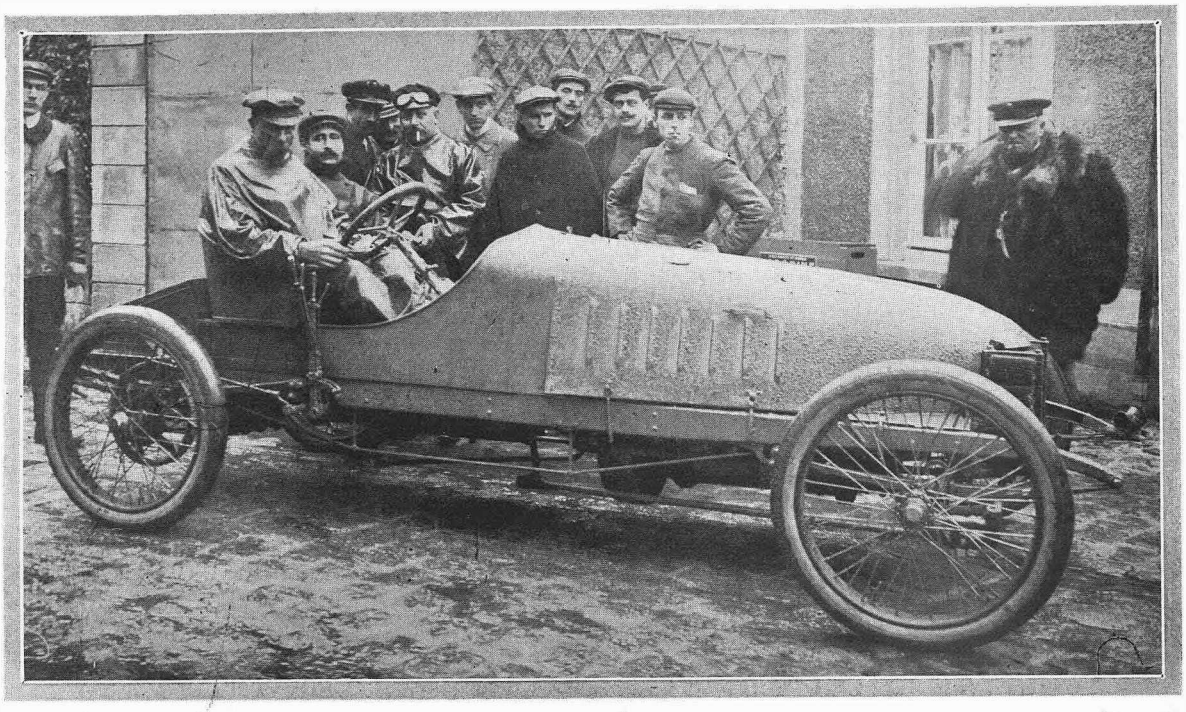
Further evidence of the improving outlook for the sport is seen in the way in which the authorities sanction the different events which are being held around Paris. The Laffrey meeting was followed by the 500 metres test at Deauville, and then came the hill-climb at Chateau-Thierry. The series is now being continued with the Dourdan meeting and the Gaillon hill-climb, which latter event is to take place on November 8th. This certainly does not look as if speed tests are to be abolished. The wholesale interdictions that took place after Paris-Madrid were the result of a fear that racing itself was highly dangerous, but the promoters of meetings have now set themselves the task of showing that, with proper organisation, everything will go off with perfect safety. The absence of accidents in the recent trials has done more than anything else to bring the authorities round to a more lenient view of speed tests, and this is seen in the facility with which permission can be obtained to hold them. As the promoters cannot afford to run the slightest

A view of the kilometre course at Dourdan.

There will probably be no more cab and heavy car trials promoted under the direction of M. Forestier. He has so closely identified himself with them during the past five years that it would be difficult to imagine their being carried out under any other management than that of the president of the Technical Committee. But M. Forestier feels that his efforts are not properly supported by the makers. He states that these are the last that he will organise. It is to be hoped that this is merely an expression of disappointment, and that we shall see him once more superintending these annual trials. In fact, we believe that the Automobile Club intends to do something next year to shake manufacturers out of their torpor, and to induce them to make further efforts to come to the front in a branch of the industry which threatens to pass entirely into the hands of their foreign rivals. It is by no means improbable, therefore, that the partial failure of last week's trials will be followed by a campaign in favour of industrial automobilism which will be inaugurated by an important trial next year. The British manufacturer appears to have the same apathy towards commercial vehicles as his Continental competitor.



A Darracq light racing car, with a new form of bonnet designed to reduce side pressure when negotiating corners.



One of the light Bayard-Clement racing cars. The lines of the side members of the frame, together with their tie rods, are easily discernible. It will be noticed that Loyal radiators are fitted in place of a cellular cooler.

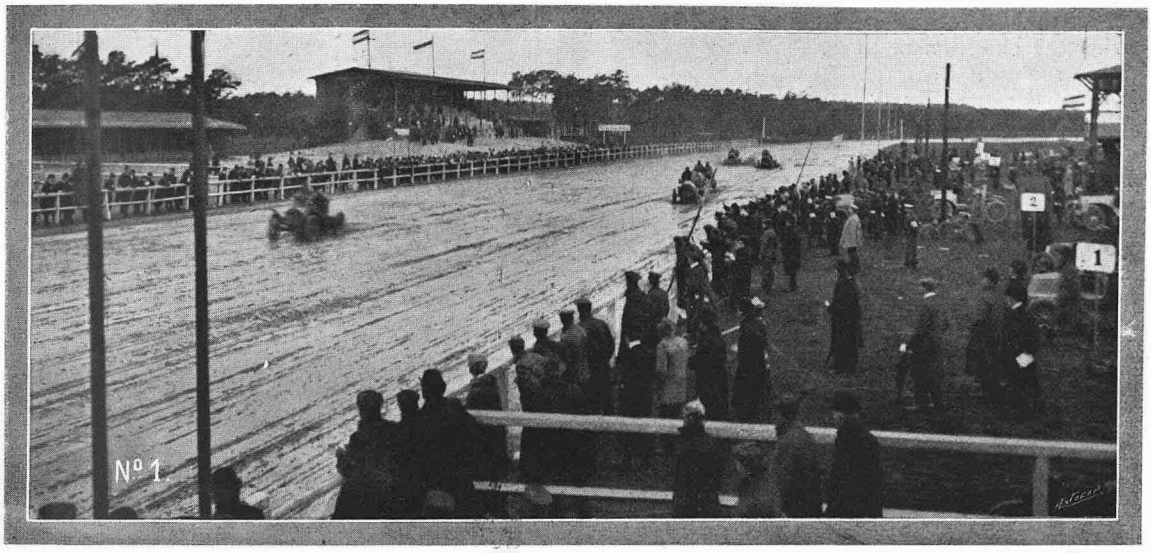
risk of accident, the success of the meetings is entirely subservient to the state of the weather. This was the case with the Dourdan meeting on Thursday of last week. The course is a perfectly straight one about a mile and a half from Dourdan, but as it runs through a forest it becomes very greasy when the weather is at all damp, and at this time of the year it is to be feared that the surface is rarely quite dry. Despite the heavy rains of the previous day, it was hoped that it would still be possible to run off the meeting, and a start was given to a few of the motor bicycles and also to half a dozen touring cars, but on the rain coming down again it was felt safer to postpone the meeting until the following Thursday. There were a considerable number of cars and motor cycles present, and the attendance of spectators was very large. There is no doubt that, given fine weather, the Dourdan meeting will be a great success.

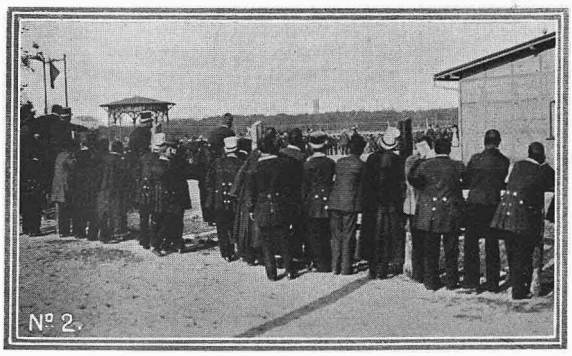
The Gordon-Bennett Race.

As was foreshadowed last week, the committee of the A.C.F. have consented to select all three vehicles to represent France in the Gordon-Bennett Cup competition by means of a qualifying race. This consent was only wrung from them after three hours of heated discussion, when the Marquis De Dion headed the majority under the banner of the Chambre Syndicale. The triumph of the makers' association has saved the club from what would certainly have been a serious blow, for the majority of the makers were firmly determined that, rather than see their interests, as they considered, sacrificed, they would throw off their allegiance from the club, and make the Chambre Syndicale the future arbiter of automobilism. Whether the late bad feeling will leave an aftermath of suspicion and doubt concerning the impartial attitude of the club towards the trade depends upon the future conduct of the club itself, and if, after giving in to the makers on the question of a qualifying race, the committee will carry out such arrangements as will give satisfaction to all concerned, it is probable that the club will keep round it the manufacturing interest, which is absolutely necessary to its existence as a "society

BERLIN AUTOMOBILE RACES. Signs of activity in the betting ring.

BERLIN MOTOR RACES.



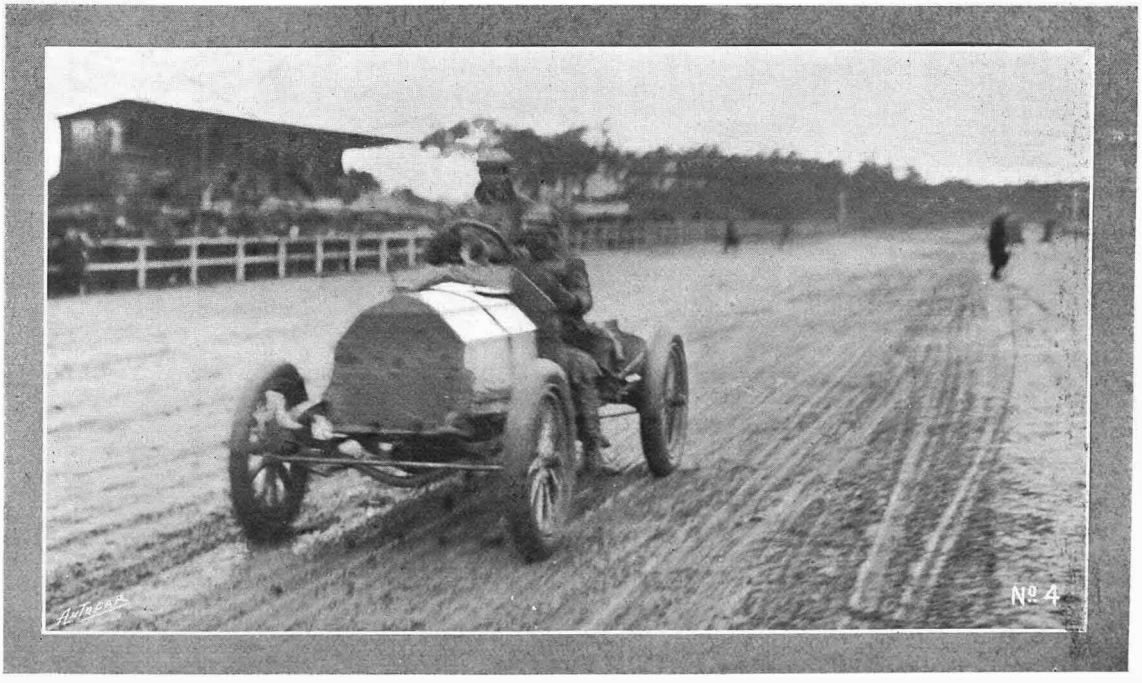


No. 1. A view of the West End course. This, as will be seen, is a well-designed horse-racing track, upon which good speeds were made under adverse circumstances.

