

AUTOMATIC AND GOVERNED INLET VALVES.

Is the automatic inlet valve superior or inferior to the mechanically operated valve?

This question, which many makers put to themselves at the present day, says "La Locomotion," involves two very distinct points of view, viz., simplicity and efficiency. In the first case the question is immediately decided, because it is quite evident to everyone that the automatic valve is of simpler construction than the mechanically operated valve: its use, then, is recommendable for small motors where simplicity is an essential. Secondly, as to efficiency. In a communication to the French Society of Civil Engineers, May 17, 1901, dealing with the improvements and modifications for augmenting the efficiency and specific power of internal combustion engines, the following remarks were made respecting automatic inlet valves:—

"Our colleague also alludes to loss caused by inertia of the inlet valve: it does not shut instantaneously at the compressing stroke of the piston. Thus, during this period, part of the sucked

EXPLOSIVE MIXTURE IS FORCED INTO THE AIR THROUGH THE CARBURETTER:

the remedy for this loss would be mechanical control of the suction valve by a mechanism identical to that of the exhaust valve." The following year the idea was applied to all their motors by the German company which constructs the Mercedes car. Since then mechanical inlet valves have made their mark in the leading French motor works. As many makers, however, are not yet convinced of their advantages, judging from the discussion at the second International Congress of Automobilmism (June, 1903), it will be useful to draw attention to the following experiment, which can be made by anyone: Place the nose near the opening of the supply pipe of a motor with automatic valve, and one will find that there is always a characteristic odour of petrol vapour, and a blowing back is noticeable, more especially in certain motors fitted with too weak a spring on the automatic valve, and supplied from a spray carburetter.

THIS EXPULSION OF EXPLOSIVE MIXTURE

is emphasised to such an extent as to be accompanied by a regular spitting of condensed petrol: this is never met with in motors with governed valves. Consequently, it was surprising to find that a member at the last Congress, whose attention we called to this fact in a motor he was making experiments with, championed the cause of automatic valves, even for motors of 20 h.p. To further prove the inferiority of the automatic valve an experiment was devised.

This experiment is less simple than the preceding one; but it can be utilised in many other circumstances, and only needs an electric ignition device which all makers have at hand.

THE EXPERIMENT IS BASED UPON THE STROBOSCOPE PRINCIPLE, and consists in illuminating during a very short and suitably selected period of time, by aid of a spark from an ignition coil, a well polished steel rod screwed on the end of the inlet valve stem, and passing through a hole in the pipe surmounting this valve: another rod also well polished is screwed on the body of the pipe by the side of the first, its height being the same as that of the inlet valve rod at rest. To cause a spark to occur at the moment when the piston reaches the end of the suction stroke it suffices to key a cam with boss or notch either on the axis of the motor or that of the toothed gear governing exhaust and ignition: this cam alternately shuts and opens by a circuit maker of the Aster or De Dion type, the primary current of an induction coil without a trembler or an Arnoux-Guerin coil with its trembler fixed. The position of the igniter which produces the illuminating spark is regulated and marked so that sparking will occur precisely when the piston reaches the end of the suction stroke.

THE SIMPLEST MEANS TO OBTAIN A SUFFICIENTLY BRIGHT SPARK

is to produce it between two small metal balls five to six millimetres (.195 to .234 inch) in diameter, fixed on the ends of the wires of an ordinary sparking plug, and separated from each other by a space of about five millimetres. Under

such circumstances, when the spark lasts less than one millionth of a second, it makes the projecting rod or the inlet valve appear absolutely fixed, even when moving with a very great translatory velocity. (Note.—Instantaneous lighting by electric spark is not a new idea. Ten years ago the method was employed by M. Marsh, an Austrian physicist, and Mr. Vernon-Boys, an English physicist, to photograph projectiles moving with velocities greater than 600 metres (654 yards) per second! It was the projectile itself which broke the primary current of the sparking coil for lighting).

This method of investigation, easily applied in a workshop, enabled one to elucidate the question of the value of automatic valves in a few hours, demonstrating: (1) That complete shutting of the automatic valve never occurs, except after passage of the piston to the end of its suction stroke. (2) That the period at which the valve shuts depends upon the tension or rigidity of the valve spring and the



Jacquelin, the old racing cyclist, travelling at high speed on a motor-bicycle.

velocity of the motor. (3) That the maximum power developed by a motor at normal speed

IS ONLY OBTAINED WITH A SPRING CONSIDERABLY STRONGER THAN THAT USUALLY EMPLOYED.

This last remark shows that the efficiency of the automatic valve is limited not so much by the rate of filling the cylinder as by the forcing into the air of a part of the explosive mixture. This amount is the greater in proportion to the weakness of the spring, and in case of a given spring proportional to the speed of the motor. In short, the experiment demonstrated that an automatic valve must be judiciously studied and proportioned in its different parts to obtain the maximum motive power at a given speed, considering the volume of cylinder charge.

In particular the weight and lift of the valve should be as little as possible, and the spring rather strong, though not so strong as to prevent the valve opening after the piston has passed the middle of the suction stroke. This latter condition was at least found most suitable in the motor actually tested, and was obtained by adjusting (with respect to displacement of the piston) the position of the contact breaker for producing the spark, so as to allow of distinctly perceiving the period of early opening of the valve.

THE ADVANTAGE OF THE MECHANICALLY GOVERNED INLET VALVE

is the fact that it does not demand such careful study as the automatic valve. It is sufficient for the cam to open and shut exactly at two dead points, viz., commencement and end of the suction period of the motor, to enable the latter to develop the maximum power and efficiency for a given velocity.

Some makers say that governed valves do not allow of a

good explosive mixture being produced, so much so that at the time of the Paris-Madrid race one of them had to replace them by automatic valves at the last moment. As a matter of fact, this inconvenience is due much more to the type of carburetter employed than to the mechanical working of inlet valves. Indeed, some carburetters must have very abrupt suction to work well, and this is given by the automatic valve, which opens at the moment when the piston has produced a certain degree of vacuum in the cylinder. The remedy for this inconvenience is, besides, very simple when a change of carburetter is not desirable: it consists in decreasing the dimensions of the valve opening cam, so that the valve will only open

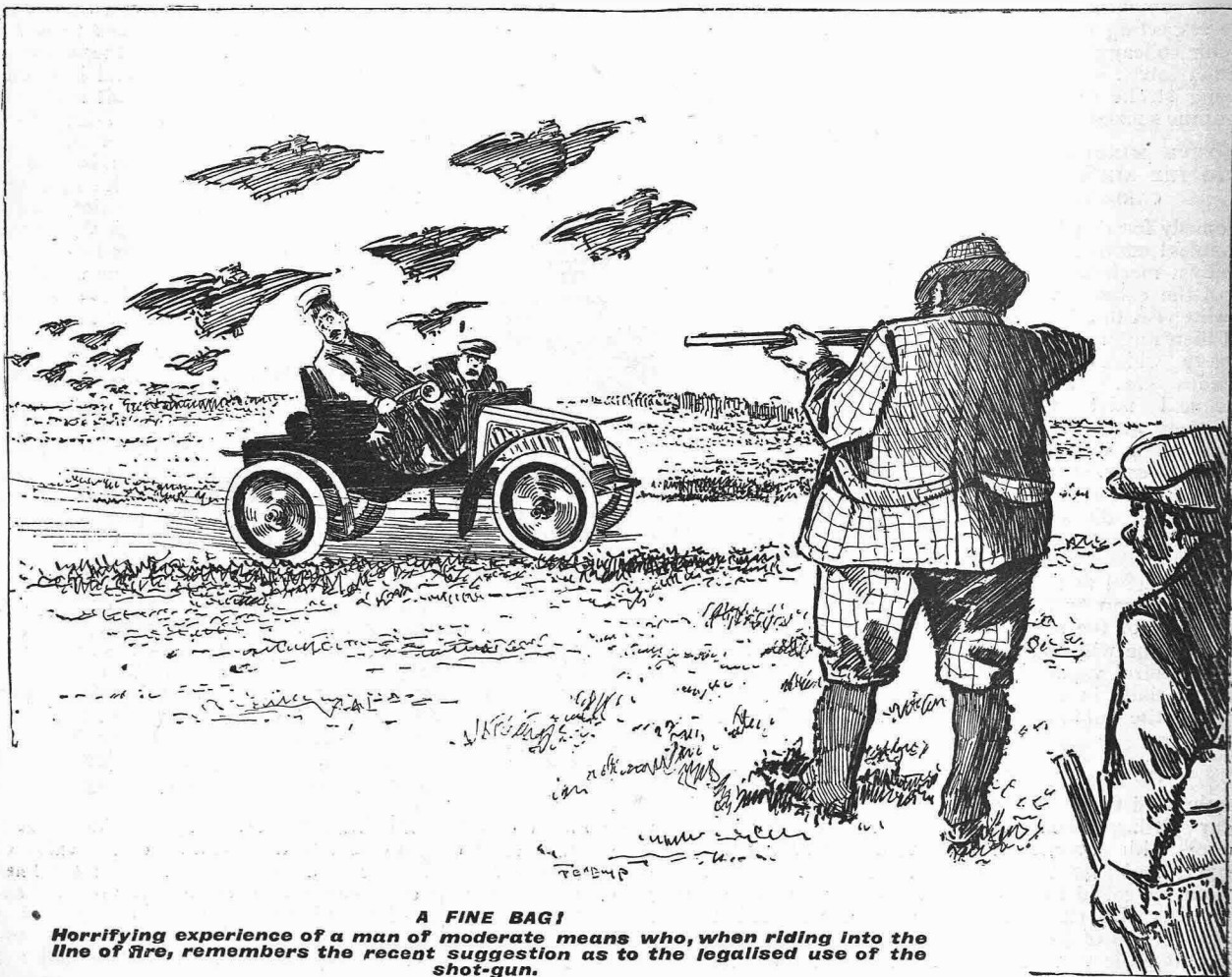
WHEN THERE IS A SUFFICIENT VACUUM IN THE CYLINDER, caused by displacement of the piston.

As previously mentioned, the automatic valve shuts later, according to the greater speed of the motor. Consequently, for the slowest speeds normally attained, the valve should close almost exactly at the dead point of the piston. In fact, this was noted by the method described for speeds of 200 to 300 revolutions per minute, which are exceptionally low for motorcars.

The Peugeot firm, which made comparative tests in its works at Lille with two motors of 6 h.p., exactly alike, except that one had a governed valve, obtained the following results:—

	Automatic valve.		Governed valve.
1,000 Revolutions	... 4.5 h.p.	... 4.9 h.p.	
1,250 "	... 5.6 h.p.	... 6.2 h.p.	
1,400 "	... 4.9 h.p.	... 6.8 h.p.	

Thus, whilst below 1,000 revolutions per minute powers were much alike, that of the governed valve motor was nearly 40 per cent. greater at 1,400 revolutions.



A FINE BAG!

Horrifying experience of a man of moderate means who, when riding into the line of fire, remembers the recent suggestion as to the legalised use of the shot-gun.

CYCLOMOT'S CAUSERIE.

The Legislation that surrounds us.

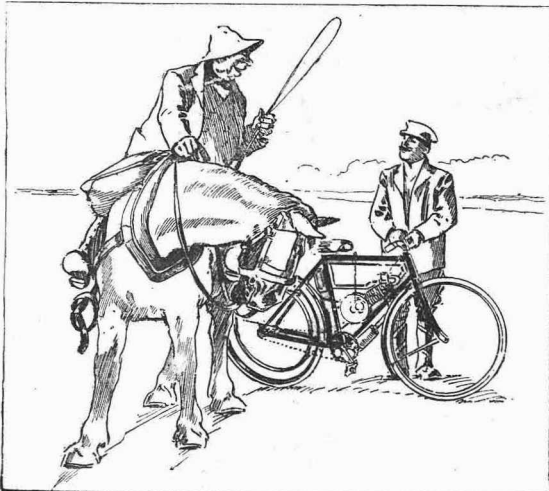
In dealing with the mass of correspondence which arose out of the recent labours of the Auto-Cycle Club in connection with the new Act, and its bearing upon motorcyclists, it came to light that quite a number of the votaries of our pastime are far from being clear about the genesis of the various taxes we have to pay and the regulations we have to comply with. And, really, the matter is so complicated that, unless one has all the authorities ready for handy reference, and is thus able to put one's finger upon the root of each individual evil, one is not to blame for (as an instance) suggesting that the trailer tax should be tackled at the same time as the question of providing a number tablet suitable to a motorcycle. Every one of our troubles should have been dealt with in the Bill when it was before Parliament in the autumn, but the curious and unenlightened antagonism of the majority in the House of Commons necessitated the sacrifice of the small items in order that the more important matters of speed and penalties should not have been pressed to the utmost and made so absurdly stringent as to entirely crush out the new mode of locomotion. There were many things which could have been rectified if the House had been prepared to discuss the Bill fairly, and to allow the necessary clauses to be introduced by the people who knew most about the matter; but the motoring members of the House had the hardest fight imaginable to secure moderation, and I consider that, in the circumstances, Mr. Scott Montagu and his party well earned the thanks of motorists for their splendid work; we can do no more than regret that they were not allowed to have the opportunity to secure that the motorcycle and the trailer should be placed upon a proper footing. This I can assert: the requirements of motorcyclists were prepared and were in the hands of the Automobile party in the House, and they would have been dealt with in the Bill but for the fearfully adverse circumstances caused by the violent antipathy to motors which showed itself in the discussions. So the opportunity afforded by the Government Bill was lost, and the circumstance is one which must cause anyone who is interested in politics to sit down and consider whether our present methods are such as make for effective legislation. As motorists, we are fully alive to the imperfections and de-

ficiencies under which we have for seven years fretted, always having before our eyes the hope that the good time was coming when they would all be swept away. The opportunity occurred when the Government introduced its Bill, but that Bill was framed by paid lawyers and Government officials without the people most concerned being consulted, and the Bill becomes law and the opportunity is gone without the least attempt being made to clear away the anomalies. If all legislation is conducted in the same slovenly makeshift way, can it be wondered at that there is so much talk and so little do about Parliament? However, that is a side issue.

Taxation.

Perhaps, as I have the particulars before me, it will not be uninteresting if I detail the various Acts under which we suffer so patiently. Let my readers should imagine that I am going to inflict upon them the recital of a lot of regulations of which they would rather not be reminded, let me hasten to say that I am only dealing with the matters of taxation of trailers, and of the motorcycle as it is affected by the Acts of 1896 and 1903. The Inland Revenue Act of 1888 and earlier years imposed a tax of 15s. per annum upon two-wheeled carriages, and of one guinea and two guineas on four-wheeled carriages, according to whether they were drawn by one horse or more. The Motor Cars Act of 1896 stated that the section of the Inland Revenue Act with regard to taxes applied to cars, and it imposed taxes of from two guineas upwards, according to weight of car. Later on, the Board of Inland Revenue declared that the tax on all motor vehicles with less than four wheels should be 15s., thus allowing them to pay the same fee as ordinary carriages having less than four wheels. It is under this heading that the trailer falls, as inevitably as does the dogcart or the motorcycle, and the definition is particularly clear, thus: "Carriages with less than four wheels, drawn by horse or mule power, or drawn or propelled by mechanical power," a footnote explaining that motor-tricycles and motor-bicycles are included.

So much for the license to keep and use a motor vehicle. The Act of 1903, which comes into force next January, imposes two new taxes. The first is a registration fee (in connection with the numbering) of one guinea for cars and



A HOARSE LAUGH.

POLITE MOTORIST: "I trust my motor doesn't frighten your horse."
GILES: "Lor' bless 'e, no, sur. My mare bean't afraid o' a little thing like that - ure ye Bess?"

—But a sudden backfire of something more than phenomenal horse-power settled the matter rather unexpectedly for both parties concerned. (Moral—If you want to use a horse to your motor keep near the head of the animal.)

five shillings for cycles, and the second is the fee of five shillings for a driver's license. So the owner of a motorcycle has in future to pay annually 15s. for a carriage license, 5s. for registration of his cycle, and 5s. for the license which permits him to drive. If he also owns a trailer, he must pay in respect of it an extra 15s. for a carriage license and 5s. for registration. The Auto-Cycle Club is endeavouring to get the latter cancelled, but it is, perhaps, a forlorn hope, because a soulless Government department gives nothing away. However, on this matter it is best to be discreetly silent, and to await the result of our representations. From this explanation, it will be seen that the trailer tax is imposed under the Inland Revenue Act. The tax on motor-cars is imposed under that same Act, because there is a clause in the Motor Cars Act of 1896 specifically to that effect. The tax on motorcycles is imposed by inference more than by anything else, and, although the Act of 1896 imposed taxes upon motor vehicles just double in amount to those imposed on horse-drawn vehicles, the tax on motorcycles is made the same as that for dogcarts, and such like, because of the absence of reference to the motorcycle in the 1896 Act, and because the Inland Revenue Board cannot institute a tax. The Board was, therefore, compelled to include the motorcycle under the classification of carriages having less than two wheels. Had the Act of 1896 been carefully drawn up by someone with knowledge or forethought on motor matters, there is every probability that the tax on a motorcycle would have been 30s., or just double that for carriages with the same number of wheels. So that is one thing for which we ought to be thankful.

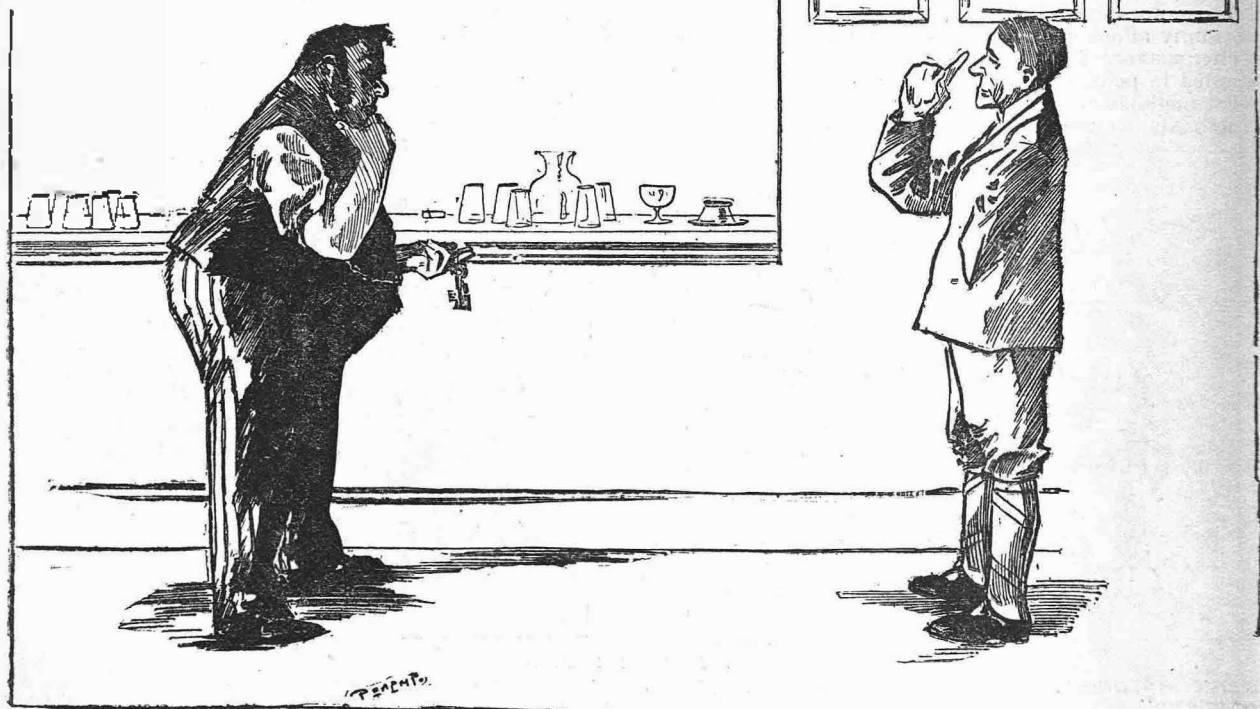
Trailer Speed.

The limitation of speed of a motorcycle and trailer has not been stipulated by Parliament, but is brought about by a clause in the Orders of the Local Government Board made under the Act of 1896. The matter of speed is dealt with in Article IV. of that Order, and, after imposing limits of 12 miles an hour on motor vehicles weighing less than a ton and a half and slower speeds on heavier vehicles, the clause goes on to say: "Provided that whatever may be the weight of the light locomotive, if it is used on any highway to draw any vehicle, he (the driver) shall not under any circumstances drive it at a greater speed than six miles an hour." Thus, although

the motorcycle and passenger trailer were not thought of at the time, the driver of such a combination distinctly comes within the letter of the Order. But just why this should have been observed in some districts, and other wise stipulations in the same Order have been generally ignored, only the police can explain. Perhaps the examination of brakes and such like would entail too much strain of mind, and so it has been allowed to go unattempted, whereas brains are not wanted for motor-catching! There is another clause, under Article II. of the L.G.B. Order, which stipulates that the name and address of the owner of "a light locomotive drawing or constructed to draw another vehicle" shall be legibly painted on the vehicle, but this clause also has reference to vehicles used for the carriage of goods, and this would infer that the trailed vehicle which was in the minds of the law makers was the goods carrier, so this, coupled with the fact that it is not customary for the name and address of the owner to be painted on a private vehicle, will account for the fact that the clause is not enforced.

Work for the Future.

Only by keeping in mind the exact sources of the impositions and stipulations is it possible to keep on the right tack when we are attempting to get matters altered. The first step in this direction has been taken by approaching the Local Government Board upon the various regulations which are to be framed under the new Act, and also upon the question of trailer speed. If it is thought desirable that the tax on motorcycles and on trailers is either too high or quite unnecessary, we must approach the Board of Inland Revenue, and then try to get some alteration made in the Act. Or we can go carefully to work—in fact, we must do so—to formulate our requirements and to keep the list of them in a constant state of revision, so that, when the time comes for the introduction of the next Motor Cars Bill, we can get our requirements included in it and made law.



BONIFACE: "I doan' like the look of that motist in No. 7. Do ye think there's any chance of his stealing quietly away in the night?"
OSTLER-ENGINEER (quite up to his duties): "No fear of that, sir. I've removed his silencer."

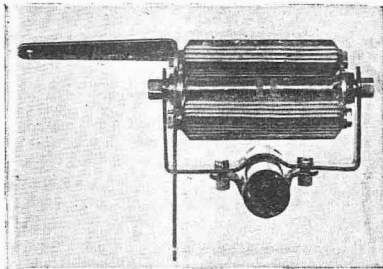
SOME INTERESTING NEW THINGS.

The Parsons Non-skid.

The makers of the Parsons non-skid inform us that they are placing a new size of this device on the market. It is intended for application to light car wheels and will be made of a lighter class of chain than that in use for heavy cars. The price will be £3 each. The price of the motor-bicycle type is 25s.

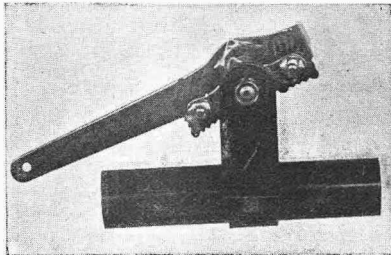
Pedal Control for Motorcycles.

Handlebar control, excellent as it is, must have a limited scope for application. The ingenious devices fitted on the handlebar for actuating the brakes, valves, throttle, etc., are too numerous to mention, but inventors must not lose sight of



End view of controlling pedal at rest.

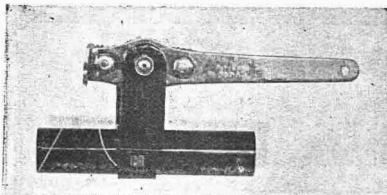
the fact that nature has only provided man with one pair of hands, whereas there are enough devices on the handlebar in many makes of machines to find work for several pairs when occasion arises for simultaneous action at a critical moment. It is clear that there is an opening for a simple and thoroughly reliable form of



Side elevation of pedal.

foot control, these useful members having at present no duty assigned to them on certain types of motorcycles which are becoming increasingly popular. Our illustrations (which are from photographs of a recently patented model) show how pedal control may be installed on Trimos, Quads and fore-carriages in general having side tube frames.

The inventor of the following system is Mr. V. A. Holroyd, Earlston, Coventry,



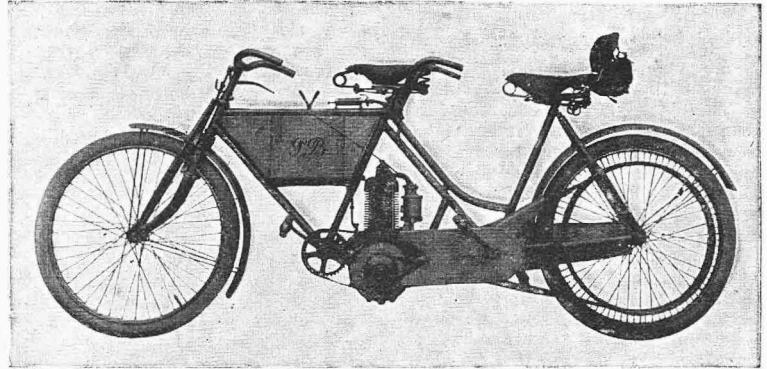
Side view of pedal horizontal and at work.

and it is one that strikes us as being particularly simple and effective. The arrangement is as follows:—An ordinary cycle pedal is mounted so that it is free to revolve in a bracket clipped on to the side tube. In its normal position when at rest, this pedal is inclined at the most comfortable angle for the rider's foot and serves as a foot rest. By depressing the foot

a penny per hour. The cylinder dimensions are 4 in. bore and 5-in. stroke, and price is £24 ros. But the makers intend shortly to place a smaller size on the market at £14 tos.

The P.B. Motor-tandem.