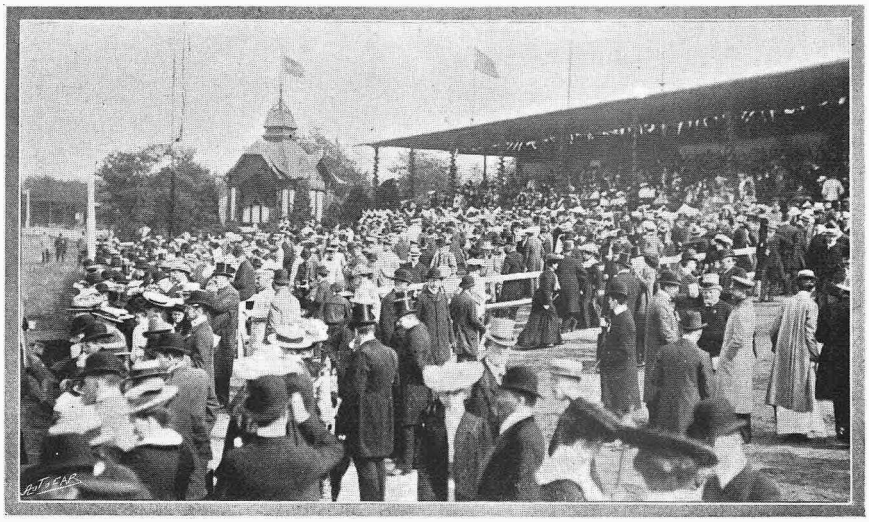
No. 2 Outside spectators.

No. 3. Herr Willie Poege, who has figured prominently as a racing man during this year. He is a director of the establishment from which the Mercedes cars emanate.

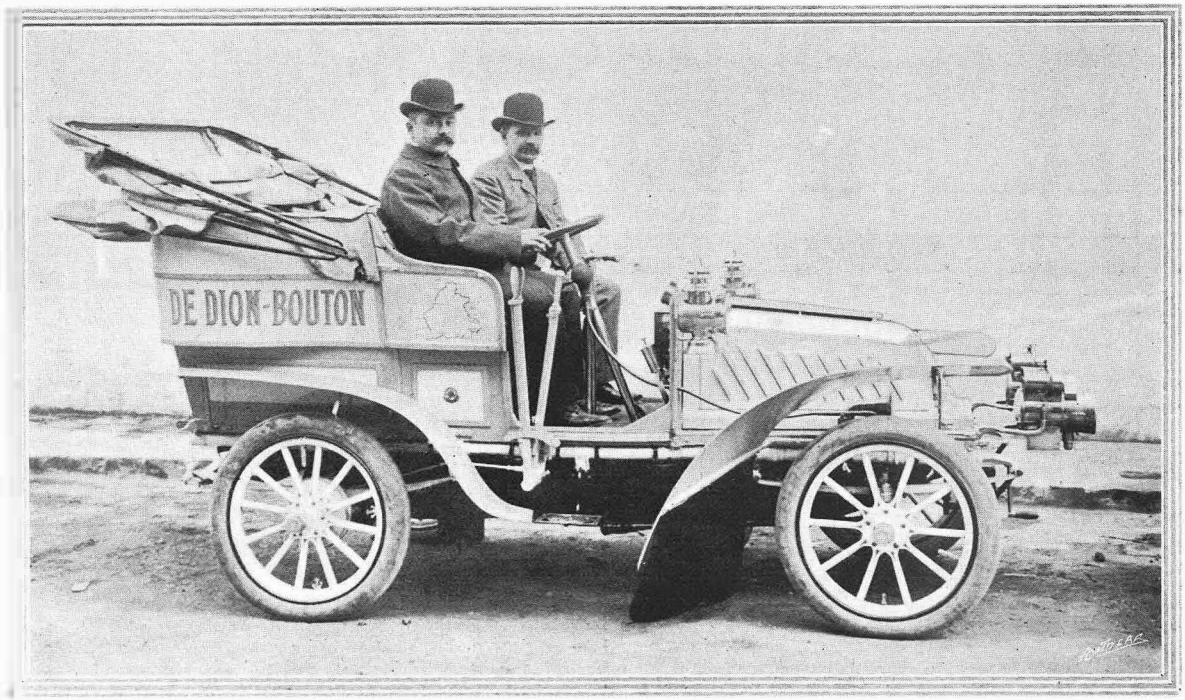
No. 4 A Mercedes car coming down the course, the bad condition of which is clearly seen. The tyres were at times immersed in mud to the edges of the rims.



of encouragement." One of the objections raised by the committee against the qualifying race was the impossibility of getting the Government to authorise such a contest. Apart from the questionable policy of courting a refusal by openly anticipating it in this way, the makers hold that it is the duty of the club to impress upon the Government the absolute necessity of the race. If a few months ago there seemed to be an extremely remote chance of any such contest being sanctioned, the tendency at the moment is so strongly in favour of every possible liberty being accorded to the trade that the prospects of a race are becoming increasingly brighter. The makers express themselves as perfectly certain that the race will be held in France, but if they should be obliged to look out for a course elsewhere they have the choice of the Ardennes Circuit, and the president of the A.C. of Algeria has written to the club inviting it to organise the race in the North African colony in the event of its not being tolerated at home. As the organisation of the race will have to be carried out in the most thorough manner possible, the club intends to raise the entrance fees sufficiently to cover the cost, at the same time that this will exclude firms which have no serious idea of competing for the cup. It is proposed to fix a fee of 8,000 francs for each car, so that a maker entering three vehicles will be called upon to pay 24,000 francs, or about £960. The contest will probably take place in May.



BERLIN AUTOMOBILE RACES. A scene on the lawns during a bright interval.



A LONG-DISTANCE DE DION CAR. The illustration above depicts M. Cormier, who, as we announced in the last issue of "The Autocar" (p. 517), is about to undertake a tour of nearly four thousand miles with one of the new two-cylinder 10 h.p. De Dion cars. It has been M. Cormier's annual practice to take out an early car of any new type which emanates from the De Dion establishment at Puteaux. Two years ago the 8 h.p. car claimed his attention, and on this he made a tour of over two thousand miles. Last year the tour was through Central Europe, a distance of nearly three thousand miles being traversed on a little 6 h.p. Popular. This year's tour follows the course of the Paris-Madrid race, and from Madrid the journey will be from Carthagenia via Murcia, where a boat will be taken to Oran, North Africa, where Algiers, Constantine, and Tunis will be passed through, and probably the route will extend as far as Gabes. An alternative route is to cross by boat to Trapani, and then by boat to Reggio, next through Naples, Rome, Florence, and Venice. After leaving Italy the course will be northward through the Alps, entering on the neighbourhood of Trient, crossing by the Pass of Brenner to Innsbruck, and proceeding by Landeck and Arlberg. Germany will next be visited, and several important towns passed through on the last stages of the return to Paris. By the driver's side is M. Bouton, the designer of the car.

Correspondence.

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

TYRES.

[3251.]—In one of your "Notes" in the issue of Oct. 3rd, you say, "If motor car owners paid attention to the important fact of having their cars fitted with tyres which were calculated to carry more than the nominal weight of the car, the tyre trouble would be reduced to a minimum."

For "motor car owners" I would substitute the words "makers and sellers of motor cars." The motor car owner can hardly be blamed for accepting the tyre recommended by the seller of the car. In my own case I paid £10 extra in order to have a very expensive and widely advertised pattern, the makers of which declare it to be superior to all others. Before I had done 1,500 miles, three out of the four covers went wrong. The makers of these expensive tyres now say that my tyres are too light, and blame the makers of the car. The latter declare that this is an excuse, and that the tyres are of faulty construction, as the weight on each tyre does not exceed that which the tyre company's handbook pronounces to be suitable. Meanwhile the change of tyres seems likely to cost me another extra £12, if not more, and I have no guarantee that the new tyres will stand better than those first fitted. With facts like these before them, prudent men may hesitate before putting down their horses and embarking on the sea of troubles provided by motor cars with pneumatic tyres. N.S.

THE NAPIER HYDRAULIC AIR REGULATOR.

[3252.]—Having lately had this new invention fitted to my 16 h.p. Napier, I am glad to be able to speak as to its behaviour, as I notice the invention has been the subject of discussion in your columns.

During a run of 240 miles to Yorkshire on Monday and Tuesday last week, I noted two principal advantages which are without question a great boon to the user.

The mixture is now perfect at all speeds of the engine, so the motor never fails to start on the switch—a really great comfort in cold and wet weather.

I also find the car gets away more quickly in starting, as the explosive mixture being correct, more power is developed at the start.

At maximum speeds I did not detect an increase in pace, but the roads being wet and greasy I had little chance of letting the car out. I certainly think the Napier hydraulic air regulator one of the most useful additions to England's best automobile. ROGER H. FULLER.

THE AFFILIATION QUESTION.

[3253.]—In your admirable remarks on the proposed federation of provincial automobilists, you argued on the basis that two-thirds of twenty-five clubs were affiliated. I think you will find that there are thirty-three motor car clubs, and, as stated in the *Automobile Club Journal*, *only six* clubs have signed the agreement. Of course, other clubs may be morally affiliated this year (the Lincolnshire Club, for instance, is morally bound to pay its 10s. 6d. per member this year), but some of the clubs that have signed may desire some alteration. The clubs mentioned in the *Journal* are Derby, East Surrey, Hereford, Midland, North-east Lancashire, and Yorkshire. Such notable omissions as the Scottish, Irish, Notts., Sheffield, and other big clubs make one do a lot of thinking.

I agree with you that 10s. 6d. per member is not a prohibitive figure, but the clubs do not think that affiliation (on present lines) worth that. If the Reading Club succeeds, the parting of the ways would be a calamity to the whole movement. Yet their scheme is a good one. Would it not be better for the Automobile Club to call the Lincoln conference I have advocated in these columns, inviting every motor club and every motor cycle club, and in that way get to know what is the best course to take?

It is impossible to say what fee should be paid, or how the work should be divided—what to headquarters and what to the provincial clubs—and until the parent body and the other clubs get together and "talk the matter over" nothing will be done. The Reading Club has long desired some federation, and its action will hasten it, but there are some clubs which appreciate the desirability of affiliation with the A.C.G.B. and I., and it is useless having two federations of provincial clubs.

May I, therefore, once more urge the A.C.G.B. and I. to call in conference two members from every provincial motor and motor cycle club to talk things over, and by that means endeavour to band all automobilists together, even though the provincial clubs are administered separately but *with* the A.C.G.B. and I. What is more, the conference should be called some time in November, so that the new section of the A.C.G.B. and I. (let us hope it will be) can be in working order early in the new year. We are passing through such a critical time that we need entire unity, and at once.

Lincoln. G. J. WILKINSON.

[3254.]—The letter we recently addressed to the provincial automobile and motor cycling clubs on the subject of a proposed "automobile federation" seems to have raised in some quarters the idea that it is the amount of money demanded by the A.C.G.B. and I. that is the greatest drawback to affiliation, and perhaps our letter was not phrased as aptly as it might have been upon this point. The financial question is not really one to be seriously considered, provided that corresponding advantages are obtained for the sum demanded.

It is also stated, that were the A.C.G.B. and I. *properly* approached upon the matter, more advantageous terms might be obtained, but, as a matter of fact, each of our honorary secretaries during his term of office has approached the club with this object in view, but without result.

It has been urged by some that the federation could not be worked on a capitation fee smaller than that demanded by the A.C.G.B. and I., but the actual amount of the fee would depend entirely upon the advantages desired. In this connection I may here touch upon the admission of a "prominent member of the A.C.G.B. and I.," who, speaking on the subject of affiliation, says: "It is hard, I admit, that practically no return whatever is given for this half-guinea."

Not only is this the case, but also by affiliation the provincial clubs lose much of their independence, and have to submit in many matters to the dictation of the central and unsympathetic club.

ALBERT E. NEWTON,
Hon. sec. Reading A.C.

HINTS TO DARRACQ USERS.