The illustration shows a tandem motor-bicycle with dropped rear frame made by Pitcher and Bartlett, 119A, Holland Park



The P.B. Motor-tandem

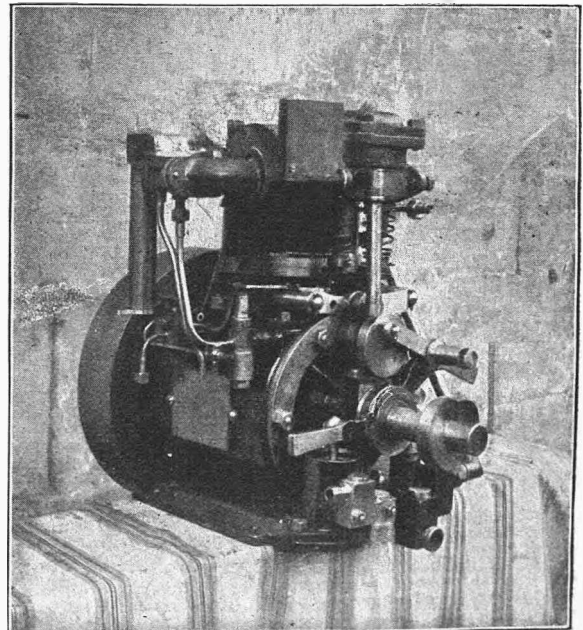
(and pedal) horizontally, movement is imparted to the lever (of which two kinds are shown) and thence the movement is transmitted to the exhaust valve lifter, throttle or whatever part it is desired to open, the reverse movement closing it again. It may be reasonably argued that pedal control is more suitably adapted to such "positive" movements as brake application, clutch and variable speed gear movements, whereas for throttle and spark advance it is desirable to regulate these by hand by reason of the greater sensitive-ness of adjustment obtainable.

For the very popular "Trimo" class of vehicle, which promises in the near future to be equipped with variable speed gear and free engine clutch, this system should find an extensive field of application. The device, which we understand has been provisionally protected, has been in use some time on the inventor's own machine.

A Neat Launch Engine.

The engine illustrated is specially adapted for launch work. It is made by Geo. Goodman and Co., East Hayes, Bath. The makers mention that it runs very well with either paraffin or petrol, and will be supplied fitted with high tension electric ignition. It develops considerably more than 1½ h.p. on the brake test, and is capable of driving a small river launch up to seven miles per hour, and the cost of running is under

Avenue, London, W. The motor fitted is either a M.M.C. 2½ h.p. or a 2½ or 3½ h.p. "Minerva," according to the purchaser's wishes. It is mounted vertically in a central position in the frame and drives by belt—either V or the ¼ in. flat type. The carburetter is a Longuemare. Provision is made for carrying 1½ gallons of petrol and lubricating oil sufficient for 200 miles, and ignition is by P. and R. accumulator and Basse Michel coil. There are two brakes, the application of one cutting off the sparking current simultaneously. The control levers are mounted in a convenient position forward on the horizontal tube. The wheels are 28 in. diameter fitted with 2½ in. tyres. Price of the machine is £60.



A motor launch engine.

HINTS AND WRINKLES.

How to Climb a Hill with a Low-Powered Machine.

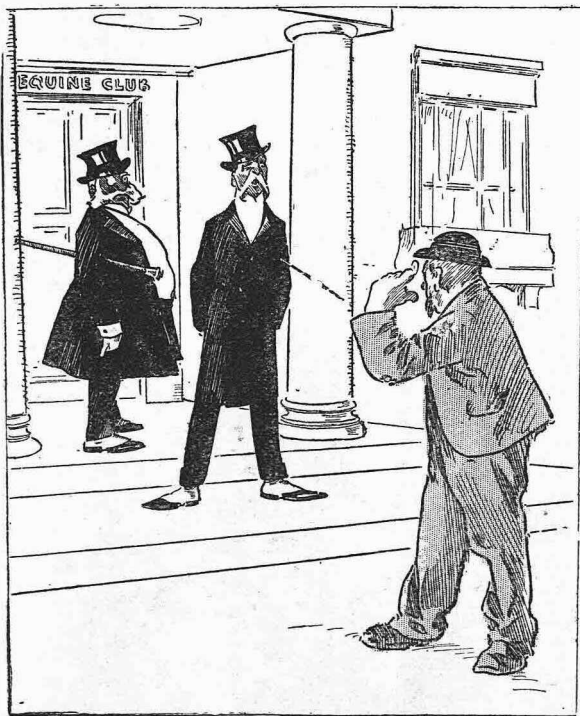
The art of climbing hills with a machine having a motor of anything from 1½ to 2 h.p. is one that can only be learnt from experience. But a good deal can be learnt by first considering the why and wherefore of obtaining the best work from the motor under varying conditions. This involves knowing how to manipulate the throttle and spark lever. The great mistake a beginner makes when tackling a hill is to crowd on full gas and push the spark lever full forward. It is not surprising that the motor rapidly falls off in power and begins to thump or pound itself to pieces. This is explained from the fact that when the speed of the motor falls below a certain point a great loss in efficiency results if the ignition takes place before the piston has reached the end of the compression stroke; that is to say, that early ignition gives the best results when the motor is working under favourable conditions, such as travelling on a level road. Then it is possible to reduce the gas supply to a minimum and keep the spark well forward, as there is a good reserve of power in the fly-wheels to work against the initial back pressure that results from early ignition. The great secret in getting up a stiff hill with small engine power is to have the cylinder as cool as possible to start with and very gradually retard the spark as the speed of the motor falls and at the same time open the throttle in the same ratio. The position of the rider on the machine is also a most

important factor. It must be obvious that if he sits bolt upright he is exposing the maximum amount of surface to the wind and is consequently taking it out of the engine. The best position is to bend low and throw the body forward. With a very strong head wind it will be necessary to dip the head quite low—of course *never forgetting* to look ahead for anything in the way now and again. The other important matter is to know just when to assist the motor with the pedals. The writer holds the opinion that it is the best policy always to help the motor up a hill of any magnitude, even though the motor would struggle up unaided. The trifling amount of exercise that a bit of pedalling means adds many miles to the life of the motor, it keeps the motor from "labouring." Most riders know what this means; it is when one can feel the push from the explosion through the frame and the driving belt begins to jerk ominously and look as if it would jump the pulleys—in fact, this often occurs when the pedalling assistance comes too late. The practised rider feels instinctively by the run of his engine just when it requires help. He does not let it die down to the "critical" point of speed. The beginner, on the other hand probably runs his engine till the speed gets so low that the motor is practically giving no power, and once this point is reached it is practically impossible to get going again on account of the inertia of the machine. All riders have at some time or other found out what it means to try and start again up a hill. Another little matter that counts is to

pedal briskly and take the hill at a good pace to get the maximum of cooling effect on the cylinder. This can only be done when the pedalling is taken in hand, so to speak, at the right moment.

Some Points about a Good Lubricating Oil.

A rough test for the value or viscosity of an oil intended for lubricating the cylinder is to rub a drop between the finger and thumb: the better the "body" the greasier it will feel, whereas a poor quality oil—that is, one possessing a body, will not have the characteristic slippery feeling when rubbed hard. This test is also useful for proving whether a sample of oil is gritty or not; a trace of grit in the oil may do a lot of damage to the bore of the cylinder. The colour of the oil is another good guide to its quality. If a sample appears black it probably contains particles of carbon, showing that it has not been well filtered; on the other hand, an oil having a golden yellow colour with a greenish tinge is pretty certain to be good and well purified. This greenish tinge is most noticeable when light is reflected on the surface of the oil. It is a property technically known as fluorescence. An oil having a particularly heavy body proves excellent as a rule for lubricating and assisting in maintaining perfect compression, but on the other hand it is more likely to set in the cylinder when this cools and is difficult to get through the pump in very cold weather. There is nothing like trying different brands till one finds the one most suitable.



THE LAST STRAW.—I.

COL. STAGGERS: "By James, sir, I was nearly annihilated by one of those — (lurid) motors this afternoon!"

MAJOR MEGGRIMS: "—! —!! Egad, sir, I'd have the whole rascally crew blown from the guns, sir, shot down in battalions, sabred, mined, and—"

COL. STAGGERS: "Words won't express it, You, man, fetch a smart hansom."

B16



THE LAST STRAW.—II.

TOUT: "Yer cab, m' lord."

(Col. Stagers is hardly expected to recover from the shock, and Major Meggrims is at the time of writing in a state of utter collapse from which little hope of recovery is entertained. The tout was not rewarded—a fact which he failed to understand.)

AMERICAN TOPICS.

New York, October 14th, 1903.

The competitors and competing machines, in the big endurance run from New York to Pittsburg, Pennsylvania, have been put to a far harder test than the promoters ever dreamed of. Men and machines have run foul of the worst rain storm of a quarter of a century, and a sorry ending has been brought to the great contest. Half of the machines became inextricably stalled in the mud, many had to be dragged for miles across the country by horse-power, and they were loaded on trains, at small wayside stations, for the return trip to New York. Some have been dragged as far as twenty miles. A humorous phase of the contest was contributed by the country school teachers along the route of the race. Many of the children were set free to see the autos pass, the teachers thinking the sight would be instructive to the youngsters. Although a pitiless rain fell all day, the youngsters held out at convenient fence corners and in handlets for the wonderful fellows from the city. What they finally saw, as illustrating the march of the times, was, now and then, a small mountain of mud moving slowly along the road, accumulating more and more weight every few feet.

* * *

Yet the great storm had another phase to it, and proved that automobile service in flood time is surer than train service. This was proved when the through service between New York and Buffalo on all railroad lines was either suspended or delayed many hours. But the automobiles in the endurance run from New York to Pittsburg, that for four days had ploughed their way through flood and mud without steel rails to make their route easy, advanced slowly, tortuously, steadily toward their goal. Of the nine road machines which left Bath in the morning in the 122 mile run to Buffalo, seven had arrived at ten o'clock at night, and the other two were within easy distance of the city.

* * *

An important trade agreement has been entered into by nine manufacturers of automobile tires. To begin with, there will be a general advance in prices; but—what is more notable—a factor of safety schedule has been adopted, whereby certain sizes of tires must be used for certain weights of machines; for example, no car weighing 1,600 pounds may be

fitted with anything smaller than 3½ in. tires, and they must be on rims that conform absolutely to the specifications of the tire makers. A complete scale of automobile weights, and the tires for them, has been made; and any automobile having tires on it smaller than the tire makers stipulate will not have guaranteed tires.

* * *

Barney Oldfield will probably represent the United States in the race next year in Germany for the international cup. Ever since the failure of the American team in the last cup race, it has been Oldfield's ambition to win the trophy for this country. It is believed in automobile racing circles that Alexander Winton will offer to build a machine for the contest in Germany, and that Oldfield will be the driver.

Oldfield is eager to meet the racing automobilists of Europe, and early in the summer he issued a challenge to any chauffeur in the world for a speed contest on a track. Up to the present time the challenge has not been accepted, though Henri Fournier made a counter offer of a race on the road.

* * *

The youths of Portland, Me., are not content with the "sure-nuff" automobiles which are driven by their elders, but insist on manufacture along lines more suited to their individual requirements. The sons of Mr. E. T. Burrowes of that place are herewith shown behind the steering wheels of their new racing monsters the "Pink Paralizer" and the "Yellow Demon." They have dismantled a number of carts which they owned, and built them into automobiles on which they do a deal of coasting and have a good deal of fun.

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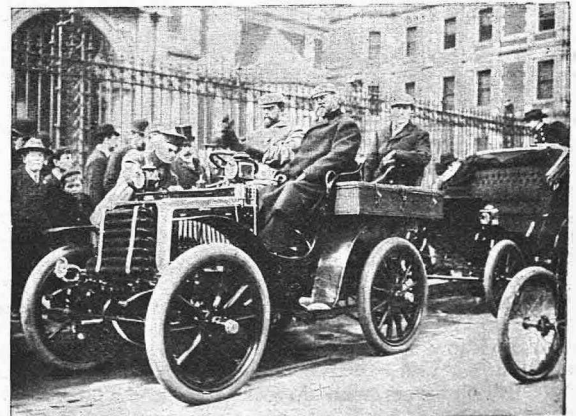
An automobile speedway 113 miles in length running through the backbone of Long Island and connecting Montauk Point with the City is in contemplation. It is to be a double track road, exclusively for pleasure and freight automobiles. General Roy Stone, the father of "good roads," is the father of the project; he has submitted his scheme to prominent officials of the National Association of Automobile Manufacturers, the Association of Licensed Automobile Manufacturers and the American Automobile Association. These have the project under consideration with a view to the formation of a company to finance and build the road.



Youths of Portland on autos of their own build.



John Jacob Astor (at wheel) starting in the Boston Race.



The President of the A.C. of America—Albert R. Shattuck—at the steering wheel.



The Circulation of "The Motor" exceeds that of ALL other motor papers combined.

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OPINION

"The Motor" Light Car Run Round London.

The importance of our suggested light car run round London has received ample confirmation in the criticisms which jealousy has obviously prompted two of our contemporaries to indulge in. To say that our announcement has caused a fluttering in the dovescotes, is to say the thing which is inadequate by reason of its mildness. The violent agitation which our preliminary proposals has caused is the best evidence we can adduce of the soundness of the idea, and, whilst we do not at present intend to deal seriously with the criticisms referred to, we may say that they will set us the more determinedly to our purpose of carrying the thing through. This will be evident to the reader upon perusal of the further announcement appearing on another page. When we come to deal with the results of this event, we may have something interesting and enlightening to say as to the manner, meaning and method of the comments that have been made, and the frantic but futile tactics adopted for the purpose of dissuading intending competitors from taking part. The reception which has been accorded the scheme, the favourable opinions we are receiving, and the offers of assistance which are pouring in upon us, are too convincing to warrant the slightest attention to petty opposition in quarters where it was quite expected. This run, arranged on lines which render it simple and popular, is undoubtedly required by the public, who are closely watching the progress of the light car. If probable purchasers, to say nothing of the vast number whose attention it is our purpose to attract, are interested in an event in which light popular-priced vehicles stand by themselves, it should be the duty of the trade to give its utmost support to the scheme for providing such an event. Every effort will be made by "THE MOTOR" to make this run comprehensive to the public without attendant complications or bewildering details and formulæ. The light vehicles which participate will, practically speaking, make their public debut, standing on their individual merits, and their performances will be so accurately reported as to be clear at a glance, thus inducing intending purchasers to further investigate the obvious merits of the light car. We are convinced that, whilst the public do not require to know what excesses may be indulged in by a light vehicle in an unnecessarily arduous test, there are many interested observers who do desire to know how such a car behaves under conditions not too far removed from what is considered reasonable and normal. Such an event is that

which "THE MOTOR" proposes, and it may be said that it is the first attempt to provide an opportunity for light cars to prove their merits in an exclusive category.

We desire to acknowledge here our indebtedness to a large number of readers who have written us on the subject of the proposed light car run, offering their services as honorary observers and in other capacities. Most of these gentlemen will have received replies by post, but if any have been missed, we wish to say that all offers will be duly acknowledged, and definite details and instructions forwarded in good time. The most encouraging sign in connection with our proposed run is the manner in which it has been received by our readers, and their practical interest is so conclusive that we can afford to entirely disregard adverse criticism, which nine-tenths of our readers will never see.

The Automobile Federation.

In our news columns last week we referred to the suggested federation of provincial automobile clubs. The news reached us as we were closing for press, and we were unable either to enlarge or to comment upon the proposals. Elsewhere we publish the full text of the scheme as set out by its originators, the Reading Automobile Club, and by this time the matter will be under discussion by all provincial automobile and motorcycling clubs. It will be seen that the suggestion of federation arises over the much vexed question of affiliation. The Automobile Club, although desiring to be the ruling body of automobilism offers no real encouragement to the provincial clubs to affiliate. Whilst they (the A.C.G.B.I.) fix the fee for the affiliation of these clubs at the high figure of 10s. 6d. per member, they offer in return—nothing! The mere honour of affiliation appears to the Reading Club to be dear at the price, and they have taken the bold step of outlining the scheme for combining the forces of the provincial clubs. It is hardly necessary to point out the disadvantages that must accrue from there being two representative bodies instead of one. On the other hand, the action of the Automobile Club towards the provincial clubs in the matter of affiliation has left the opening for the new body, and, moreover, has made that body a distinct necessity. It is impossible to expect the scattered clubs of the Kingdom to stand alone, when it is considered how much has yet to be done to overcome prejudice, and generally to safeguard the interests of motorists. It remains now to be seen whether the Automobile Club will reconsider its policy in the matter of affiliation, or whether it will allow this new association to go forward with its business-like scheme of federation. It would, of course, be better for all concerned that there should be one strong representative and united body having the unanimous support of all the clubs of the kingdom, but if the A.C.G.B.I. wills otherwise, the provincial clubs cannot be blamed for looking to their own interests, and acting promptly in assuring for themselves that unity which stands for strength.

"The Motor" Light Car Run Round London.

This event is fixed for Saturday, November 14th, and further details of the scheme will be found on another page in this issue. Every reader of "THE MOTOR" will be interested in this test exclusively devoted to light popular-priced vehicles. Bear the date in mind

SATURDAY, November 14th.

The Light Car Run round London.

Some further interesting details are given this week.

Rain put an end to the speed trials at Dourdan, and they stand postponed till next Thursday.

The sale of "THE MOTOR" continues to increase. To meet orders we are printing 36,500 copies of this issue.

The Prefect of Police in Paris has secured an automobile launch for river-policing work on the Seine.

Mr. A. W. Gamage is to receive the freedom of the City of London. Our best congratulations to the enterprising merchant of Holborn on this latest honour.

Last week we illustrated the new Ben-tinck motor-bicycle and described its engine as of 2½ h.p. The makers inform us that the engine is the latest 3½ h.p. Minerva.

A speed of 60 miles per hour was reached by Fossier last week on the Parc des Princes track, Paris. The distance was 10 kilometres and the machine a Werner racer.

The Town Council of Homburg has agreed to guarantee the sum of 10,000 marks (£500) for the Gordon-Bennett race. A like sum has been guaranteed by the Hotel Proprietors' Union.

S. F. Edge, Ltd., are to be congratulated upon their success in having drawn second choice of space in the great exhibition of motors to be held in Paris in December. This means that the firm will have a most central and prominent position in the salon.

The latest addition to the list of preparations for dressing belts is known as "Beltac," made by M. A. Aitken and Son, Mitcham, Surrey. The makers claim that it acts both as a dressing and non-slipping compound, and renders the leather both pliable and waterproof.

The attractive offer of the Rex Company, which has been appearing in our advertisement pages for some weeks, we are asked to state closes finally at 12 o'clock noon on Thursday, the 29th. This few hours extension is to give our provincial readers a last opportunity of accepting the exchange offer.

Dr. H. Noerdlinger, consulting chemist to the Floersheim Chemical Works, proposes to deal with the dust problem by means of emulsions, which, as Macaulay's school-boy knows very well, are oils united with water through the agency of alkalis, etc.; and has patented some emulsions for this purpose. The raw mineral oils and petroleum residue already used for laying the dust are somewhat expensive, and tar is too dense a fluid. We commend the doctor's suggestion to the notice of motorists.

Coming Events.

- Oct. 29. Paper at Automobile Club on "Marine Motoring," by Mr. E. Redwood.
- Nov. 5. Paper at Automobile Club on "Heavy Motor Traffic," by Mr. E. Shrapnell Smith.
- " 12. Paper at A.C. on "The Limitation of Cylinder Capacity," by Mr. C. W. S. Crawley.
- " 14. "THE MOTOR" Light Car run round London, particulars of which appear elsewhere.
- " 20 to 28. Stanley Show of Cycles and Motorcycles, Agricultural Hall, Islington.
- " 20 to 28. National Cycle and Motor Show, Crystal Palace.

We are asked to state that Mr. J. Edge, whose performance in climbing a hill at Everton on a motor-bicycle we recently chronicled, is not a member of the Anfield B.C., as might be inferred from the reference to him as "the well-known Anfielder."

The Ariel Motor Co., Bournbrook, Birmingham, inform us that they will introduce a 3 h.p. Ariel motor for 1904. This will have mechanically operated inlet valves. The cylinder dimensions will be larger than those of the 3 h.p. Ariel tri-cycle motor. This new motor will be specially adapted for side and fore-carriage work. The company will also introduce a fore-carriage which will be of the highest class throughout, and sell at 15 guineas.

"Hints and Wrinkles."

Will contain everything you want to know.

It will be procurable gratis at "THE MOROX" stand at the forthcoming show.

The Club Number of "Cycling" is published this week, and is a revelation of the vitality of cycling and of cycling club life.

The Belgian firm of motorcar manufacturers, Messrs. Pipe, have signified their intention of competing in the eliminatory trials for the Gordon-Bennett of 1904.

A cheap line in portable electric lamps for the pocket, and useful for inspecting cars or cycles at night, has been introduced by G. Bishop, Mary Ann Street, Birmingham.

The proprietor of a pantehnicon has been mulcted in damages amounting to £60 for being the cause of a motorcycle accident at Bristol. The driver of the van left it across the road at 10 p.m. without a light. The judge characterised the action as one of "outrageous negligence."

A motorcycle licence does not necessarily run for 12 months from date of being taken out. It begins January 1st and ends December 31st. A motorcyclist was summoned recently for not having a licence, and it transpired that he had taken it out last autumn under the impression that it would run for 12 months. There being no evidence of intent to defraud he was ordered to pay costs only.



SAM WRIGHT.

HARRY MARTIN.

Two riders of Excelsior motor-bicycles who have excelled during the year's motor racing.

The Automobile Federation.

Following up our announcement of last week respecting the suggested formation of the above we now publish the full outline of the suggested scheme. The full title of the body is to be "The Automobile Federation—The Association of Federated Provincial Automobile and Motor Cycling Clubs," and the objects are set forth as follows:—

- 1.—The Federation of Provincial Automobile and Motor Cycling Clubs, giving:
 - A. Consolidation of Motor Interests.
 - B. Protection of Motor Interests.
 - 2.—To give to motorists (hereafter called associates) other than those who are members of local clubs, upon joining the federation, the full protection of the automobile federation, and most of the advantages accruing to members of federated clubs, as hereinafter set forth.
 - 3.—To form a central committee composed entirely of nominees of the federated clubs.
 - (a) One-third of the members of the central committee shall retire each year in rotation, but shall be eligible for re-election.
 - (b) The central committee shall appoint the officers of the federation.
 - (c) The central committee shall undertake the general management of the federation.
 - 4.—To hold an annual conference at which each member and associate of a federated club can attend.
 - 5.—To create a central defence fund.
 - 6.—To promote the interests of automobilism generally.
 - 7.—To give to members and associates the following advantages—
 - 1.—That each federated club will have entire control of its own affairs.
 - 2.—That the central committee will be composed entirely of nominees of the federated clubs.
 - 3.—That each federated club will have equal voice in the management of the federation.
 - 4.—That the expenses of the administration of the federation would be comparatively small, seeing that no central club house, with its attendant outlay, would be necessary.
 - 5.—That members and associates might have access to the club rooms of any of the federated clubs, subject to the rules of such clubs.
 - 6.—That subscriptions paid by associates would be sent direct to the central committee, and would very considerably augment the central fund. In districts not represented by a federated club, associates, selected by the central committee, might act as district consuls.
 - 7.—That arrangements might be made with hotel-keepers, and others, for securing advantageous terms to members of the federation.
 - 8.—That a federation trophy might be acquired and competed for by a team selected from each of the federated clubs.
 - 9.—That to avoid all needless expense, arrangements might be made to appoint one of the existing automobile papers as the official organ of the federation.
- It is considered that the scheme, as outlined above, with many additional advantages which would doubtless be suggested at the proposed conference, would call into being an organisation carrying far-reaching power and influence, both in the provinces and in Parliament.



A scene on the Great North Road between Sandy and Biggleswade. The snapshot was taken on October 14th.

A large display of motorcars, cycles and accessories will be shown at the Exposition du Nord de la France, to be held in May, 1904, at Arras (Pas-de-Calais). English exhibits will be admitted into France free of duty and the French railway companies will apply a specially low tariff. Further details will be supplied by the Agent-General for Great Britain, E. W. Dunton, 222, Trinity Road, Wandsworth Common, London.

The Washington (U.S.A.) Commissioners have drafted an exemption clause to release motorcycles from the necessity of carrying a rear lamp. It is pointed out that the proximity of a lighted lamp to the petrol tank (usually fitted immediately under the seat) is dangerous. As the license number is generally placed on the petrol tank, and as this number has to be illuminated at night, the difficulty of getting this exemption clause passed becomes apparent.

Wanted: a Definition of a Touring Car.

The French hill climbing trials at Chateau-Thierry have not apparently exhibited the superiority of management for which France is proverbially noted. Some of the French sporting journals are drawing attention to the fact that more than one very thinly-disguised racing car entered and competed in the touring class. It is pointed out that the Paris-Madrid Mors, driven by Gabriel, and the Darracq, driven by Beconnais, are racing cars pure and simple, and that the addition of a tonneau (weighing 110lbs. or so) and mudguards (weighing, perhaps, 20lbs. to 25lbs.) does not transform them into touring cars in the ordinary sense of the word. The enormous engine power necessary to maintain the high rate of speed indispensable to a racing car is quite out of place on a touring car, and French writers argue that the introduction of these road-racers into touring trials will create a trade in abnormally high-powered touring cars quite unsuited for everyday road use. The two cars mentioned accomplished the hill climb at an average rate of nearly 50 miles an hour.

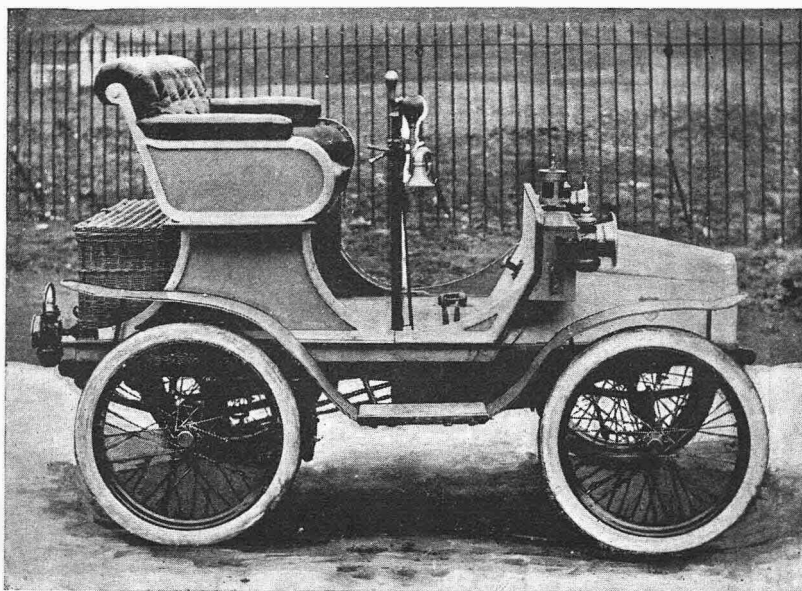
England and Excellence.