[3255.]—Adverting to Mr. Inglis's letter, your correspondent admits that he has had to open out the air ports and alter the needle valve, etc., and no doubt owing to these alterations he has done away with the over-heating. I do not wish to infer for a moment that the 12 h.p. Darracqs should over-heat. I only know that as sent out from the works they have a tendency to do so, and the object of my first letter was to enable those users who were experiencing little difficulties in this way to remedy them, as from considerable experience I know that when the 12 h.p. Darracq has been properly adjusted in this respect it is unexcelled for hill-climbing work and speed. In consequence of the suggestion I made, I have had numerous letters from different parts of the country from motorists who have adopted my suggestion with most beneficial results. Mr. Inglis suggests that Shaw's auxiliary air valve would probably be better than the air hole in the pipe, and I am quite prepared to agree with him on this point. There is one thing, however, that I cannot quite reconcile as being in accordance with working order, viz., Mr. Inglis's admission that he has practically driven from fifty to eighty miles, but owing to bad roads he has had to drive mainly on his second speed. I have rarely seen on roads that are capable of being motored over at all that the second speed need be called into requisition, except, of course, only up the steep hills that may be met with on such a journey, and I am quite glad to read later on in Mr. Inglis's letter that he admits the flexibility of the engine allows quite ninety per cent. of driving to be done on the top speed. I have a letter before me at the moment from Mrs. Edward Kennard respecting the 12 h.p. Darracq with which I supplied her. Referring to a journey from London to Market Harborough, Mrs. Kennard says: "Coming back to-day we had a perfect hurricane to contend with, but we did an absolute non-stop run of eighty-

six miles in four hours. We put the second speed on once at Barnet Hill, and with that exception she took everything on the top as far as Northampton." Mrs. Kennard is, of course, an exceptionally good driver, and it shows that when once the car is in proper working order and understood the second speed is a thing which need be resorted to very seldom. In conclusion, I would just like to caution users of Darracq cars with mechanically-operated valves to be careful in taking the valves out for regrinding or any other purpose that they are each replaced on the proper seat—that the exhaust valve is not placed on the inlet seat. The two valves, of course, are practically identical, except that the exhaust valve is made of different material. C. BINKS.

ALWAYS TWENTY-TWO MILES AN HOUR.

[3256.]—A few weeks ago I was driving to Guildford and was held up at the entrance to Ripley, and upon asking the constable what rate I was travelling was told twenty-two miles an hour. In point of fact, knowing of this trap, I was not going twelve miles an hour. I instructed my solicitor accordingly, and was duly fined.
H. R. POPE.

NON-SLIPPING TREADS.

[3257.]—In answer to Mr. W. Keith Murray *re* Dunlop non-slipping tyres, I may say my experience of these tyres as fitted to my car has been everything that could be desired, having run just on 2,000 miles, and the treads still in fair condition, with never a semblance of a skid, which, considering the recent weather, says a great deal.
ERNEST H. HOUFTON, M.D.

THE RELIABILITY TRIALS.

[3258.]—I note the Star Engineering Co.'s reply to my letter *re* reliability trials, and am much surprised to see the Star Co. insinuate (Why do they not say outright?) that my letter contains erroneous or exaggerated statements. I think the Star Co. would have been better advised had they, before rushing into print, looked into the statements I *did* make, when they would have found all I said to be absolutely accurate. However, as they either cannot or will not see this, I beg to remind them I gave full particulars in my letter of the pages in *The Autocar*, whence I gathered my information, and if they will take the trouble to look up they will find my summary of the causes of withdrawals and road stops is absolutely correct, and in accordance with the particulars given in the pages of *The Autocar* mentioned by me.

Let the Star Co. turn up my summary, find out from the lists on pages indicated in my letter to which my remarks refer, and they will see nearly threequarters of the failures and troubles took place on English-made cars. I ask them, does it or does it not show the English car to be less reliable than the foreign?

As regards casting reflections upon the English cars, I wish to find fault with no car, either English or foreign, without just cause. I have had practical experience both with English and foreign cars, and must say I have found I get infinitely better treatment, and an altogether more reliable and in every way superior car, from the best foreign makers. My experience, and also that of others with whom I am acquainted, has been that the productions of the English makers generally are unreliable, and this experience is, I contend, amply confirmed by the results of the trials.

Respecting the performances of the cars mentioned by the Star Co., one of the Star cars certainly ran through, but the other failed and was withdrawn through sprocket wheel breaking—just one of those annoying accidents which with good design and materials never ought to have occurred.

The four English cars which made non-stop runs had certainly not "slipped my memory," and I therefore criticise them in the order given by the Star Co. The first, I believe, to be a really good car, and one of the best made in England. Second—I have possessed one of this company's productions, and have had nothing but trouble with it. Third—Also, I believe, a good car, driven by a foreign-made engine. If the English engine is superior, why don't this firm use one? Fourth—The price of this car being upwards of four figures, it is only of interest to the few who are able or would care to give this price, and it cannot be cited as an average English car. Further, two of these cars were entered, and the other one lost a large number of marks, and cannot be said to have done at all well.

I note the Star Co. say the value of my entire letter is absolutely nil. I can quite believe that, so far as causing any improvement in the productions of the English makers goes, its effect *will be* "absolutely nil." I have several times before to-day mentioned little points to the English makers which practical driving experience showed me needed improvement, but they—whose experience of running a car probably extended to a few miles trial of a new car, whereas mine meant thousands of miles with the same car in all parts of the country—have invariably "known best" and refused practical suggestions, and so long as this sort of wisdom prevails, the English car is not likely to improve much.

However, I don't despair because the value of my letter is "absolutely nil" to the manufacturers of cars. I did not intend it to benefit the maker, but the user.

I may say I have driven a motor almost ever since the first introduction of motors into this country, am a practical amateur mechanic, do all my own repairs, and therefore know what I am talking about.

As for writing under initials, I beg to state that I am not interested, except as a user, in any motor company whatever, English or foreign, and having no axe to grind, do not see why I should sign myself other than, H.W.

UNOFFICIAL TRIALS.

[3259.]—We hope that in the interests of the automobile business generally, and also in the interests of the public, you will give us a little space in the columns of your paper to show what a perfectly absurd and foolish arrangement this is of a trade paper trying to arrange an automobile run for light cars. Where is the benefit for the manufacturers? If there is any, after careful consideration, we fail to see it, and the only benefit that there is out of the whole run is from an advertising point of view for the paper in whose interest the run is made.

Now, surely, a reliability trial for motor cars of 1,000 miles is quite sufficient for one year. Personally, we have had quite enough of trials, and I think that the rest of the manufacturers have had the same.

If this trial goes through, what will be the result? The week after we shall expect to see *The Autocar* announce a 250 miles run, and then the *Automotor Journal* will be organising a 350 miles run; and all this can be avoided if we ourselves will only stand firm and say "No." We firmly believe in automobile papers, as long as they are run from a journalistic point of view. We will support one organised trial each year run under the auspices of the Automobile Club, or under the rule of some other recognised automobile society.

Our impression is that this trial is not wanted. It is foolish to talk about 125 miles being a test for any car, and, finally, the manufacturer or trader gets nothing for his trouble, but the promoter of the run gets a very fine advertisement for his paper. That is the way we look at it.

We ourselves positively state that we shall not enter an Oldsmobile car in this trial, as we have sufficient confidence that the Oldsmobile is a car which would compete in open competition with any other car. For this reason we entered in the light car section in the thousand miles trial, and two came through in very fine condition.

Now, then, if these cars, whose names we read in an automobile paper as either entering or about to enter in this light car run were to have entered in the Automobile Club's thousand miles reliability trials, we should have had a very fine class; but why did they not enter? Was it because the car was not built? or had they not sufficient confidence in the car to do this thousand miles, but have sufficient confidence it would do 125 miles? Or did they enter and fail, and now want to try again in a competition which any car that will run at all should be able to get through easily? Or is it that some of these names which we read about are names which are taken out of a directory?

We do not blame a manufacturer for not wishing to risk his car in a trial of a thousand miles or any long distance. If he is successful, it is a very fine thing for his car; but if he loses it is a lot to lose. Therefore, we would suggest that where the manufacturer or agent is not sure of his car, let him run in the hundred miles quarterly

trial under the auspices of the Automobile Club; but do not let us assist the automobile papers to organise and promote our motor car trials, exhibitions, etc. If we do, we may as well ask them to come and run our businesses for us. Let the automobile paper carry on its work in a straightforward way, and if there is a good car on the market, whether the manufacturer or agent, or whoever is handling the car, is supporting the paper or not supporting it in the interests of the automobile industry, let the editor of the paper have a good word to say for the car.

We are sorry if our remarks are strong; but we feel very indignant over the whole matter, and are sure that the trial is absurd, and is not wanted by the trade generally.

For CHARLES JARROTT AND LETTS, LTD.,
W. LETTS.

[3260.]—A well-known motor cycling paper has suggested a motor car run round London, and at the very head of the list it is mentioned that a 6 h.p. De Dion has entered. Would you mind kindly contradicting this in your next issue, as we have not entered for any competition promoted by any newspaper, and we think it unfair that our name should be mentioned, which will probably induce entries from less known makes of vehicles. In our opinion the Automobile Club's recent trials have done all that is necessary for trials for this year, and we think it ill advised to ask the trade to spend money on trials at the moment.

For the DE DION-BOUTON, LTD.,
J. W. STOCKS, manager.

[In addition to the above, we have been informed that other firms stated to be entered, or whose entries were expected, are not taking part in the trial. Among the denials are the makers or sellers of the following: 8 h.p. M.M.C., 5½ h.p. Pony Richard (Mann and Overton), 6 h.p. Star, Locomobile, 6 h.p. Swift, and Cadillac (Anglo-American Motor Car Co., Ltd.). The cars mentioned have taken part, or were equal to taking part, in the 1,000 miles trials, and the makers or sellers of the cars are therefore particularly anxious that it should be known that they have not entered their cars for the proposed drive, as they consider it likely the inference might be drawn from the announcement of their having entered that their small cars were not equal to undergoing a 1,000 miles test.—ED.]

ENGINE BRAKING.

[3261.]—I have followed with great interest the opinion of your correspondents on the subject of engine braking, and agree that an engine throttled in the usual manner (having no compression when throttled) does only to a very slight extent act as a brake upon the car.

Mr. Doyle in his letter confirms this by saying, after testing both high and low powered cars, that it is only the first few compressions that have any braking effect; and once the resistance of compression has been overcome, the engine has no braking effect whatever.

There are other means, given the proper conditions, of bringing in the engines to act as a very sweet and effective brake. The device (Economiser cooler governor brake) is the subject of a patent; the drawings and particulars I shall submit to *The Autocar* very shortly.

Now, to show that an engine would act as a brake, I would suggest that the driver who wishes to test this matter, before descending a long hill, should disconnect the intake pipe near to the inlet valves, then put the top gear into mesh, release the brakes, and allow the car to go until the speed of the gear is attained, then gently let in the clutch, when the engine will begin to turn, drawing in full charges of cold air, thereby keeping up the compression, which acts as a perfect pneumatic brake even on the top gear, according to the gradient in relation to the horse-power. The suggestion can easily be tried by anyone who doubts the efficiency of the engine as a brake; the device proper, of course, is worked by a small lever from the steering.

As to the friction both from pistons and gear, on a well-designed car this is practically nil. This also is easily tested by taking out the inlet valves and plugs; put the gear into mesh, turn the starting handle, and if the car is standing on level ground, it will move forward when the handle is turned with nearly as little exertion as pushing the weight of the car when free. J. COOKE.

STEAM CARS.

[3262.]—Will Mr. Gooch (3245) let us know how much paraffin oil he consumes per mile with four passengers up on a run of, say, thirty miles, the quantity and kind of spirit he uses to start his paraffin burner, the time it takes to get up 500 lbs. pressure starting all cold, and the kind and price per gallon of oil and spirit he uses? Also, will he kindly let us know if he employs a mechanic to do this "getting up steam," or whether he does it himself? Also, will he please state the quantity of water used on a run of thirty miles and the amount of heavy oil used for the cylinders and engine? I trust he will be able to give us reliable figures.

26th October. PROGRESSION.

[3263.]—I beg to endorse Guert's views as to the danger of carrying large quantities of petrol upon a steam car.

I am very favourably impressed with the White steam car, but should certainly not entertain the purchase of one for a moment unless it could be supplied with a paraffin burner. I have had a large experience of petrol, and although always very careful have more than once narrowly escaped nasty accidents, and consider carrying eight gallons of petrol on a steam car a rather dangerous proceeding.

Moreover, setting aside the danger, its cost is altogether too excessive. Although the White people say they burn a cheap petrol at 8d. or 9d. per gallon, I cannot find any such cheap petrol to be procurable in my district. Another great advantage of burning paraffin is that it can be obtained anywhere, even at the smallest villages, in case of emergency.

I am quite convinced that if the White Co. wish their car to be really successful and popular they must fit a paraffin burner.