The new Napier speciality is so unique in many ways that we fulfil our promise of last week to deal with it more fully than demands upon our space would have allowed in that issue, and although the Napier is an expensive car, we think our readers will be interested in a description of it because it may be said to denote the high water-mark of automobile construction in this country, and all of us are interested in seeing England take a leading position in this new branch of the industry of engineering which we have made peculiarly our own. When the Napier and the Wolseley cars were shown at the Paris Automobile Salon last December, deep thinkers on both sides of the Channel saw the insertion of the thin edge of the wedge. It was the very first time that English cars had dared to push themselves into what had previously been the stronghold of the French; we are looking forward to the Paris Show six weeks hence, when we hope to see that the wedge has been driven further in, and that more English makers and more English cars will be displayed. The thoroughness of English engineering may be relied upon to do the rest. It is somewhat startling to learn, however, that an English firm is prepared to get behind the tariff wall which protects our foreign competitors, and that before next January is out the Napier factory in America is expected to be in full working order, whilst plans are being prepared for the manufacture of this make of car in France! Verily, motor engineers of this little island are not allowing the grass to grow under their feet, and they evidently do not intend to be content with the limitations imposed upon their output by the sea-girt shores of Britain. Well, we are glad to observe these straws—certainly not unimportant in themselves, but pointing to a magnificent destiny for English motor engineering, namely, absolute supremacy in the markets of the world. The height of ambition may be afar off, but pluck and determination will take us there or leave us not so very far away from the goal of this commendable ambition.

The Features of Two of the 1904 Cars.

We were given a most delightful run one day last week upon the new 24 h.p. Bollee car, the production of Leon Bollee, whose name may, with justice, be ranked with all those which have become classical in the history of the automobile. The three-wheeled Bollee of the early nineties will be remembered by all who had aught to do with those pioneering days. Later M. Bollee designed a car, and then disposed of his patents to the firm of Darracq, the cars having been produced under that name, M. Bollee being under agreement to refrain from re-entering the motor trade for three years. During this period of quietude he has designed the new car, which, although it may not appeal to our readers in the light of a possible purchase, is at least interesting, because it provides a type of excellence at which we must insist that makers of light cars should aim. The engine is unquestionably on Mercedes lines, with innumerable improvements in details. Its most remarkable features are its dead silence and its extreme flexibility. The car is more silent than any electric car, whilst even a steam car's furnace emits a noticeable noise as compared with the Bollee, on which the only sound, even when running in a showroom between four walls, is the ticking of the tremblers on the coil, and even this is being reduced. The carburetter is a very simple device, which, providing exactly the mixture which the engine speed demands, is an important factor in abolishing unnecessary noise. The flexibility of the motor is demonstrated by the way in which a car will crawl through traffic and up steep slopes on its top gear—a performance which makes one marvel. Every possible detail has been worked out to perfection, and we can only record our intense admiration of the wonderful skill which has produced so perfect a self-propelled vehicle.

As promised last week, we give a brief description of the Napier *pièce de résistance* for 1904, and if it should realise the hopes of its designers, as we fully believe it will, the English automobile industry will have made a very forward step towards the production of the desired goal—the most perfect motor vehicle in the world. As in other quarters, the aims have been towards a silent car, with an engine as flexible as a steam engine, every detail being as simple and as reliable as possible. The engine is six-cylindered, with mechanically operated valves, all placed on one side of the cylinders. A variable lift is being given to the inlet valves. In order to permit of perfect synchronising of the timing, a single coil and but one brush are used. The water jacket of the engine will be formed of copper in an entirely new way, and the cylinder casting is to be machined inside and out in order to secure lightness. The pump will be positively driven by gear-wheels, and the regular variation in water pressure, according to the speed of the engine, is being utilised to control the supply of air to the carburetter, the water acting on a diaphragm which will open or close the air valve. Thus the mixture should always be exactly adjusted to the engine speed. The clutch is of a metal-to-metal type: it will give great gripping powers, despite the presence of oil, whilst the



The "Bijou" Light Car.

latter will allow it to slip in traffic if required. A unique feature about the steering is that every single point is adjustable, so that all wear can be taken up. Friction and noise are to be reduced to a minimum, and comfort will be secured by a long wheel base and a perfect spring system. Mr. Napier's idea has been to embody in the new car every known improvement, and to make his new car better than anything that has hitherto been placed on the market.

The Montgomery side-carriage will be exhibited at Stand No. 1, National Show. There will be 10 complete machines exhibited, and two machines will be available for trial purposes in the grounds.

The Speedwell light car recently introduced by the Speedwell Motor Co., Knightsbridge, has "caught on" so well that arrangements have been made to manufacture it in larger numbers than originally intended. This will benefit the buyer, for in consequence the company is able to reduce the price to £135. A car with a longer frame, tonneau body, and three speeds and reverse will be introduced shortly at an extra charge of £20 upon above price.

A Broken Inlet Valve Spring.

It is always advisable to carry a spare inlet valve complete with spring and cotter, but in the event of one finding no spare spring available to replace a broken one there are a couple of substitutes that could be temporarily adopted. A correspondent mentioned to us recently that he found his inlet spring break, and being non-plussed what to do, he suddenly remembered that many types of tyre pumps have a small spring inside. He examined his pump, and found a spring of practically the same tension as the broken one. He fitted it on the valve, and found it answered quite well. Again, we heard of a case related by a correspondent in which he tied a piece of ordinary elastic to the top of the valve stem, and fixed the other end to a clip on the down tube, leaving about 8 inches of the elastic under tension. The makeshift lasted 200 miles.

The "Bijou" Light Car.

This handy compact little car has just been placed on the market by the Express Motor Co., 45, Everton Road, and 20, Lytton Street, Liverpool. The Bijou is strongly built, and is capable of giving long and efficient service. At the same time, it is light, so that the wear of tyres and the consequent cost of up-keep is low. With sufficient cooling water and oil for 100 mile run, the weight only just exceeds 500 lbs. Although quite recently introduced, we are not surprised to hear that it has already met with very gratifying success, and that extensive orders are being booked for early spring delivery. The price of the ordinary Bijou is 95 guineas, while the "Doctor's Bijou" complete, with hood and wind shield, is 110 guineas. A representative of "THE MOTOR" who had a run on the car was particularly struck by the absence of vibration, and the ease and comfort afforded by the springs, even over very rough cobbles. The engine is 5 h.p., with water-cooled cylinder, head and valves, and is started from the seat. The cooling water (about two gallons) is carried in a combined water tank and radiator, which also serves the purpose of a bonnet. Not more than a quart of water is lost in radiation in 100 miles' run. The water circulation is on the thermo-syphon system. Two passengers seated comfortably side by side can be carried at an average speed of from 16 to 22 miles an hour. Ignition is by trembler coil, and the wheels are fitted with 2½ inch tyres. The car is driven by central chain on the live back axle. Two speeds are provided by independent clutches operated by foot pedals, and intermediate speeds are got from the manipulation of the advance spark and the throttle levers on the steering standard. The manipulation of the car is simplicity itself, and it offers no difficulties, even to a lady, in the driving. Full descriptive booklet will be forwarded free on application to the distributing agents, to whom applications for trial runs should also be made. A car of this type should enjoy a well-merited popularity and serve as an introduction to "higher things."



Motor-bicycle with handle-bars curiously placed.



Bucquet with his novel Werner with elastic wheels.

Nothing New!

There is nothing new under the sun: even in motor matters history repeats itself. The 1903 pattern Mercedes cars have front axles of H section-steel (for strength and lightness); most people point to this as very original. We saw a four-year-old Gaillardet car the other day, the front axle of which was of the same section as the modern Mercedes!

Increasing Business.

Owing to the increase of business, the Duryea Motor Co. have acquired three acres of land in Widdington Road, Coventry, and have already commenced the erection of a factory thereon, into the occupation of which they hope to enter in a few weeks' time. The Duryea, in addition to its trade in England, has a very large clientele in the Colonies, and these will be supplied from the English factory.

Motor Launch Construction.

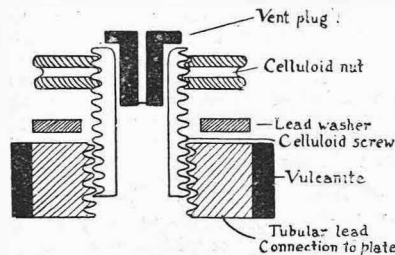
In an article in a recent issue of "Le Velo" the question is raised whether the motor launch of the future will be a perfected model of the type of boat now prevailing, or whether some distinct departure will be made from the form of hull at present employed. It is pointed out that the combination of a powerful motor with a comparatively diminutive hull does not yield the best results. By a simple example the writer shows that it need not necessarily follow that the type of hull which is suitable for an ocean liner or a torpedo boat is the best for an automobile launch: a racing launch 30 feet long, travelling at 20 miles an hour, traverses nearly 60 times its length in a minute; whereas a cruiser 300 feet long, travelling at 20 miles an hour, only traverses six times its own length in the same period. The French expert leans to the view that a broad, flat-bottomed boat, which would skim the water like a "ducks-and-drakes" stone, would give better results than a narrow keeled boat.

NOVELTIES SEEN AT DOURDAN.

Several enquiries have come to hand as to who are the manufacturers of Bowley's motor spirit. The makers are S. Bowley and Sons, Wellington Works, Battersea Bridge, London, S.W.

A New Non-corroding Terminal.

To prevent the possibility of the acid affecting the terminals of accumulators, Messrs. Wakelin and Co., Tottenham Street, London, W., have recently introduced a new terminal, which they are fitting to all types of ignition accumulators they make. Its construction will be readily grasped from a reference to the illustration. The lead connection to the plates is made of a stout tubular section, and is carried up through a vulcanite boss on the cover. The inside of this tubular connection is screwed, and a celluloid



nipple fits tightly into it. Over this nipple fits a loose lead washer, and finally there is the celluloid milled nut. The connecting wire is clamped between the lead washer and the end of the lead lug. The celluloid nipple is hollow, and its outer end is provided with a vulcanite vent plug for releasing the gases when charging and refilling with acid. Thus the terminal serves the double purpose for making the connection and providing a vent. This means that there are only two apertures in the accumulator case instead of the usual four. The materials forming the terminal being lead and celluloid are, of course, perfectly unaffected by the acid. The idea appears to be distinctly good.

We would draw readers' attention to the announcement appearing elsewhere of the monthly auction sale held by City Garages, Ltd., at 34, Queen Street, City, which takes place to-morrow (Wednesday), 3 p.m. Cars ranging from £20 to £1,000 will be offered without reserve.

Sheffield and District Automobile Club.

The above club will hold a 40 miles non-stop motorcycle run on Saturday, October 31. The start will be made from the "Plumper's Inn," at Tinsley, at 1.30 p.m., and the course will be via Maltby, Blythe, Barnby, Bawtry, Tickhill, Worksop. The "Lion Hotel" will be the club headquarters at Worksop. If the weather is unsatisfactory the run will be postponed till the following Saturday.

Motor Cycling Club.

Favoured by fine weather, a good turnout of members assembled at Harrow on the 18th of October for a most enjoyable run, over roads in almost perfect condition. The route taken was via Rickmansworth and Amersham. After lunch at the Red Lion Hotel, Wendover, the return journey was made by way of Chalfont St. Giles and Uxbridge. Amongst the members who attended were Mr. and Mrs. Johns, Mr. and Mrs. Whittall, and Messrs. Green, Abrahams, Booth, Cowles, Lambert, Watkins, Wignall, Head, etc.

In view of the execrable weather prevailing, the Motor C.C. have for the present suspended the runs. It is expected that the closing run of the season will be held on the 21st November, during Show week, when the members of the club will muster at the "Royal Hotel," Slough, where a dinner and musical evening will be held. It is proposed to make this function an opportunity for presenting the S. F. Edge trophy to the winner of the reliability trials. On Saturday, October 21st, the club will carry out the final test between the three riders who tried for the trophy. The course will be the usual 200 mile one, starting from Hatfield at 6 a.m.

We should be glad if "Cylinder," who contributed a recent article, will communicate with us.

In Messrs. Lycett's advertisement in our last issue it should have been mentioned that the machine ridden by Mr. Holmes was a Vinco, made by Messrs. W. R. Heighton, Ltd.

The Ariel Cycle Co., Bournbrook Birmingham, have a special line of 50 clearance and secondhand motor-bicycles for sale at extremely low prices, about which those riders in search of a bargain would do well to enquire.

Speed Trials in France.