I should be glad if any user would inform me whether the speed of the White is regulated by a throttle valve cutting off the supply of steam to the engine or by the amount of water pumped into the boiler. Also, supposing the car is stopped for, say, three or five minutes, will it start again without use of the hand pump?

Would someone also kindly reply *re* durability of steam pipes and joints? H.W.

[3264.]—Replying to "Progression's" letter (No. 3199), I am in accord with his remarks in general, but would like to point out to him that amongst our numerous clients there are gentlemen owning Gardner-Serpollet cars who employ professional drivers, and yet derive an immense amount of satisfaction and pleasure from their cars, appreciating, as does "Progression," the quietness, absence of vibration, and the smooth graceful glide of the Serpollet.

Again, "Progression" says he does not know of a steam car that can get away under fifteen minutes. Therefore I would like to call his attention to the fact that during the recent reliability trials the Gardner-Serpollet not only lit up, but filled all its reservoirs each morning at the average of twelve minutes, and on the first morning, when there was not any filling to do, was under weigh in exactly five minutes. This compares favourably with the petrol cars, as an average of eight minutes per morning was taken by the petrol cars in any class to do their filling and starting, and sometimes a petrol engine will not be coaxed into starting, but a steam car is an invariable starter. J. W. H. DEW.

(The Speedwell Motor and Eng. Co., Ltd.)

SUMMARY OF SOME OTHER CORRESPONDENCE.

Mr. D. M. Weigel, the managing director of the British Automobile Commercial Syndicate, in referring to the new six-cylinder Napier, of which some details were given last week, points out that the 1903 Clément has been driven repeatedly with a full load from London to Brighton and London to Southsea without changing speed. This car, as we have already mentioned, will be known as the Talbot next year.

Also referring to the new Napier, the Duryea Co. point out that their steering has been made adjustable for wear for the last six years, and they therefore claim to be the first in the field to bring out a steering adjustable throughout for wear. They also state that the Weller steering mentioned on page 527 last week was patented by Mr. Chas. E. Duryea in 1896.

Flashes.

Mr. Thomas Anderson has been appointed general manager of that energetic concern the Road Carrying Co., Ltd., of Liverpool.

* * *

As a result of the excellent running of the ten-seated 22 b.h.p. Daimler in the reliability trials the makers have received an order for one of these vehicles from a well-known firm of Colonial merchants.

* * *

Negotiations are pending with the management of Claridge's Hotel with a view to the Ladies' Automobile Club making its future home there in six magnificent rooms, with a private entrance, on the ground floor, while Claridge's motor car garage in Brook's Mews, will also be placed at their disposal.

* * *

It is good to note that a well-known hotel like the White Lion at Cobham keeps a stock of lubricating oils, sparking plugs, and carbide for cycle and car lamps. From the number of motors in the hotel yard on a Sunday, it would appear that this hotel remains the favourite luncheon rendezvous to frequenters of the Ripley Road.

* * *

The first English car to receive a certificate from the Engineer of Mines on his passing it as satisfactory and suitable for use in France was a Napier. This was as long ago as June, 1901. Every year a car of the latest model is similarly passed. It has been stated elsewhere than in *The Autocar* that the first English car to receive a certificate was of another make.

* * *

Mr. L. Swinnerton Dyer, of Westhope Manor, Craven Arms, Salop, writes appreciatively of the valuable help he received from Mr. Vincent New at Evesham recently. Mr. Dyer had the misfortune to have a governor shaft seize when in that locality, and hearing of Mr. New, who is on the A.C.G.B. and I. list of repairers, he sent for him, but being out at the time, his man came at once, and did everything in his power. Mr. New came next morning, and placed his shop and pit at Mr. Dyer's disposal, and worked himself the whole of one day and night. Mr. Dyer remarks: "I think it only right that such kind interest and consideration should be made known, and I am sure there are few local repairers who would have given up their night's rest and put themselves to the inconvenience of keeping their shop open all night in order to oblige a customer as Mr. Vincent New did. It may be of interest to add that Mr. New possesses three Daimler cars, and no motorist need feel uneasy as to locating a cause of stoppage if he is in the vicinity of Evesham as long as Mr. New is there."

"THE AUTOCAR" DIARY.

Midland A.C. Hill-climbing Contest (date not fixed).
Nov. 1.—Entries close for German War Office Trials.
,, 2.—Cheltenham and Gloucestershire A.C. General Meeting.
,, 3.—Society of Motor Manufacturers and Traders Dinner and Discussion, "Future Motor Vehicle Trials."
,, 5.—A.C.G.B.I.—House Dinner and Paper "Heavy Motor Traffic," by Mr. E. Shrapnell Smith.
,, 12.—A.C.G.B.I. House Dinner and Paper. "The Limitation of Cylinder Capacity," by Mr. C. W. S. Crawley.
,, 15.—German War Office Competition for Alcohol-driven Heavy Vehicles.
,, 20 to 28.—Crystal Palace Motor and Cycle Show.
,, 25.—Aero Club Anniversary Dinner.
,, 26.—A.C.G.B.I. Paper, "The Dust Problem," by Col. Crompton and Mr. C. W. S. Crawley.
Dec. 10 to 25.—Paris Salon (A.C. de France).
,, 31.—Entries close for 1904 Gordon-Bennett Race.

Sir Albert K. Rollitt, M.P., has consented to open the forthcoming Stanley Cycle Show, to be held at the Royal Agricultural Hall, November 20th to 28th.

* * *

We shall be glad to have the names of the makers or sellers of a silencer which a correspondent believes is called the "Stanley." He finds that it has an exceedingly quieting effect on a make of car which is not remarkable for its quietness, and he wishes to obtain a similar exhaust box.

* * *

At the recent meeting of the Midland Municipal Officers' Association, a paper was read by Mr. E. Parr, assistant surveyor to the Handsworth District Council, on "Motor Vehicles for Municipal Work," in which the advantages of the motor in comparison with horse haulage were strongly emphasised. Mr. Parr sees great economic possibilities for the municipal motor vehicle, which he thinks might at short notice be readily fitted with a plough and used for snow removal.

* * *

Judge Emden, whose clear decisions on all matters affecting road traffic are well known, and who spoke the other day of the advantage which he had derived from his cycle and motor car experience, drives an 8 h.p. M.M.C. With characteristic thoroughness, he did as we always urge our readers to do—he made himself thoroughly acquainted with the theoretical side of the question, and as soon as he had his car he was not satisfied till he was practically acquainted with the working of every part. Since then he has driven a good bit, and we are glad to record that he is a thoroughly satisfied owner.

* * *

Our attention has been drawn to an unintentional injustice which has been done to several cars which went through the 1,000 miles trials in a most satisfactory manner, when in summarising the results attention was focussed rather upon the number of non-stop runs accomplished by each car than upon the total number of marks lost upon the eight day trips. As an instance we may cite the 18 h.p. four-cylinder James and Browne. This accomplished four non-stop runs, but only lost six marks during the whole period. These were partly due to a slight stiffness in the change-speed gear, probably caused by the abnormal dust. A footbrake which was too tightly adjusted by a well meaning but over-zealous mechanic also played its part; but, unfortunately for the makers, these six marks were spread over four days, so that only four non-stop runs were actually made. Other cars which lost considerably more marks made more non-stop runs, as it so happened that they lost all, or most of their marks upon one long stop. The final results will be in no way affected by this, but we mention the matter to show that the total number of marks, rather than the number of non-stop runs, should be regarded as the criterion.

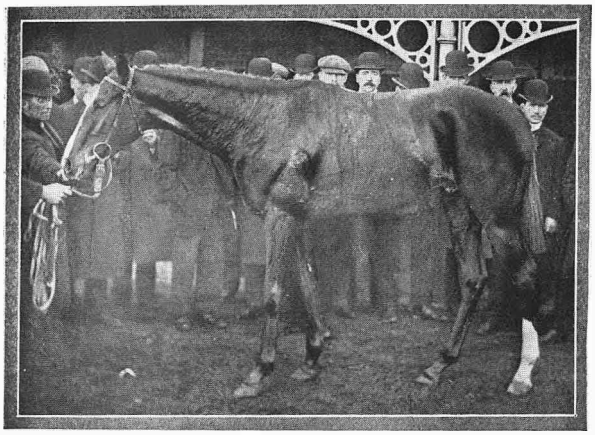


Photo by *Lafayette.*

THE HORSE AND THE MOTOR. The automobile plate, value 400 sovs., which was run for at the Curragh races, Ireland, on October 21st, was won by Mr. George Edwards's Nuthatch colt. This race and trophy have been instituted by the Irish Turf Club in commemoration of the Gordon-Bennett race being run in Ireland. No better evidence than this could be given of the rapid disappearance of antagonistic feelings between horse owners and automobilists, and it again demonstrates the fairness and sportsmanship of a race notoriously addicted to the horse.

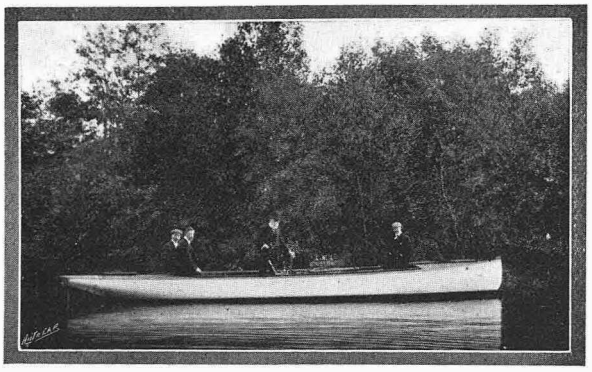
Lately an exhaustive report has been published by Mr. Joselyne, a main road expert, on the state of the main roads of Kent. One point in it on the question of road making is of interest to all automobilists, viz., Mr. Joselyne's remarks upon the motor traffic. The expert says: "That wherever he has been there have been complaints of the increase of the motor traffic, comprising not only traction engines, but motor waggons, motor passenger cars, and motor cycles. Each of these affects road surface in a different way. The heavy engines grind up the surface, and in bad weather, and especially during repairs and after frost, destroy some of it altogether. The motor cars and cycles, by their rapid impact, loosen the surface wherever it is not perfectly smooth, or has been partially affected by heavier engines. They also disturb and scatter the binding material of the road surface, thus leaving the road still more susceptible to the combined effects of weather and wear of the heavy traffic." Notwithstanding all this, Mr. Joselyne adds: "The fact must be faced that motor power has come to stay." This being fully recognised in the North of England, the roads there are being made strong enough to withstand this traffic, the necessity of coping with which is undoubtedly a strong argument in favour of the use of harder and more enduring materials on Kent roads, as recommended in the report.

It is significant to note that in their calculations for motor 'buses for use in Birmingham, in preference to a tramway system, Messrs. George Barker and H. Barker Lake have allowed for one hundred more motor 'buses than a corresponding tramway system would have cars. This is to ensure a more rapid transit, and a quicker and more frequent service than could be provided by trams. Not only so, but if necessary two hundred more autocars than tram cars could be put on, and there would still be plenty of capital in hand, owing to the enormous amount which would have to be sunk in equipping a tramway system. This is another score to the autocar running on ordinary roads as opposed to the tramcar running on rails.

* * *

The Lanchester car, which has hitherto been fitted with an air-cooled engine, an induced draught being drawn over the engine by means of rotary fans, will in future be provided with water-cooling when desired. The motor itself will be more powerful than the present 10 h.p., and will be quoted as a 12 h.p. The principle of the engine, of course, will not be affected, and the well-known and unique system of balancing will be retained. Although many of the air-cooled cars are still running and giving every satisfaction, there are numbers of prospective Lanchester owners who do not care about air-cooling in any form. We understand, too, that existing air-cooled Lanchesters can be converted to water-cooling, and brought thoroughly up to date for a very reasonable sum.

NINETY MILES EVERY NIGHT. The "Eastern Daily Express" is a go ahead paper, and quite alive to modern time-saving inventions. Over twelve months ago it made a contract with Messrs. Mann & Egerton, the Norwich motor firm, to carry a load of papers six nights a week from Norwich to Lynn. The machine Messrs. Mann & Egerton selected for the work was a 4½ h.p. De Dion, which had then had over a year's hard service. This was used for six months, and then one of the 6 h.p. De Dion was put into service, this being the machine we show in our illustration, and it has now been running for six months and has only been late twice, once through a broken water pipe and once from a burst tyre. The work is particularly trying, as it is always at night or rather early in the morning, the start being made at two o'clock. To return to the 4½ h.p., it would be interesting to add that this car in the first eighteen months of its career was driven over 25,000 miles. It was then carefully examined throughout, and its owners state it will certainly be good for another 25,000 miles at least.