The flying kilometre trials organised by "Le Monde Sportif," which were to have been held at Dourdan last Thursday, were unfortunately interrupted and finally stopped by persistent rain: only a few trials could be run off, the remainder being postponed till Thursday next (October 29). We have described in full, in previous issues, the scheme of classification adopted; and we need only repeat here that the trials were open to all classes of motorcycles and cars, tourists and racers alike. One hundred and seventeen entries were received, this total including no less than 57 motorcycles and about 30 light cars. An entry of special interest to English motorists was the Napier racing car driven by S. F. Edge: in the same class were representatives of several Continental manufacturers who hope to be competing for the Gordon-Bennett next year—e.g., 4 Mors cars and 2 Gobron-Brillie (France), a Mercedes (Germany), and a Pipe (Belgium). The course selected was a country road about two miles from Dourdan, with a good surface, free from curves, and some 40 feet in width; sloping banks on either side afforded an ideal vantage ground for spectators. The events completed last Thursday included the touring motorcycle class and some of the touring cars. Results as follows:—

Motorcycles (¼ litre cylinder capacity).—1, Momo (Peugeot motorcycle), 47½ secs.; 2, Lanfranchi (Peugeot motorcycle), 48 secs.; 3, Sencier (Moto-Cardan), 49½ secs.

Touring Cars (value under £160; two seats).—1, P. Roy (Roy car), 1 min. 97½ secs.; 2, Echet (Noe Boyer), 1 min. 31½ secs.

Touring Cars (value £160 to £320; four seats).—1, R. Gabreau (Noe Boyer), 58½ secs.; 2, P. Renaux (Peugeot), 1 min. 9 secs.; 3, De Cadignan (Bardon), 1 min. 31½ secs.

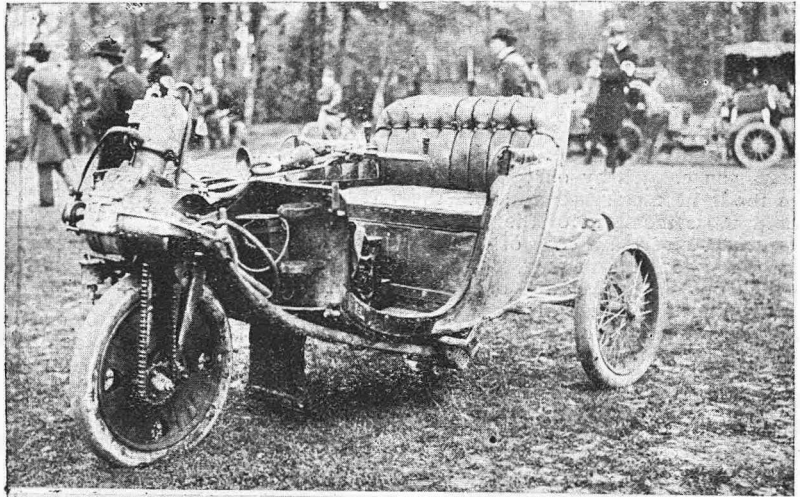
Touring Cars (value £320 to £480; four seats).—Pelzer (Gardner-Serpollet), 40½ secs. (Trials abandoned at this point).

The Peugeot machine which took first place in the motorcycle (quarter-litre cylinder capacity) class in the deferred trials at Dourdan was chain driven. The official time for the flying kilometre was 47½ secs., which works out at about 47 miles an hour: this on a dangerously greasy road is splendid going for a machine of such small engine capacity. It was ridden by Momo.

The "elastic wheels" which are engaging a good deal of attention just now in France, and which, in the opinion of many, will eventually supersede pneumatic tyres, were in evidence at Dourdan on Mons. de Cadignan's 12 h.p. Bardon car: its speed for the kilometre was slightly under 30 miles an hour.

With the advent of greasy roads, motor-cyclists will do well to be on their guard against side-slipping. The three golden rules to remember are: (1) Ride at mode-

rate speeds. (2) Keep the tyres inflated extra hard. (3) Avoid tramlines where possible, and in all cases, if they have to be crossed, do so slowly at an acute angle.



PHOTOGRAPHED AT DOURDAN.

1. De Boisse three-wheeler in the voiturette class.
2. Starting one of the motor-bicycle trials.
3. Mme. Couet, a lady motor-bicyclist competitor.

"THE MOTOR" LIGHT CAR RUN ROUND LONDON.

Some Further Details of the Scheme

Since the announcement of this event was made in our last issue progress has been made in every direction. We have received many further proofs of the extremely favourable impression created by our proposal to organise a popular run for light motor vehicles, and the fact which has surprised those members of the trade who have, during the past week, received a copy of the special prospectus of the runs issued to the trade only, is the extent of the list of light cars. Not a single one knew or imagined for a moment that so many light cars were being prepared for the public for next year. And, although our own list was fairly complete, our announcement had the effect of still further extending it by the addition of the names of some new firms with very promising designs in the way of light cars. In fact, the light car industry is particularly strong and full of promise, and it stands to reason that, in these early days, a step such as we propose to make must, by drawing the attention of those who perhaps have, so far, never thought of buying a car, prove of immense value in developing that industry. Except in two quarters only, the proposal to organise the run round London has been exceedingly well received. In some cases, cars which are on the stocks, and which would not have been ready quite so early, are being hurried forward in order that they may be entered for the run, and we only know of five makes which will probably be absent. In three of these, the sole reason is that cars cannot be got ready in time. The other two are being held back because a certain small section of the trade raises objection to the run from purely self-interested motives, which we need not enlarge upon here. As the entries will not close until November 7th, and as we are imposing a fine of five guineas upon all cars which are entered but which fail to start, many intending entrants are doing exactly what we desired they should do, and are making certain that each car will be ready before paying the entry fee in respect of it. But this also has the effect of keeping the entries back. However, with still two weeks before the closing date, we are able to state that the following cars are definitely intended to compete:—

5 h.p. Vauxhall (2 seats), 5 h.p. Commercial (2 seats), 5 h.p. Prosper Lambert (2 seats), 5 h.p. Beeston Humberette (2 seats), 5 h.p. Coventry Humberette (2 seats), 6 h.p. Rolls light car (2 seats), 6 h.p. Gordon (2 seats), 6 h.p. Elswick (2 seats), 6 h.p. Regal (2 seats), 6 h.p. Gamage (2 seats), 6 h.p. Relyante (2 seats), 6½ h.p. Perfecta (2 seats), 6½ h.p. Century (2 seats), 6 h.p. Siddeley (2 seats), 3½ h.p. Crestmobile (2 seats), 6 h.p. "O.H.B." (2 seats), 6 h.p. Achilles (2 seats), 8 h.p. Achilles (2 seats), 8 h.p. Achilles (4 seats), 6 (or 9) h.p. Beaufort (2 seats), 5 h.p. Bijou.

In some of the above cases a team of two or three cars has been entered; in others the number depends upon the possibility of the cars being prepared in time.

From the following list further entries will be drawn, and we hope in our next announcement to be able to transfer many of the names to the preceding list:—

6 h.p. Canterbury (2 seats), 9 h.p. Mohawk (4 seats), 6 h.p. Oldsmobile (2 seats), 5½ h.p. Stanley (steam) (2 seats), — Phoenix (2 seats), 6 h.p. Ewart Hall (2 seats), 6 h.p. Light Gladiator (2 seats), — Kyma Car (2 seats), 8 h.p. M.M.C. (4 seats), 6 h.p. Wolseley (2 seats), 6 h.p. Pick (2 seats), 6 h.p. Speedwell (2 seats), 6½ h.p. Vulcan (2 seats), 6 h.p. Highgate (2 seats), — Locomobile (2 seats), 4 h.p. Orient Buckboard (2 seats), 5½ h.p. Wartburg (2 seats), 7 h.p. Vousemol (2 seats), 9 h.p. Emerald (2 seats), — L. V. B. Universal (2 seats), 7 h.p. Cottareau (2 seats), 2½ h.p. Mabley (2 seats), 4½ h.p. Rochet (2 seats), 6½ h.p. Clyde (2 seats), 6½ h.p. Cadillac (2 seats). — Utile (2 seats), 6 h.p. Little Star (2

seats), 8 h.p. Eagle (2 seats), 5 h.p. Baby Peugeot (2 seats), 3½ h.p. Jackson (2 seats), 4 h.p. Alldays (2 seats).

From readers we have received innumerable letters of congratulation, for which we return our sincere thanks. These letters show that the public are looking forward with keenness to the event, and that many hope to secure from it a pointer as to the most reliable cars. Although the length of the run is not great, we hold the opinion that the cars which succeed in covering the journey mapped out—the first part being over hilly country—will be well worthy of the attention of the purchasing public. Some critics assert that the distance is too short for a serious test, but as all unofficial stops are counted against a car, and as most of the cars must (including the distance to the start and the journey home) do quite 150 miles in the course of the run, it becomes apparent that the event is more searching and, therefore, more important than our critics are willing to accede. We have been favoured with many valuable proposals, and each one of these has been carefully considered; but we have not been anxious to introduce any system whereby marks would be allowed for low power, for cheapness, for economy in running, for silence, and other points, for two reasons. In the first place, those matters were thoroughly dealt with in the Reliability Trials, and, in the second, we think that the public would rather know what the cars can do on a straight-forward run, and that they would then make their own allowances for such of the points mentioned as concerned them.

There is yet much to be done before the full programme can be published, and many details have yet to be thrashed out, but, as at present proposed, the cars will assemble at Bromley on the evening of Friday, November 13th, when they will undergo inspection, sealing and numbering. At eight o'clock on the following morning (Saturday) the cars lined up behind the official pilot car will set off on their journey. The pilot car will set a pace which shall be satisfactory to all participants, and no competing car will be allowed to pass the pilot under pain of disqualification. This will effectually prevent undesirable speed bursts, whilst, on the other hand, an average pace of 12 miles an hour will be expected, so that the test may be of value to intending purchasers. During the morning there will be a stop for a quarter of an hour for refreshments; at mid-day, an hour's interval for lunch; and in the afternoon there will be another stop of a quarter of an hour. We shall announce these stopping places, which will be one at a town south of the Thames, one about midway, and one at a northern town, and these will afford opportunities for a closer examination of the cars than would be possible en route. On the way the brakes of each car will be tested during the negotiation of a hill yet to be decided upon. The cars will have to tackle Reigate Hill during the morning run, and a heavy loss of marks will result from failure to climb this noted gradient. The cars would be timed on this hill, but marks are not to be given for speed; the official times and remarks of the judges affording to purchasers yet another means of comparing the performances of the cars. It is expected that the earliest cars to finish will reach Barnet at about six o'clock, when, after a final examination by the judges, the drivers will be free to go their several ways. The results will be tabulated as quickly as possible, and will appear in the following week's papers; whilst some of the competing cars will, no doubt, be on view at the Stanley and National Shows, which open within a week of the run.

We shall give the fullest details of the latest arrangements in our next issue, and any matter of special importance which arises after this issue has gone to press may be dealt with in the form of an inset.

Gordon-Bennett Race.

General Becker, Count Stierstorpf and Baron von Brandenstein have been driven by Werner in a 60 h.p. "Mercedes" over the proposed course in the Homburg district, and decided to place it on the list of suitable routes, although some motorists are disposed to regard it as far too hilly for the end in view. On October 4th the General and Baron Brandenstein inspected a stretch in the neighbourhood of Bielefeld, viz., Lippstadt-Paderborn, which they also found to be not unsuitable. If this be eventually decided upon, the scene of the great race will be shifted from Nassau to Westphalia. At the same time it must not be forgotten that the Mecklenburg stretch has not been definitely shelved. The German Motor Club will carefully weigh the advantages of each of the three courses. Naturally, not only the nature of the route, but also, and especially the possibility of the most comprehensive security and appropriate organisation will have to be considered.

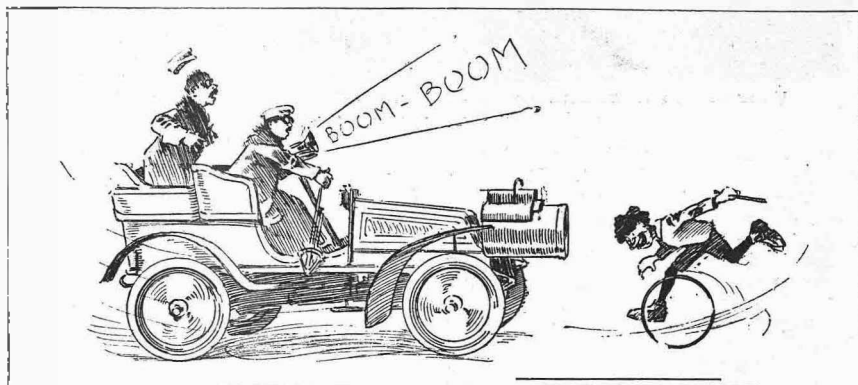
The Motorcycle as an aid to the Study of Geography.

The value of the motorcycle as a medium of locomotion and an aid to geographical knowledge is very strikingly exhibited just now in the Quadrant Cycle Co.'s window in Newgate Street in connection with a motorcycling tour which we reported on page 132 of our issue of October 14. Mr. Oakley's trip is "flagged" out with little red flags on a large map of England, and there are very few patches on the map which are without a flag; practically in the short space of a month—during which the average holiday maker explores part or the whole of one small county—the motorcycle has taken its rider throughout the length and breadth of his native land. The map, with the machine rigged out for the road in the background, is surrounded with autographed picture postcards from the various places stopped at en route. Large crowds have been gathering round the window all last week.

The Samson-Hutchinson Patent Non-skid Leather Bands were recently noticed and illustrated in "THE MOTOR." Mr. Theo. Masui, 1, Hanover Court, W.C., was named as the agent for England, but we are informed that he holds the agency for the London district only. All provincial business is in the hands of Mr. Leon See, of The See Motor Car Supply Co., 151, Oxford Street, W.