A PETROL MOTOR LAUNCH. Our illustration depicts a 30ft. petrol launch which Messrs. J. W. Brooke and Co., Ltd., of Lowestoft, have just engined with a six-cylinder Brooke petrol motor giving 26 b.h.p. The launch has been built to the order of Mr. E. Estcourt, of Wroxham, a gentleman whose name is familiar to all automobilists as being the inventor of several improvements in connection with internal combustion motors. He is one of the automobile pioneers.

In the latter portion of our description of the Miesse steam car, which appeared in *The Autocar* of October 17th, page 480, in describing the starting of the car, it was stated that the water by-pass should be opened, whereas it should be closed. With regard to the starting of the car it is not absolutely necessary that the steering wheel should be held, provided, of course, the steam throttle valve be closed. It is advisable in all cases to make a practice of having the hand on the steering wheel, so that should the driver inadvertently neglect to shut down the by-pass completely no harm would result from the car travelling a few feet, as it might happen to do, before the throttle valve could be closed down. With regard to the time occupied in starting the car from all cold, the makers inform us that this is well within the time limit which we gave.

* * *

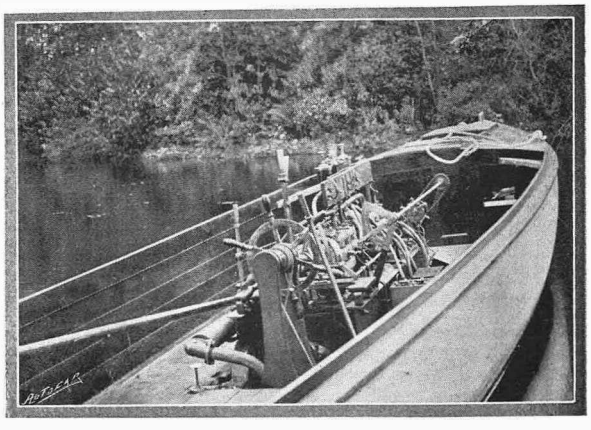
Mr. Oliver Stanton, the well-known expert automobilist, who acts as adviser to King Edward VII., has lately joined the firm of Clément-Talbot, Ltd. In an interesting conversation on the reasons which induced the change, Mr. Stanton informed us that it was entirely due to a trial spin upon an 18 h.p. four-cylinder Talbot car in Long Acre with Mr. D. Weigel. So soon as he was seated he was much surprised to find Mr. Weigel changing rapidly up through first, second, and third on to his top speed within a hundred feet of the point at which he started. He was still further astonished to find the car actually crawling behind slow vehicles in the congested line of traffic, while all the time the engine, though running so slowly, was, save for the "burring" of the trembler blades of the coils and the clicking of the spark across the spark gaps, quite silent. There was no sound from the gearing, and the vehicle appeared to float over the bumpy wood pavement. The ride was continued on top speed through Leicester Square, across the Circus, at barely more than two miles per hour. Later, but without comment, Mr. Stanton asked for a loan of the car, and found that before he had been up ten minutes he could handle it with a deftness equal to that of Mr. Weigel. The car obeyed the accelerator pedal like a charm, and the flexibility of the engine delighted him. Later he took the car home, and, for his own information, went carefully through it, taking it down for the most part. So impressed was he with all he had seen, felt, and experienced, that he shortly joined the Clément-Talbot firm. This he would not have done had he not known that in a very short time the Talbot cars will all be constructed at and issue from the new works which are now in course of erection at Ladbroke Grove, Notting Hill. (See illustration page 556.)

* * *

The trial of side-slip devices which was announced some twelve months ago by the Automobile Club will probably take place within the next two or three months. It should be a most interesting trial in every way, as we feel sure it is only a question of time before every car is fitted with an efficient anti-skidder of some kind. All other things being equal, the device which will obtain the greatest favour will unquestionably be the one which, although permanently fixed to the wheel, can be instantly put out of action.

* * *

Whistlefield Hill, the famous Scottish gradient, which first became known to automobilists through the discomfort it caused to many cars which ran in the five hundred miles reliability trials of 1901, has recently been successfully climbed by a little Oldsmobile car, driven by Mr. J. P. Patterson, of Glasgow. The hill at all times is a very bad one, crossed and recrossed as it is by rain washed gullies. It is approached by a sharp right-angle turn, so that a car has to commence its climb immediately at the foot without any assistance being given by rushing it, and so getting sufficient momentum to help the engine in its labours. To those who remember some of the performances of the large cars in the trials before mentioned, the performance of this wonderful little car will be duly appreciated. To those who are unfamiliar with the hill, we may state that it is 1,629 yards long, and has an average gradient of 1 in 16.4, the steepest gradient being 1 in 7.8. Whilst speaking of the Oldsmobile, it may be interesting to add that Mr. W. G. D. Goff, the chairman of the Irish Automobile Club, and the owner of a number of much more ambitious vehicles, has purchased a 5 h.p. Oldsmobile as a runabout.



A PETROL MOTOR LAUNCH. The 26 b.h.p. six-cylinder Brooke engine in position in launch. It will be noticed that the steering wheel and the controlling levers are so placed that the boat may be operated by a single individual.

CLUB DOINGS.

Reading A.C.—The Proposed Federation.

A copy of the following communication has been forwarded to the honorary secretary of each provincial automobile club:

"October 26th, 1903.

"Dear Sir,—My committee have already received so many encouraging replies to the circulars we have addressed to the provincial automobile and motor cycling clubs on the question of the proposed automobile federation that they think it well to fix an early date for the proposed conference.

"We shall therefore be glad to receive a reply from your committee as soon as possible, in order that arrangements can be made.

"I shall be glad if you will kindly bring the matter before your committee at the earliest possible moment and acquaint me with their decision. At the same time we should be glad to have any suggestion as to the most suitable place and approximate date for the conference to be held. We ourselves would suggest Birmingham, London, or Reading, but we wish to meet the convenience of a majority of the clubs.

"ALBERT E. NEWTON,

"Honorary secretary Reading A.C."

Midland A.C.

The hill-climbing competition arranged by Mr. Holder has again been delayed, owing to the difficulty of obtaining a course suitable for the contest.

The club committee have secured a room at the Grand Hotel, Birmingham, as headquarters and a club-room. This will be open to members at all hours during which the hotel is open. A lockup garage, which will accommodate about a dozen cars, has been arranged for, and the electrical engineer of the hotel will be in charge.

Yorkshire A.C.

Mr. A. W. Dougill, honorary secretary of the Yorkshire A.C., writes: "In your notes of October 24th *re* federated clubs, you say that the Nottingham and District Club were affiliated on a payment of £10. I may say that we also had this amount accepted, but for the year 1901 only. Since then we have had to pay 10s. 6d. per member, which, you will see, is rather a large sum on a membership of upwards of 200. This smaller sum was accepted on our representing to the A.C.G.B. and I. that sufficiently long notice of the rise from the previously paid 2s. 6d. per member had not been given us. I believe other clubs were also accepted the first year on payment of an affiliation fee of £10, so that the Nottingham A.C. were not particularly favoured."

Portsmouth A.C.—Discussing the Position of Affairs.

A meeting of the automobilists in the Portsmouth district was held on Thursday last week at the George Hotel, Portsmouth, for the purpose of discussing the new Motor Car Act. Ald. T. Scott Foster, J.P., who presided, after referring to the trap in which he had recently been caught, pointed out that it would be well for them to educate and conciliate the police, and all who were opposed to motoring. He had taken several of the local magistrates for long runs in his car, and had also taken the chief constable, who was not hostile to motoring, and only insisted that drivers should not drive to the common danger. In regard to conciliation, it had always been his custom, when the driver of a horse made room for his motor, to thank him. It pleased the driver and did a deal of good at little cost. In Portsmouth, so long as motorists drove at a reasonable pace, he felt sure they would not be interfered with. The Town Council held that the two first sections were strong enough for any chief constable in the kingdom, and would not ask the Local Government Board to reduce the speed limit in the borough to ten miles. A resolution was proposed to the effect that motor car owners of Portsmouth desired to thank the Council and the police for the invariable courtesy and justice with which they had been treated, and which was in strong contrast to the prosecution common in some other districts, and respectfully suggested that it would be far better to keep before drivers the necessity to avoid inconvenience and danger to other road users, which might better be accomplished without the introduction of any other limit than that provided by the recent Act. The resolution further suggested that a red notice board with white letters should be placed at the entrance of the borough with words of caution thereon. Mr. Vernon-Inkpen seconded, and the resolution was passed unanimously, it being agreed to send a copy to the Town Clerk to come before the Watch Committee.

The Chairman remarked that Bournemouth had declined to fix any limit, and if only Southampton could be got to do the same, he thought they would shame those little places in the county which wanted to close their districts to the use of motor cars.

Another resolution which was passed pledged the owners of motor cars to assist the police in preventing reckless driving, and also, so far as lay in their power, to adhere to the rules of the road. Dr. Leon, who seconded, mentioned that Portsmouth was one of the worst towns for drivers of carts, etc., observing the rules of the road, and something ought to be done to make them more careful. Resolutions were also passed expressing sympathy with the terms of the resolutions to come before a meeting of motorists of the county at Winchester, urging the County Council to carry out the Act in a liberal spirit, and in such a manner as not to injure motoring.

Alderman Scott Foster at the close criticised the Act, which he characterised as an abominable piece of legislation. In acknowledging a vote of thanks, the Alderman remarked that he meant business. He should place himself in communication with other parts of the country, and he prophesied that in three years' time the authors of the Act would be thoroughly ashamed of themselves.

Wolverhampton and District A.C.—Hill-climbing Contest

On Saturday last the above club held its first hill-climbing handicap at the Hermitage Hill, Bridgnorth. Prior to the first event a luncheon took place at the Falcon Hotel, to which sixty-four members and friends sat down. The honorary secretary (Mr. S. R. Rhodes), in welcoming the visitors, said it was most gratifying to the club to know that the governing authorities of the

A competing car coming to the starting line.

ancient and picturesque borough of Bridgnorth had taken so broad-minded a view of an industry which promised to revolutionise means of transport, connect rural districts with great centres of industry, and bring renewed prosperity to country towns and villages, and that they in Bridgnorth were prepared to foster and encourage rather than harass or hinder its progress. He trusted they would all use their influence to prevent any roads being closed or the speed limit being further reduced, except in places where it was absolutely necessary for the safety of the whole of the travelling public. Motorists generally

claimed no greater rights than other users of the King's highway. He thanked the town clerk, borough surveyor, and superintendent of police for the courtesy and assistance they had given and the interest they had displayed in the competition. The Town Clerk, in reply, assured the club that the authorities of Bridgnorth would do everything in their power to encourage motorists to visit their town. From personal observation he failed to see any good reason for endeavouring to prevent a motorist travelling along a straight country road void of all traffic and of any by-lanes at a speed of even fifty miles an hour. What many motorists had to do was to exercise more discretion, and not for the sake of a few moments' delay rush past untrained horses and nervous drivers, or through villages. He proposed prosperity to the Wolverhampton and District Automobile Club. A move was then made to the Hermitage Hill, which was thronged with interested spectators, the cars lined along the road making a very attractive display.