Salsbury's Belting.

We have received sample sections of Salsbury's Strictor Belting in two qualities. The first quality is of four-ply buff colored leather with one row of copper stitching. It is remarkably soft and pliable, and in handling gives the impression that it would get a powerful grip of an engine pulley. The second quality is in black leather, three-ply, metal stitched and in character is about as stiff as the usual V belting. Each sample has the look of quality about it, and the stitching is central and in line. Anyone with a good digestion for statistics would do well to send for the "Results of Experiments to ascertain the Tensile Strengths, etc., etc." Twenty-five columns of figures carried to two decimal points. These tests have been carried out by Messrs. David Kirkaldy, and by them the "Strictor" has been put in competition with other belting at present on the market. In each test the "Strictor" shows a marked superiority which must be very satisfactory to Messrs. Salsbury and Son, who have introduced it. Although the quality is so good, the price is only about that of ordinary V belting.



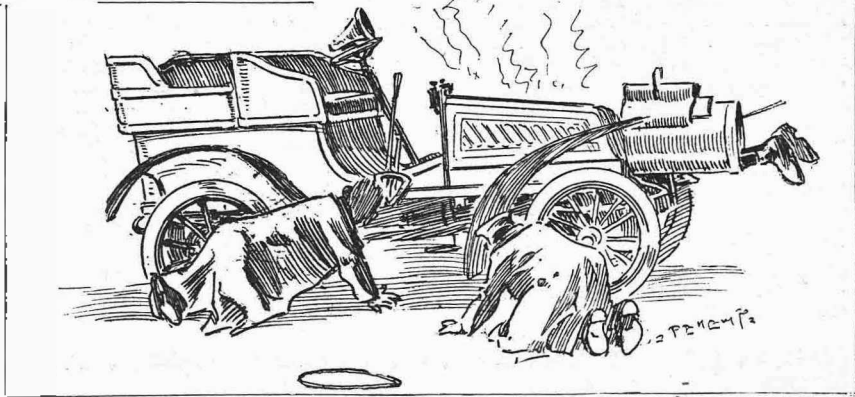
THOSE HOOPS!

Moving in the Right Direction.

A meeting of "Owners, Users, and Drivers of Motorcars and Motorcycles" is convened for 4.30 p.m., Friday, the 30th inst., at the George Hotel, Winchester, when the following resolutions are to be submitted to those present:—

1.—"This meeting of owners, users, dealers, and drivers of motorcars and motorcycles would respectfully urge the County Council of Hants and the Councils of the County Boroughs of Portsmouth, Southampton, and Bournemouth to carry out the Motor Act, 1903, as far as it lies in their power in a liberal spirit, and in a manner which will not unreasonably restrict or injure automobilism as a means of more rapid and convenient locomotion.

- (a) By not scheduling any roads as unfit for motor traffic under Sec. 8.
 - (b) By refusing to sanction 10 mile limit areas indiscriminately.
- 2.—"That a memorial be sent to the County Councils and County Borough Councils of Hampshire embodying the above resolution.
- 3.—"That steps be at once taken to form a branch of the Motor Union for the administrative County of Hants and the County Boroughs adjoining, to have for its object the safeguarding of automobile interests, to be called 'The Hampshire Branch of the Motor Union.'"
- This is a move in the right direction, and the meeting should be largely attended.



THOSE LAMPS!

A Novel Design.

The Knox Automobile Co., of Springfield, Mass., U.S.A., have adopted a design for their 1904 light car which has many strikingly novel features. For instance, the two cylinders are mounted quite horizontally and opposed to each other, and are cooled by a forced draught of air, directed on the head by rotary fans. Instead of the conventional radiating flanges threaded pins are screwed into the cylinder and head. The two fans are driven at high speed from a long countershaft, this in turn being driven from the main motor axle by skew gearing. There are three gears to give variation of speed on the planetary system, and the drive is by a chain on to the rear differential axle.

Remarkable Durability of a De Dion Car.

As an instance of the work that can be got out of a high grade car it is interesting to note that Messrs. Mann and Egerton, of Norwich, have a De Dion car of 6 h.p. that is used for carrying a heavy load of newspapers from Norwich to Lynn every morning at the early hour of 2 a.m. It has run with perfect regularity since last Easter Monday, and its mileage has totalled up to 50,000. The engine was recently overhauled and all parts found in very good condition, and the car is again in active service. This certainly is a wonderful record of durability and as such is worthy of note. A record such as this must enhance the De Dion reputation.

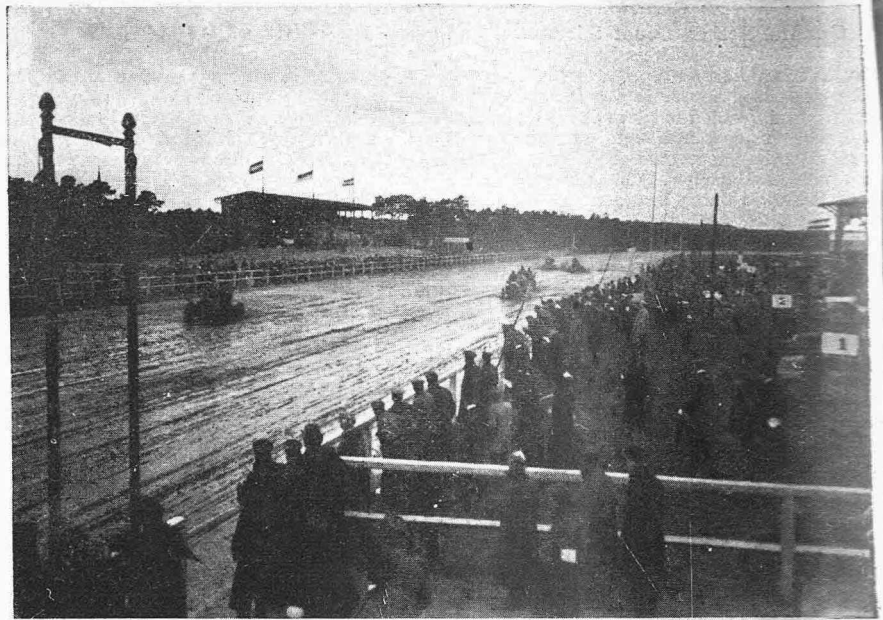
Moting over a Swamp.

(From our Berlin Correspondent).

O Falb, Falb! why wert thou not consulted by the German Motor Club before thou crossed the Styx? Did not thy weather prophecies come true—now and then? You have predicted what was in store for us in Berlin on the 18th. Yet there is no knowing. Perhaps the late Falb was no friend of the motor, in which case he might have wickedly foretold glorious weather just to spite us. The Westend trotting course is no ideal place for a motor race at the best of times, but the copious and persistent rain of the morning and the days and nights previously had converted it into a veritable swamp. A course a mile long, ankle-deep in yellow mud, plentifully bestrewn with pools and possessing no banking worthy of respect, this was the scene of Berlin's first motor races under the auspices of the German Automobile Club. The weather failed to put a damper on moting enthusiasts; they moted down, cabbed down, trained down, trammed down, braked down, walked down in hundreds, took up their stand at the barrier, turned up their mackintosh collars, opened their umbrellas and bade the elements to do their worst. Proceedings opened with a motorcycle event for professionals and amateurs. Nine heroes lined up. The condition was that the cycles should be pedalled into motion. It was all very well to talk about setting the motors going by pedalling, but another thing to do it. Herr Wondrick, astride a "Laurin and Clement," which bore the number "17," vigorously got to work, and

AFTER TRULY TERRIFIC EXERTIONS

succeeded in conveying the impression that he was moving. Then another "put his back into it," and was rewarded with a like success. Similarly a third. As for the rest, they—stuck in the mud! Wondrick having secured the lead, retained it to the end, ploughing through the five miles of swamp in 14 mins. 9 secs. A "Progress" made a bad second, and a "Presto" a worse third. Four races for cars of a horse-power up to 12, 19, 24 and over 30 respectively were severally won by a 11 h.p. "Duerrkopp," an 18 h.p. "Dietrich," a 28 h.p. "Mercedes," and a 42.24 h.p. "Mercedes." This last race—No. 5, on the programme—furnished the most excitement. Herr Willy Poege



View of the West End Trotting Course, Berlin, during one of the motorcar races.

steered the winning "Mercedes" with wonderful nerve and skill. It was a thrilling sight to see him taking the almost flat corners at about a kilometre a minute—what is mud to a powerful "Mercedes"? The yellow liquid swirling up over car and occupants, and two of the "crew" hanging half out of the car to counteract the centrifugal force! Herr Poege, by the way, is an old cycling hand. In the eighties he won the amateur championship of Saxony on the ordinary. Now he ranks among Germany's elite amateur chauffeurs. In his rear a couple of "Dietrichs," steered by Director Beutler and Ettore Bugatti, compeers of Poege, fought obstinately for second place. Bugatti's daring steering at the critical moment saved the position by a few seconds only. Poege's time for the ten miles was 15 mins. 51 secs.—very smart progress over such a track. The two final events were for professional chauffeurs, and spectators who had expected to see Robl make his debut in his new part, were doomed to disappointment. The famous Munich pace-follower did not appear

Mr. E. L. Cooke's Case.

We understand that Mr. Cooke has taken counsel's opinion as to whether he could proceed against the Justices of the Peace for York for the high-handed way in which they treated him in his case for an alleged technical infringement of the Light Locomotives on Highways Act, 1896, for exceeding 12 miles an hour. He was fined £10 and costs, or two months' imprisonment. Mr. Cooke was so disgusted at this prejudiced decision that he declared that he would rather go to prison than pay it. He accordingly refused to pay it, and ultimately a warrant for his arrest was issued, and he was arrested. Counsel's opinion has been taken, from which it appears that the Justices, although sailing close to the wind, have not actually committed themselves to an action, but every right-minded person will applaud Mr. Cooke in protesting against the sentence which was passed upon him because he was driving an automobile. We understand that in a similar case the fine was less than half the amount ordered to be paid by Mr. Cooke.



Start for the motorcycle race in the swamp at West End Trotting Course, Berlin.

OTHER PEOPLE'S VIEWS.

NOTE.—These columns are set apart for the discussion of motor topics by bona-fide readers of "THE MOTOR," and trade letters containing veiled advertisements are not admitted.

The Editor invites correspondence on any motor subject, but owing to the very large number of letters received he directs attention to the following rules:

1. Plain Writing. Type-writing for preference.
2. All letters to be written on one side of the paper.
3. Letters to be kept as brief as possible.
4. For the purpose of illustrating any letter, rough diagrams may be sent, which will be worked up by one of our artists.

The Editor is not responsible for opinions expressed by correspondents in this section.

Tyre Makers and their Clients.

Sir,—With reference to letter in your issue of 9th ult. from "C. P. Prentice," it is with great pleasure I write to inform him that the treatment I received at the hands of the Dunlop Company left me nothing to complain of. I had the same fault to find with the back cover of my motor that he complains of, only more so, but it was certainly after having been in use longer and having run a greater distance. I returned the cover to the Dunlop Company with full particulars, on receipt of which, without further correspondence, they sent me a new cover to replace the one I had returned them. I have no interest in writing except to remove a wrong impression caused by your correspondent's letter.—Yours faithfully,
"RIADA."

The Position of the Quad.

Sir,—As a quad owner and a continual reader of your useful paper (from the beginning) I feel I must protest against what seems to me an unfair article in your issue of September 30th, practically advising the handing over of the quad to be classed as a car. The sting of the article lies in the statement that a quad is really as bulky as a light car upon narrow roads and, therefore, should be confined to the wider roads. Taken in this connection, "bulky" can only refer to the width of the vehicle, and yet you omit all suggestion to include the tricycle, which is of the same width, the Trimo (some of which type are wider), or the bicycle and side-car, which are considerably more bulky as regards width of road. In common fairness all these should be included if the quad is to rank with the car. The difficulty of definition seems to me to vanish if "cycle" is held to include all vehicles fitted with pedals as a means of propulsion; if no pedals are fitted (except in the case of bicycles) the vehicle is manifestly of the car type, e.g., the Eagle and Century tandems. The question of pedals would do away with the weight limit, which has really no bearing on the subject.—Yours faithfully,

G. BERNARD GAINSFORD.

Chain Drive for De Dion Tricycle.

Sir,—Doubtless there are many readers besides myself who would be glad if Mr. Leonard Jones would describe how he converted his gear-driven De Dion tricycle to chain drive.—Yours faithfully,
A. CUNNINGHAM.

Petrol Economy.

Sir,—Apropos of J. H. Judd's letter in a recent issue of "THE MOTOR" re economy on Humber Olympia tandem, I may say that I have run 110 miles on one gallon, and 70 miles on just over half a gallon of petrol, with two up in each case. Also, like a recent correspondent, I was troubled by the centre wire of a new sparking plug turning in its socket. The previous one (a U.M.I. cementless) had run nearly 3,000 miles without a fault.—Yours faithfully,
J. A. MACKLE.

A Tip for "Humber" Riders.