The following are the results of the competition:

Owner and make of car.	Times: 1st ascent.	2nd ascent.
Mr. P. S. Bayliss (10-12 h.p. Sunbeam)	2m. 53⅕s.	2m. 53⅖s.
,, J. Lisle (10 h.p. Star)	2m. 58⅖s.	3m. 4⅕s.
,, A. E. Price (5 h.p. Vauxhall) ...	5m. 46s.	
,, F. C. Bishop (7 h.p. Star) ...	4m. 43⅕s.	4m. 25⅕s.
,, F. W. Bayliss (20 h.p. Wolseley)	2m. 18⅖s.	2m. 13s.
,, T. Cureton (10-12 h.p. Sunbeam)	2m. 57⅖s.	2m. 45s.
,, G. H. Evans (10 h.p. Wolseley)	2m. 53s.	2m. 53⅕s.
,, J. R. Darke (8 h.p. M.M.C.) ...	5m. 5⅕s.	5m. 13⅖s.
,, E. B. Bayliss (7½ h.p. Wolseley)	3m. 11⅖s.	
,, W. H. Haden (7 h.p. Star) ...	4m. 15⅖s.	4m. ⅘s.
,, T. F. Mills (8 h.p. Sunbeam) ...	4m. 46⅖s.	4m. 10⅖s.
,, J. Osmond Evans (10 h.p. Wolseley)	3m. 45⅖s.	3m. 42⅕s.
,, A. E. Jenks (8 h.p. Wolseley) ...	3m. 55⅖s.	
,, W. Clarke (20 h.p. M.M.C.) ...	2m. 5⅖s.	2m. 2⅖s.
,, Howard Moor (10 h.p. Star) ...	3m. 15⅖s.	
,, E. W. Trusselle (3½ h.p. De Dion)	6m. 3⅖s.	

The times of the motor cycles which competed will be given in *The Motor Cycle*.

AN "ANALYSIS" OF THE TYRE TROUBLES IN THE 1,000 MILES TRIALS.

The appended figures have been worked out by a correspondent (Mr. H. R. Green) from the details that were given in *The Autocar* of October 17th (pages 488-490). The particulars from which the figures are compiled, it must be remembered, were originally supplied by the competitors themselves. Nevertheless, they are very interesting, and our readers will doubtless join with us in thanking the compiler for the trouble he has taken.

Number of Cars on which data are obtainable, 59.

13 cars fitted with Dunlops = 22.03 per cent.
26 ,, ,, ,, Michelins = 44.07 ,, ,,
13 ,, ,, ,, Continentals = 22.03 ,, ,,
7 ,, ,, ,, other makes = 11.87 ,, ,,

Dunlop Tyres (fitted on 13 cars).

No trouble on cars Nos. 18, 51, 66, 77, 93, 134.
Punctures ... ... Nos. 12, 20, 24, 82.
Valve troubles ... Nos. 41, 68.
Bead too small for rim No. 91.
Number of "no-trouble" runs = 6.
Percentage of "no-trouble" runs = 46.15.

Fisk Tyres (fitted to 3 cars).

Puncture troubles on cars ... ... Nos. 14, 17, 21.

Michelin Tyres (fitted on 26 cars).

No trouble on cars Nos. 19, 39, 47, 48, 49, 87, 89, 100, 105 (?), 109, 120, 130, 133, 137, 140.
Very little trouble No. 59.
Punctures ... ... Nos. 29, 36, 62, 63, 96, 113, 126, 127, 129, 131.
Number of "no-trouble" runs = 14 (excluding No. 105).
Percentage of "no-trouble" runs = 53.62.

Continental Tyres (fitted to 13 cars).

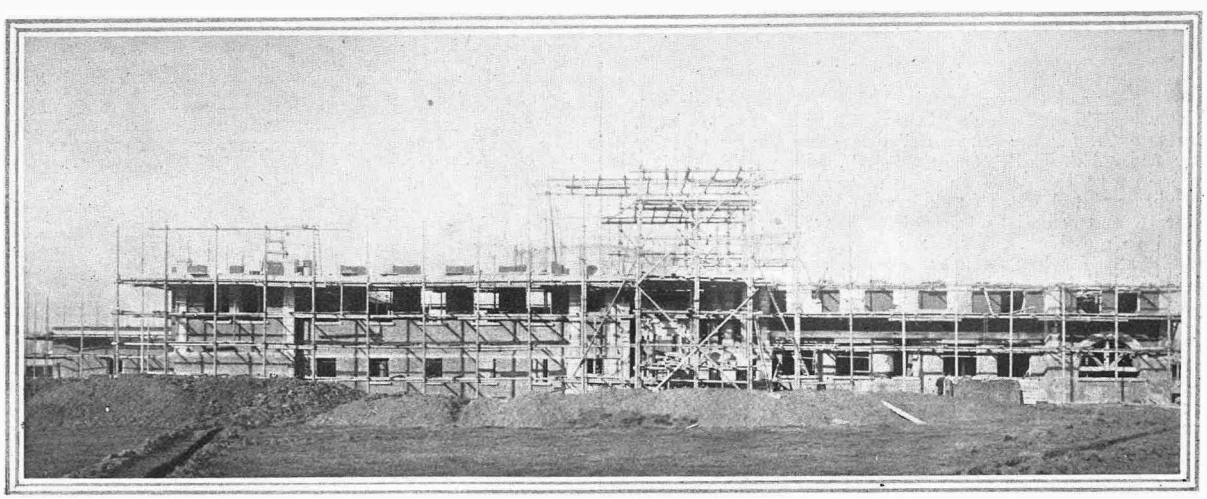
No trouble on cars Nos. 91, 92, 119.
Valve trouble ... No. 1.
Giving way at seams Nos. 2, 35.
Tube pinched ... No. 4.
Punctures ... Nos. 38, 42, 84, 97, 116.
Cover changed ... No. 71.
Number of "no-trouble" runs = 3.
Percentage of "no-trouble" runs = 23.08.

Goodyear Tyres (fitted to 1 car).

No trouble.

Collier Tyres (fitted to 3 cars).

No trouble on cars Nos. 85, 108.
9 marks lost ... ... No. 65.
Number of "no-trouble" runs = 2.
Percentage of "no-trouble" runs = 66.67.



A NEW BRITISH AUTOMOBILE FACTORY. The works of the "Talbot" car in the course of building. This handsome and commodious building is being specially erected by Clement, Talbot, Ltd., wherein to manufacture their cars under the supervision of Mons. Clement and Mr. C. R. Garrard, who was a few years ago associated with Mons. Clement in Paris.

THE AMERICAN RELIABILITY TRIALS.

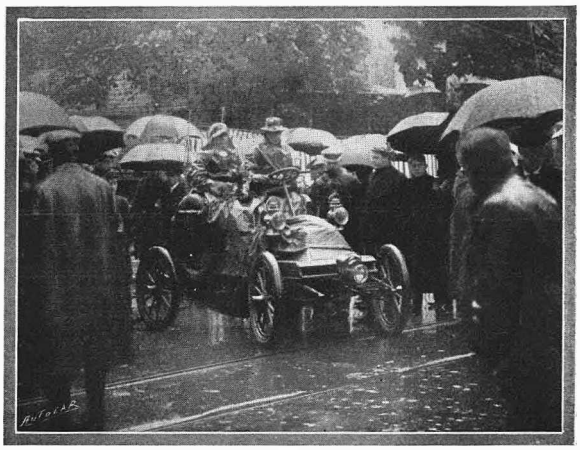
ROUTE, FROM NEW YORK TO PITTSBURG—DISTANCE 795 MILES—34 OUT OF THE 42 CARS ENTERED STARTED ON THE TRIALS. AN UNPROPITIOUS START WAS FOLLOWED BY UNPRECEDENTED RAINS AND HEAVY ROADS.

On Wednesday, October 7th, a start was made for the first stage in the 795 miles reliability test, which had been organised and carried out under the auspices of the National Association of Automobile Manufacturers of America. The competing cars comprised Columbias 2, White steam cars 3, Toledos 2, Phelps 1, Pierce Arrow 1, Pierce 1, Packard 1, Rambler 2, Fredonia 2, Knox 3, Franklin 3, Haynes-Apperson 3, Northern 3, Stearns 1, Locomobile 1, Holley 1, Oldsmobile 3, and St. Louis 1. The run was divided into eight daily stages, each approximating one hundred miles.

The Start.

The start was made from Weehawken, on the outskirts of New York, the end of the first stage being Pine Hill; the second day from Pine Hill to Binghampton, N.Y.; thence to Bath, N.Y.; Bath to Buffalo, N.Y.; Buffalo to Erie, O.; Erie to Cleveland, O.; Cleveland to Youngstown, O.; and the last stage from Youngstown to Pittsburg, Pa. At Pittsburg there were to be a brake test, a hill-climbing contest, and an examination of the cars by independent engineers, to determine their condition and the approximate depreciation caused by the run.

According to the account given by our contemporary, *The Horseless Age*, this depreciation will amount to a considerable sum in comparison with the price of the cars, and herein the light two-seated cheaper vehicles will suffer most. The start was made early in the morning, with a darkening and overcast sky and a fine drizzling rain falling, which conditions did not conduce to a large attendance to wish the contestants good luck and good speed. All the cars were well prepared for their arduous task, for, although the distance is not nearly so great as that covered in the recent British reliability trials, the conditions were far more severe, as the rules of the contest were approximately the same as those which obtained in the thousand miles trials. That is, broadly speaking, each car was under the control of an independent observer, marks were deducted for all involuntary stops on the roadside, and for repairs executed either on the road or in the garage. No cleaning operations or repairs were allowed to be executed without the loss of marks. The preparations which were made by the contestants were in a great many instances brought into requisition, particularly with regard to tyres. Two of the White steam cars suffered very badly with tyre troubles, one of them having to run over forty-five miles on a rim. The outer cover of the tyre had been cut with a sharp stone, and, despite dual repair operations, burst so badly that it was a case of entirely detaching the tyre and running on the bare rim. The fellow White car also suffered in the same manner, though it did not run so far tyreless as its companion.



A typical start. A two-seated Haynes-Apperson leaving Binghampton.

Competing cars garaged at Pine Hill. The majority of the garages were similar to this, consisting of an open piece of ground, around which oil lamps were placed on the ends of poles. The only protection afforded the cars was such covering as that shown in the foreground of the illustration.

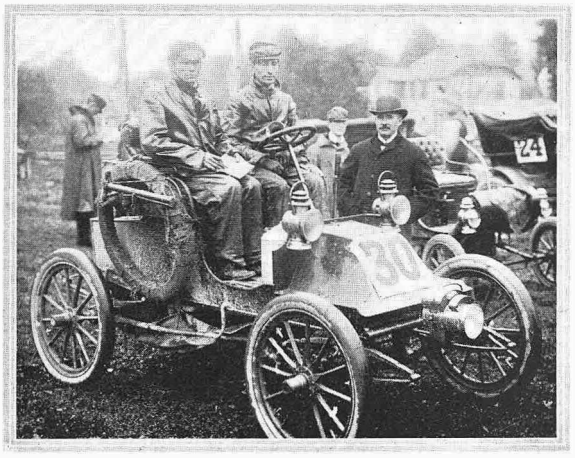
The Second Day.

As the weather conditions were anything but promising on the second day of the run, many of the drivers took advantage of the first day's experience and provided themselves with ropes and straps to wrap around the wheels of their cars to enable them to get a bite through the mud, and to prevent skidding. The local store had its supply of clothes' line completely depleted, and the late-comers had to resort to all sorts of expedients to enable them to follow the good example of their brethren who had been earlier on the scene. It was particularly noticeable, says *The Horseless Age*, that the cars with straps or ropes on their driving wheels made better progress up the hills than did those which were unprovided with these non-skidding arrangements.

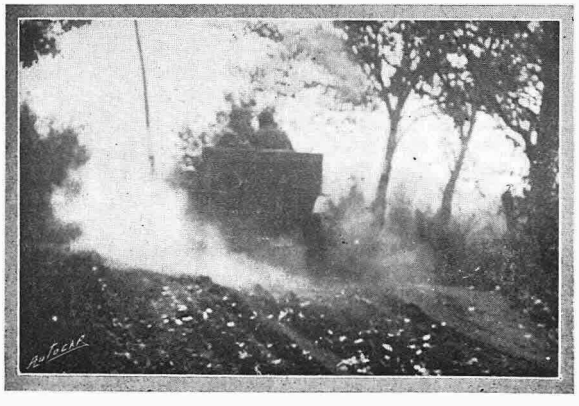
Leaving the Pine Hill garage, the route for the second day commenced with a steep hill. Upon this one of the Toledo cars came to an absolute standstill whilst its driving wheels were still spinning around in the mud. The driver had to run backwards down the hill, and later he took a flying start and managed with much slipping to get over the crest of the hill. Needless to say, this was not one of the cars provided with any of the non-slipping devices. An Oldsmobile stopped on the hill, and, despite all the pressure on the brakes that the driver could apply, it commenced to run downhill. It was held up by some bystanders, the engine was raced, and with a hearty push the car got under weigh again, and safely negotiated the hill.

Many of the interested parties in the trials followed the cars by train, jumping the stages by means of the less arduous method of taking tickets for the railway; but even these did not escape without accident, as after leaving Pine Hill for Binghampton the train pulled up with a jerk, and it was found that the piston rod of the right-hand cylinder had broken off short, knocking the head out of the cylinder. Many exciting incidents occurred to those who went through by road. One of the Franklin cars caught fire on the road, and was completely destroyed. The driver states that the fire was caused by a combination of a crack in the silencer and a leaky petrol tank. During the run many of the participants suffered very much on account of the fearful weather conditions which obtained. Mr. Fetch, who had previously driven his Packard right across America, states that during the whole of that run he had never experienced such weather and such roads as those over which they had passed during the second day of these trials. He was soaked to the skin, and preferred to lose an hour on the road and change his clothes rather than take any personal risks. Mr. W. T. White, who was driving a White steam car, reported that his car had been in mud and water up to the hubs on several occasions. Those cars which arrived at the garage at the end of the second day presented almost as deplorable a state as did their drivers and their observers. These latter were soaked to the skin, and in many cases the hands of some of the drivers were very much cut, by reason of the chafing of their mud-stained sleeves. The cars themselves were simply one mass of mud, and presented anything but an attractive appearance, and when lubrication of bearings became necessary digging operations had to be carried out to find the lubricators or oil-holes, as the case might be.

On the Catskill Mountains. A sample of "good" road.



The Haynes-Apperson car—which we illustrate leaving Binghampton—after a day's run.



A steam car approaching the summit of the Catskill Mountains.

The Third Day.

After leaving Binghampton the roads began to improve somewhat, as they seemed to have been outside the big storm area. The run for this day was to Bath. Nine cars started out on the run, the remaining twenty-three being dispersed over the route undergoing various repairs in order that they might get through if possible. Very little of special interest occurred during this stage of the contest.

The Fourth Day.

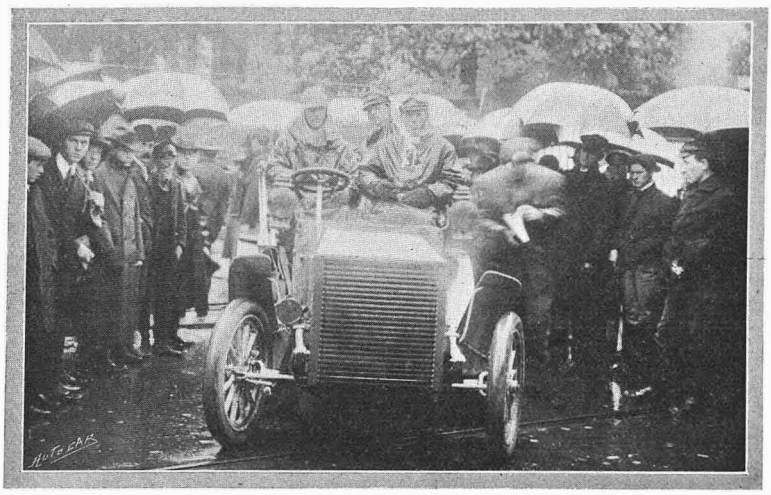
The prospects for the fourth day's run were somewhat gloomy, and the atmosphere took on a very threatening aspect, and it turned very much colder. There was some difficulty in getting the cars on to the starting line, as there was considerable use of tools in the garage. Those of the vehicles which were fitted with chain driving were undergoing adjustment, the chains having stretched very much during the run, and been very badly worn. On the road Mr. Stearns, who was driving a Stearns car, narrowly escaped a very bad accident. He let his car run away at considerable speed down a rather steep hill, at the bottom of which was a bridge. As the speed attained was rather more than the driver anticipated.

he applied his brakes gently, and the car promptly skidded into a gully. Mr. Stearns managed to bring the machine back on to the road, and the previous skid was repeated in an opposite direction, this time bending the rear axle very badly. One of the Columbia cars also suffered through a bad skid. In this case, the machine turned completely round, ran into the kerb, and broke the rear axle off close by the hub of the left wheel. Luckily, none of the occupants of the car were injured. On this day's run a White steam car which acted as one of the pilots had to put in new back springs, the old ones having flattened out. In order to prevent the springs from coming together entirely, some old inner tubes which were on the car were placed between them to act as buffers. Perhaps the hardest luck of the whole party was that which befell Mr. A. L. Riker, who was driving one of the petrol-engined Locomobiles. Mr. Riker was accompanied by his wife, who was the only lady participant in the trials. After darkness had fallen an accident occurred to the car, and, believing themselves to be entirely out of the reach of human aid, they constructed a camp of ponchos and car coverings for Mrs. Riker, while the men of the party found accommodation on the dry side of a tree. One can judge their surprise and disgust when, on awaking in the morning, they found themselves within a few hundred yards of a comfortable farmhouse which was occupied by a most hospitable family.

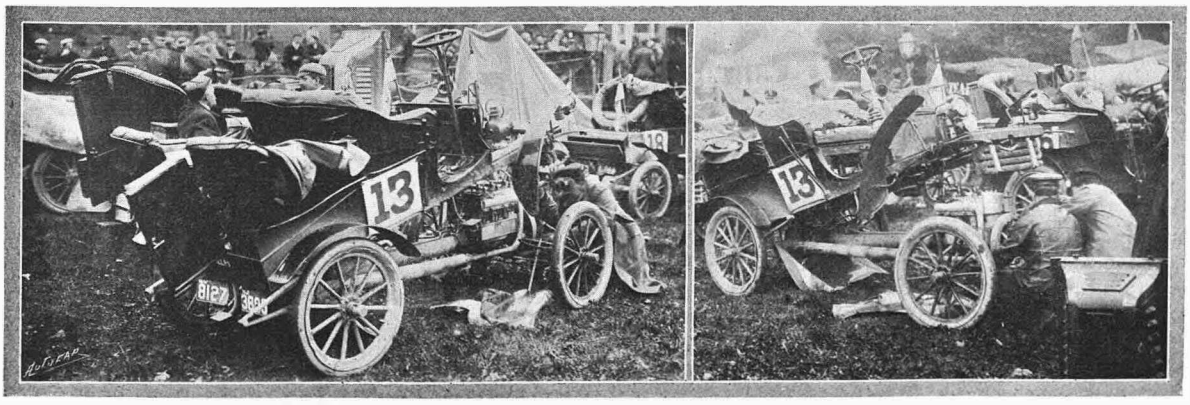
One of our American contemporaries, speaking of the state of the cars in the garage at Bath, says: "Looking over the cars in the garage, each and every one of them showed the hard usage they had received. All of them, when the motors were started, groaned and wheezed. It was evident that some dirt at least had got into the bearings, and was cutting them. The investigation as to wear and tear on bearings and parts that is to be made at Pittsburg will no doubt be very interesting."

The Fifth Day.

At Buffalo, N.Y., where Sunday, October 11th, was spent, the drivers and observers were enabled to get a much-needed rest, though the hospitality of the good folk at Buffalo somewhat interfered with the rest, a great variety of entertainment having been specially arranged for the visiting automobilists. Later in the day, it was reported that one of the Franklin cars which was on the road from Bath had fallen through a bridge, but had been recovered, and was undergoing the necessary repairs to enable it to continue on the road. Late on Sunday night two Oldsmobiles and a Franklin car came into the garage together, they having been on the road the whole of Sunday. At 11.30 at night there were still a number of cars with their heads turned towards Buffalo. On Monday morning a start was made shortly after seven o'clock. Most of the cars had been cleaned, and had had a general overhauling during Sunday, and presented a more respectable appearance than they had done since they started out on the previous Wednesday. There were many of the competitors whose cars were so thickly caked with mud that they refused to allow it to be washed off, preferring to keep it on until they reached Pittsburg, as a memento of the horrible roads over which they had passed. When one of the Toledo cars (which was amongst the first to come to the starting line after the word to go had been given) came out, the official weigher discovered that the necessary



A White steam car leaving Binghampton on its watery way to Bath.



The unlucky Phelps undergoing repairs. Close inspection of this illustration shows that the front elliptical springs have been divided, the steering connections cast loose, and the carriage work lifted up bodily from the framework

250 lbs. of ballast was missing. A stray pressman was pressed for the purpose of making up the deficient weight. Both of the Toledo cars, which are driven by chains, had to put on new ones, as the first sets had become so badly cut by the gritty mud as to make their breaking a very probable event.

The most prominent feature of the fifth day's run was the action of the Erie police authorities. Confetti was used by the pilot cars to denote the route to be taken at branch roads and through towns. The occupants of the leading pilot car were held up by a policeman, who explained to them that they were under arrest for a contravention of one of the local byelaws relating to the throwing of waste paper on the streets. Despite all protests, they were obliged to drive to the police headquarters. It appeared that the Mayor and the local automobilists were at loggerheads over something, and his worship had prepared this little surprise for them in advance, well knowing what would happen.

At Erie it was officially announced that the brake and hill-climbing contests in Pittsburg would be abandoned, but that the Board of Examiners would report on the condition of the cars at the close of the run.

The Sixth Day.

The sixth day's run from Erie to Cleveland (distance, eighty-two miles), over comparatively good roads, presented few difficulties to the competing cars, and the majority of them got through without incident. The following cars arrived at Cleveland: Stearns 1, White 2, Columbia 1, Toledo 2, Rambler 1, Franklin 2, Oldsmobile 2, Pierce-Arrow 1, Pierce 1, Haynes-Apperson 1, Packard 1, Knox 1, and Locomobile 1—seventeen cars in all out of the thirty-four starters. There were in all probability several other cars upon the road, but these were not mentioned in the reports to hand. There are still two more days' runs to be chronicled. It will be interesting to note the results of these trials, as compared with those of the British thousand miles reliability trials.

The photographs illustrating this report are supplied by Augustin Rischgitz, of the International Art Supply and General Agency, Linden Gardens, Bayswater, W.

NEXT YEAR'S DE DIONS.

From the days of the old 1¼ h.p. tricycle, the greatest interest has been taken every autumn in the particular types which the De Dion firm would favour for the coming year. This interest has not been diminished by time, and from enquiry at 10, Great Marlborough Street, we learn from Messrs. De Dion-Bouton that for 1904 there will be four models. The first is the little 6 h.p., which has been so successful this year. It will not be altered, and the standard pattern will have 28in. × 3¼in. tyres, and a two or three seated body. The next, the 8 h.p., will be a new model with three forward speeds and reverse. It will be larger and heavier than the present 8 h.p., and the chassis will be of such dimensions as to provide plenty of space for a roomy tonneau or double phaeton body. The tyres will be 30in. × 3¼in. of the strong type. Then there will be two double cylinder patterns, one with a 10 h.p. engine, which is exactly the same as the present 12 h.p., but 10 mm. less in the bore. It will have three speeds forward and reverse, and the same tyres as the 8 h.p. Lastly, there is the 12 h.p., which was introduced comparatively recently, and which has proved so satisfactory that it will not be altered at all. It is somewhat heavier and larger than the 10 h.p. and has 30in. × 3½in. tyres. In addition to these provision is made for special types of bodies for the three larger cars, so that those who wish to have greater passenger or more luxurious accommodation can arrange for this by having a longer frame. We need hardly say that the special De Dion features such as the expanding clutch, geared Cardan axle drive, and exhaust valve regulator worked by the pedal are retained.

POLICE TRAPS.

In further addition to the list of police traps published in *The Autocar* we have received an intimation of the existence of one at Streatham on the road from London to Brighton. The exact position of the measured furlong was just before reaching the railway station, and the policemen were hidden on the right hand side of the road.

A series of traps has been set on the main road entrance to Dover, on Castle and Crabble Hills. From advices that we have received, it appears that great prejudice exists in this locality against autocars. In the Town Council the other day a councillor complained that a car had been driven along the sea front at fifty miles an hour, and made the gratuitous insinuation that so long as we had a motoring Premier we could not hope for much. Considering the notoriously disgraceful state of the regulations affecting horse traffic in the town, the Dover authorities might have turned their attention with advantage in that direction, rather than seek to harass automobilists. We learn that stop watches are to be supplied to the police, and we may look out for the usual exhibition of hard swearing in the police court.

A Guildford correspondent writes in reference to the state of things on the Surrey roads. He remarks that the recent prosecution of Sir A. Cooper, and Sergeant Jarrett's action in regard to it, are likely to be of the greatest assistance to automobilists in that county. In future police evidence in motor cases at Kingston will not be accepted absolutely as heretofore.

It appears that a certain local county magnate at Ripley invites his friends each week-end to witness from his garden the motor hunt which he has been instrumental in bringing about in the main road below. Unfortunately, the ratepayers of the vicinity do not appreciate the entertainment, for this action increases the police rate, and drives away hundreds of would-be visitors.

GOVERNING GAS AND PETROL ENGINES*.

After referring to the comparative simplicity of governing a steam engine, the lecturer mentioned the first gas engine which was put upon the market, and which was the invention of a clever French engineer named Lenoir. It was interesting to note that with this engine the steam engine method of governing was adopted. By a picture of the Lenoir engine thrown on the screen, Mr. Clerk pointed out the old-fashioned centrifugal governor operating by means of a lever and link, and a throttle valve on the gas supply pipe. Also that the Lenoir engine (1860) was fired by a coil and jump spark, similar to that now used with petrol engines. The throttling of the gas supply alone was extremely wasteful, the reason being that gas and air mixtures could only be ignited within certain limited proportions, an excess of one or the other resulting in misfires. With London coal gas and air, one volume of gas and twelve volumes of air could only just be ignited by the electric spark at atmospheric pressure, as could only one of gas and four of air. But waste ensued long before the mixture had grown so rich, by reason of the high temperature and excess of unburned gas. In governing by change of mixture in slow speed engines, the possible range was much less than above. The best was one to nine, and the permissible range one-seventh to one twelfth.

Mr. Clerk then referred to the large number of experiments he had conducted with mixtures of coal gas and air, illustrating his remarks by a number of diagrams from London gas and air which he had with him, but which had not been published, and which were taken with a special apparatus of his own. Mr. Clerk went on to describe the design of the Otto and Langden gas engine with its free piston, which was governed by lessening the number of impulses, and then referred to the well-known compression engine of Dr. Otto (1876), which was also governed by missing impulses—that was, with the governor operating to give whole gas supply, or to cut it out altogether. This was still the method adopted in this country with engines up to 50 h.p. Nevertheless, the hit and miss method, though good with light loads, was found inferior to others when great steadiness of revolution was necessary, as when driving electric light plant. About 1894 Messrs. Fielding and Platt, of Gloucester, introduced a governing method in which both gas and air supplies were throttled, so that a gaseous mixture of uniform composition was admitted to the cylinder at all loads, but in diminishing volume as the load decreased. The compression thus became less with the decrease of load, but no impulses were missed. Daimler, being a disciple of Otto, controlled his small petrol engine by missing impulses, and governed through the exhaust valve. The governor so behaved that when the speed increased, the exhaust valve was not opened. The engine compressed and expanded the gases already in the cylinder, and the pressure therein never falling below atmospheric pressure, the automatic inlet valve did not open until the exhaust valve was again permitted by the governor to come into action. This method had proved unsatisfactory. The charge throttle method had been introduced a little before that time, and was now almost universal. This method, by maintaining the frequency but graduating the power of the impulses, had great advantages. Another method was by varying the moment of ignition. This was an extremely bad one. Therewith the consumption remained constant at all loads, and no economy was effected, while exhaust valves and pipes were liable to seriously overheat. In order to appreciate such matters intelligently, it was necessary to have some idea of the indicator diagram given by the petrol engine; but the difficulties in obtaining this were very great indeed—so great that no really accurate diagrams from high speed petrol engines had been obtained. But diagrams from large and small gas engines running at moderate speeds assisted to a knowledge of what went on within the petrol engine cylinder.

Mr. Clerk then showed upon the screen a diagram taken from an engine 20in. by 30in. at 160 revolutions, and indicating about 180 h.p. It was seen that the compression was 160 lbs. above atmosphere, the maximum pressure 465 lbs. above atmosphere, and the mean pressure throughout the stroke 91.5 lbs. The diagram showed the rise of pressure to be easy, and the indicator showed no signs of oscillation. The various changes of pressure were thus well represented. He had calculated the maximum temperature of the explosion to be 1,800° C., and the temperature of the exhaust gases just prior to the opening of the exhaust valve 1,200° C. The heat consumed by work done on the piston and lost through the water jacket was some 600° C.

Another diagram showed the same engine, including a governing impulse, *i.e.*, an explosion occurring immediately after the mixture had been allowed access to the engine by the governor. This diagram was almost identical with the one that preceded it.

A series of diagrams taken from a 9 h.p. Crossley governed by diminishing the total charge followed. These included the ignition of five separate charges to show the governing operation from light to full load. A diagram of the full load showed compression 100 lbs., maximum pressure 420 lbs. Another diagram of the charge cut off at an earlier point in the suction stroke showed compression 82 lbs., maximum pressure 298 lbs. The remaining diagrams showed that with reduced load a less and less volume was admitted until the fifth diagram indicated compression 25 lbs., maximum pressure 82 lbs. Another set of diagrams, taken from a Crossley engine governing similarly, but with a light spring in the indicator to increase the scale, showed the fall of pressure within the cylinder during charging, the suction lines forming a series of gradually falling lines, resulting in compression lines reaching the atmospheric line on the diagram later and later in the stroke. The lowest compression line crossed the atmospheric line as late as half a stroke back. The diagrams also showed lines running through the compression lines, due to the resistance of the exhaust. All the exhaust lines descended below the atmospheric line at the discharge end of the stroke.

A number of slides were then thrown upon the screen illustrating the Crossley cut-off gear (which produced the above results), a 500 h.p. Crossley actuated by producer or blast furnace gas, and a Westinghouse gas engine similarly governed. Four diagrams, taken from a two-cylinder Westinghouse engine, 11in. by 12in., 280 to 295 revolutions, showed the compression and explosion pressures reduced as the power was reduced, compression varying from 110 lbs. to 25 lbs., and explosion pressure from 270 lbs. to 25 lbs. In this engine the charge of mixture was throttled exactly as in a modern petrol engine. Another slide was of a three-cylinder Westinghouse similarly governed, but with the governor operating a sliding sleeve. Then the audience were shown a 1,000 h.p. Deutz gas engine throttle governed, and the governing mechanism was explained by the lecturer. This series closed with the representation of a 500 h.p. Otto cycle engine by the Nuremberg Engine Co., also mixture throttled.

Mr. Clerk, in summing up the evidence of the diagrams, said it was clear that, with a reduced charge, not only was the explosion pressure less, but the maximum pressure was attained later and later in the stroke, although the moment of ignition remained the same. The reason for this was that, although the charge was always of constant explosive proportions, the volume was continually diminished. But the exhaust products left in the compression space of the cylinder remained constant in volume and weight, or nearly so. Consequently, the diminishing weight of the combustible charge was added to the constant weight of the products of combustion; and the charge entering the cylinder, though constant in proportions, became, when mixed with the exhaust products within the cylinder, more and more diluted, and consequently fired much more slowly. In one of the Westinghouse engine cards with engine running light, compression only 25 lbs., the combustion proceeded so slowly that the pressure never rose above the compression. But such a diagram was liable to considerable variation, although the governor was apparently constant in position. This was due to small differences in the composition of the mixture, causing more or less rapid ignition. This was a serious difficulty, which told more against accurate governing with petrol than with gas engines. It was to be met only by a careful adjustment of carburetter, ignition, charge throttle, and governor. The carburetter introduced a complication in governing.

(To be continued.)

* Summary of paper read before the Automobile Club by Mr. Dugald Clerk, M.I.C.E., F.C.S., on Thursday evening, October 22nd.

SOME QUERIES AND REPLIES.

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

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

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

MISFIRING IN WET WEATHER.

I have a car fitted with a 6 h.p. De Dion engine. I should be much obliged if you could explain the following: I have frequently found when driving in wet weather that the engine either stops altogether or misses very badly when the sparking lever is in an intermediate position, but will go perfectly well when the spark is either fully advanced or fully retarded, and directly I put it back again to an intermediate position it stops. This only happens in wet weather.—R. T. C.

If you examine your contact breaker you will in all probability find that when the sparking advance lever is placed in the middle position the contact breaker itself occupies such a position as to admit of the current short circuiting intermittently or completely, through the agency of a lodgment of wet mud or rain. You should carry out the examinations both with the contact breaker cover on and off. When the cause has been located the remedy will probably suggest itself to you.

A LICENSING QUESTION.

Can you inform me if I require a license for a motor cycle for trade use? I mean by this that the cycle is used solely by my workmen to go out to country houses to work. If I do not require a license, shall I require my name painted on the side of the motor cycle?—L. S. D.

No license is required for a motor cycle used exclusively for trade purposes; but it is a stipulation that your name in full, together with your place of abode and business, must be painted visibly and legibly on the machine in letters of not less than 1in. in length. So long as you carry out these instructions, you are exempt.

CONVERTING FROM TUBE TO ELECTRIC IGNITION.

I should be much obliged if you could inform me if you have had experience of converting a tube ignition car to electric, say wipe contact and Carpentier coil, and, if so, whether satisfactory? The car I am thinking of altering is a 7 h.p. M.M.C. (old pattern), with tube ignition; speed on level good surface road, about twenty miles per hour. The car is two-cylindered, and governs on the exhaust with a Daimler governor of the hit and miss pattern. My fear is that the increased acceleration of the engine and consequent vibration (solid tyres) may prove too much for the old car, and cause very much increased wear on engine bearings, etc. I presume it would be necessary when advancing spark to cut out governors altogether? Would there be much gain on hills, and how?—EPSILON.

You will be able to convert your engine to electric ignition if there is sufficient metal in the cylinder at the point where the ignition tube is fitted. To the best of our recollection, there is sufficient strength at the point mentioned to admit of the hole being enlarged and retapped to fit a sparking plug; but to be on the safe side you might enquire of the manufacturers or their agents. You will find that you will obtain an increase of power in consequence of more complete combustion and a higher rate of speed. The latter will not injuriously affect the engine bearings, as it is generally the hammering action that wears out the bearings rather than the rate of speed. You would, of course, have to cut out the governor when the spark advanced, when you would find the hill-climbing capacity of the car greatly increased.

LICENSE FOR MOTOR ENGINEER.

Can you tell me whether I am liable to pay for license for a motor engineer whose *sole* duty is to attend to and drive a motor car, and who does not live in the house? Opinions differ. I find, even among excise officials, on this point.—W. D. S.

An owner of a motor car is liable to pay license for a motor engineer whose sole duty is to attend to and drive a motor car, and who does not live in the house, if the engineer is engaged for the whole of the day, for he is then a "male servant" within the meaning of the Inland Revenue Acts. A male servant, however, does not include a person who has been *bona-fide* engaged to serve his employers for a portion of the day, and does not reside in his employer's house. It will be seen that the engagement must be *bonâ-fide*. If, therefore, the owner of the car engaged a driver for practically the whole of the day, duty would still be payable. How many hours constitute a day's work does not appear to have been decided, but we think that if the driver is engaged for only a few hours each day and is not employed by anyone else duty would have to be paid.

ARGYLL BEVEL GEAR WHEELS.

Sir,—Can any of your readers tell me the number of teeth respectively in the bevel pinion and driving wheel of the live axle of this year's 10 h.p. Argyll?—H.A.E.

TO BENZ CAR USERS.

Sir.—I have a 3 h.p. Benz Ideal 1900 pattern. Could you tell me whether a spray carburetter would appreciably add to the power of the engine? If so, what carburetter would you advise, cost of same, and where it can be bought?—G. M. J.

AN ENGINE BRAKING QUERY.

Sir,—I have recently had my four-cylinder Clément arranged so that the current can be cut off and the engine used as an additional brake when descending long and steep hills. I notice, however, after using the engine as a brake during which time the gas is being drawn into the cylinder, that the engine when the current is switched on again suddenly becomes absolutely silent, and seems to give off double its usual power, as exemplified by its taking medium hills on top speed. After about thirty miles or so the power seems to lag back to its original form, and the usual noise commences again. I should be glad, therefore, to know how this phenomenon is caused, and whether it is due to the carburetter not giving enough gas unless under the special conditions previously referred to?—MOVOLCAR.

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