Sir,—I have had great difficulty in starting my Humber motorcycle for some time, the compression being practically full on with the spark lever only advanced to half compression point, or else entirely relieved if lever was very slightly retarded. Noticing some considerable play between the exhaust valve tappet and exhaust valve stem, I inserted a small metal disc in the cap on end of tappet to bring the two as close as possible together without actually touching: my trouble at once disappeared, the motor starting easily with slight pressure of the foot instead of after exhausting struggles as previously.—Yours faithfully,
J.V.

Bursts in Inner Tubes.

Sir,—Referring to my two previous letters re bursting of inner tubes, I have now ridden 700 miles (with a trailer) since I fitted the canvas strip (mentioned in my letter) to my tyre. I have had two bursts, but they were due to my not joining up the two ends of the canvas and thus making an endless strip: if this had been done all would have been satisfactory. I had a letter from Dunlop's in reference to the one I wrote you which you published in "THE MOTOR" of the 12th August. I have seen them recently and they state their 1904 tyre has a strip vulcanised to the cover to form a bed for the tube, thus, to my mind, admitting the defect. Thanking you for your assistance in the past.—Yours faithfully,

W. E. SOUTHCOMB MAY.

"The Motor"

Show Specials

will be the feature at Show time.
The dates of their appearance
will be as follows:—

Tuesday, Nov. 10th.
Tuesday, Nov. 17th.
Tuesday, Nov. 24th.

DOUBLE VALUE! ONE PENNY.

Police Trap.

Sir,—It may be of value to motorists driving between Ipswich and Norwich to know that there is a police trap between Scole and Dickleborough. The police use a telephone, which communicates between Scole post-office and Dickleborough post-office.—Yours faithfully,
"A MOTORIST."

Motorcyclists and the New Act.

Sir,—May I point out a few objections to some of the suggestions as to definition of a motorcycle? One of your correspondents suggests "an automatically propelled carriage—adapted for auxiliary propulsion by means of pedals," this would leave out the "Bat" and also most of the three-wheelers which have no pedals. Another correspondent specifies "a vehicle on which one or both of the occupants sit on saddles," this you will see would bar the small seats that machines such as the "Eagle" tandem are fitted with and which I hope soon to see on the heavier pedal-less cycles. In spite of the fact that I am contemplating buying a three-wheeler, I must say that the fairest arrangement would be to privilege the two-wheeled machines only, as the difference between two wheels and three is greater than between three and four in all ways.—Yours faithfully,
B. G. BOUWENS.

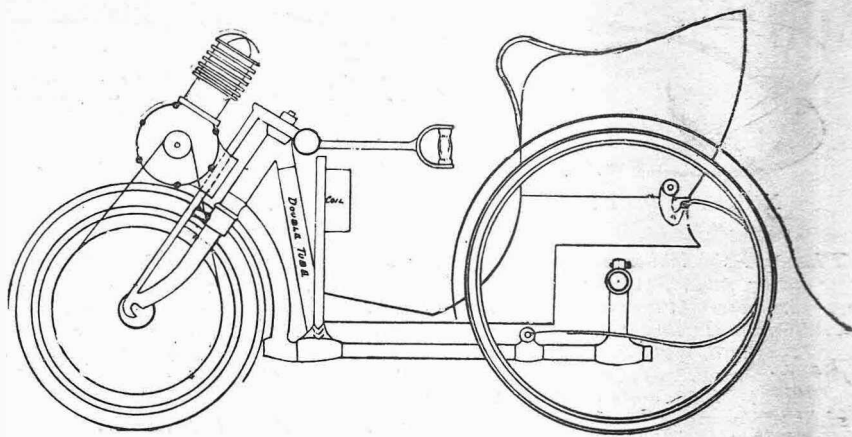
Sir,—I wish to call attention to the fact that tri-cars, quadricycles, etc., are very often used for taking out elderly persons, invalids, those whose misfortune it is to be lame, and others to whom cycling in any other form is impossible, and whose means are limited. To these in particular I think that the privilege of using the quieter roads and by-lanes should be extended in order to enable them to get away from the dust and worry and other unpleasantnesses of the main lines of motor and other traffic. It would be a great hardship to many if these combinations, which do not exceed the usual dimensions of a quadricycle, were not included in the definition of a motorcycle. The quadricycle, as being the most suitable and safe form of cycle for use as a sort of motor bath-chair or invalid chair (on account of its two driving wheels, only two tracks, and consequent steady running, and other features) should certainly be included. If, as I have seen suggested, a limit of weight and horse-power is included in the definition, sufficient margin should be allowed for cases where the passenger is totally unable to walk, and has to be carried by the motorcycle up all hills met with. With respect to numbering being visible at night, I remember seeing a lamp noticed in the "Novelty" page of "CYCLING" a few years ago which had a glass fitted in the back below the bracket: this threw a light on the head of machine and front forks, and would light up a number tablet placed there.—Yours faithfully,
W. H. BALL.

Medical Men and the New Act.

Sir,—Your letter from Dr. Godfrey Lowe with reference to the New Act affecting medical men is not written one day too soon. I have been expecting to see a letter on the subject for some time past. Being just in his position, doing all my medical work on car or motorcycle, it will be a serious matter to me when certain roads are closed to motor traffic, especially as so many roads about this district (Penzance) are narrow, and will consequently come under the New Act. The danger is that motors will be barred from using any but the main road. I should be much obliged if Dr. Lowe would, in a letter to a medical paper, ask all medical automobilists to sign a petition to be forwarded to the Local Government Board. After having used a motor-tricycle on all roads for four years, without an accident to anyone, it will be hard lines to be driven from these roads without any good reason.

—Yours faithfully,

H. RUSSELL PHILLIPS,
B.A., M.B. (Cantab.)



Illustrating letter from Fred. H. Hadfield.

A New Design in Sociable Motorcycles.

Sir,—In your issue of the 23rd September you mention again the urgent want of the two-speed gear for motor-bicycles, and in issue of September 30th "Cyclomot" confirms this. You kindly published some 18 months ago a patented design of mine for this purpose which met with your approval. Since then I have altered the design so as to bring the pulley close to the crank case, and intend to embody it in a design which I have pleasure in submitting to you herewith. I write now, somewhat before I am ready, as, from the recent perusal of your remarks in "Opinions" and the sensible letter of H. B. Radcliffe, the time seems ripe for a discussion. What I take it is required by the man of moderate means is something like this:—(a) Reasonable first cost, but not a cheap and nasty article, say £80, or thereabouts. (b) Lowest possible running cost on tyres. (c) A proper mechanical and comfortable method by which one may carry a companion. (d) Comfortable spring seats, not saddles at any price. (e) Plenty of power, ensuring no jibbing of the vehicle at hill work, and no enforced pedalling—in fact, entire elimination of pedals. (f) Starting of engine by small removable crank on tree engine position. (g) The comforts of the voiturette without eliminating the handiness and simplicity of the motor-bicycle. I have given much thought to this matter, being a motorist since the beginning of the movement, and the fact of having ridden many hundreds of miles in the aggregate in comfortable rickshaws abroad has dominated my line of thought. I therefore enclose an outline sketch of my design of motor-rickshaw: I am hoping to put this on the market for next season, and now is the time for any suggestions from your readers. Specification:—The frame to be of 1½ inch tube, brazed together cycle fashion, and strengthened in every available position, three tubes supporting the head, for instance. The back axle—a straight tube—to be finished bright and nickelled, and held in clamps on the frame as shown, carrying 36 inch wheels on large ball-bearings, shod with large solid-tyres, securely held on. The light body to be of wood, with aluminium panels, and supported behind on "Coe" springs, and in front on a transverse leaf spring. A small dash to be fitted carrying trembler coil and accumulator. Room

under seat for spares. Front wheel fitted with heavy pneumatic tyre. Engine of 3 h.p., mounted on very strong fork, driving front wheel by chain through my own two-speed gear, with free engine position. Steering by irreversible worm by twisting movement of handle, as shown, which will be fitted with ball joint, allowing its free movement out of driver's way, when required. "Hadfield" sparking plug (made by the General Electric Co.), which is secure from trouble from rain, mud, or even a bucket of water. Band brake on front wheel, drums and clamps on back wheels. The petrol tank will be situated in front between the double stays, which, looked at from the front, will be in the form of an inverted V. I think I have said enough to give your readers a general idea.—Yours faithfully,

FRED. H. HADFIELD, M.I.E.E., M.S.A.

Surface v. Spray Carburettors.

Sir,—I have watched with a great deal of interest the discussion under the above heading in your columns, and it appears to me that there is something to be said for both types. Up to the beginning of the autumn of 1903 I was a thick and thin supporter of the surface type, but since then I have somewhat modified my views. To the man who is a novice, and, moreover, not of a mechanical turn of mind, I say have a surface, for the greatest advantage it has is its simplicity. On the other hand, if some experience has been gained, or one has a liking for things mechanical, then by all means fit a spray. I am one of the latter class of riders, and to me the added complications of a spray present no terrors, although I make it a rule to use nothing which I do not understand. The one great advantage of a spray carburettor which I have never yet seen put in so many words, is that it converts the petrol into vapour as and just when required. The product therefore is always of one quality (the best) and the petrol in the tank does not in any way deteriorate by keeping. In my position as secretary of Minerva Motors, Ltd., Goods and Repairs Department, I have had unequalled opportunities of arriving at a right conclusion, and the above, which is the result, will be useful I hope to many at present halting between two opinions. In conclusion I would impress upon all the necessity of keeping the spray scrupulously clean, in particular the jet and air inlet.—Yours faithfully,

A. W. BURCH.

Sir,—In your issue of October 7th you publish a letter on the above subject over the signature of Godfrey Lowe. Now there are many others beside medical men who are in very much the same position. I myself am a surveyor (Public Health Department) and water engineer in the service of a large and important rural district council and use a motorcycle in the course of my work, extending over an area of 72,000 acres. If any of the roads in my district are closed to motorcycle traffic I shall be placed in a very awkward position. New buildings are very often built in out of the way places, and these need frequent inspection, as also do matters in relation to water supply. There are few roads, indeed, which are so narrow that it is necessary to close them to the use of the single track motorcycle, and I trust that every effort will be made to allow their use on all roads, or at least that some exception will be made in favour of persons using them for going to or from their homes or in pursuit of their occupation.—Yours faithfully,

A.-M.I.M.E.

Chelmsford.

The Dust Nuisance.

Sir,—As a regular reader of "THE MOTOR" I have seen various letters on the dust nuisance, and have often thought of the following idea:—Why not arrange a light metal tube with a specially shaped mouth to come low down behind each wheel and fix a fan to create a strong up-current of air through the tube? The dust could then be drawn up and collected in a small box which could be emptied at the first stopping place. I, therefore, experimented on a bicycle and find that it works satisfactorily, but is rather clumsy, which would not be the case on a car. This arrangement would be more effective at high speeds as the wheels would have a still greater tendency to throw the dust into the tubes. I should be glad to hear readers' opinions on the matter. If it is found to be feasible, and cars are fitted with this arrangement, it is probable that after a while there would be much less dust on the roads, and therefore, less mud.—Yours faithfully,

A.E.C.

Lavagna, Italy.

Sparking with Two Volts.

Sir,—In reply to "R.S.L." (Croydon) in a recent issue, I was troubled just in the same way, i.e., platinums burning; you advised me to try running on one cell, which I am now doing, and instead of having to dismount every 15 to 20 miles to adjust trembler and screw, I do not touch them under every 200 miles, and then only to trim them up a bit: extra resistance wire was useless and no spark occurred with oil on the platinum tips.—Yours faithfully,

D. W. T. HOLLOWAY.

Accumulator Difficulty.

Sir,—Referring to your reply to F. T. Townsend (Sheffield) in "THE MOTOR" of the 7th October, page 214, there would appear to be still another explanation of the accumulator's discharging. A friend of mine, an electrical engineer, informs me that if accumulators are charged too quickly they only take a surface charge, and if the top acid be removed show no voltage at all. I happened to be at the "Angel" on a recent Sunday when three accumulators (Invicta) were tested and not one showed the faintest current on a test lamp, although one had only been returned from the charging station the previous Friday. I may say that acting on your advice, I have several times charged my accumulator through a 32 c.p. lamp on 100 volts circuit: result a buckled plate. The makers say 25 c.p. is quite sufficient, and a 16 c.p. is still better. With thanks for past assistance.—Yours faithfully,

W. E. SOUTHCOMB MAY.

[A 32 c.p. lamp allows just a fraction over 1 ampere to pass through the cells, and for a standard size 15 to 20 ampere-hour cell this is not excessive. We have never experienced any trouble whatever charging at 1.2 amperes.—ED.]

High-Tension Condensers on Sparking Plugs.

Sir,—May I thank your correspondent, Mr. Norman Wells, B.Sc. Hon., for his letter in your issue of 26th August, re above, wherein while starting out to criticise this invention he develops into blessing it altogether. The letter amounts to a statement that a condenser across the high tension circuit and sparking plug is an advantage if properly proportioned to the other apparatus, but that it requires to be so proportioned and to be exceedingly well insulated. That is just my point—it does; and this explains at once the necessity of using a particular form of condenser such as supplied by Messrs. Peto and Radford: it also explains the evil effects of lead covered wire when so used. I will not enter controversial ground by stating that these effects are caused by discordant electric surgings, but I simply say that the effects are present in a very realistic manner in practice, and that they decline to be warned off even although some people may consider their right to existence "grossly exaggerated." The ill effects comprise stray sparks in curious places among petrol-vapour, intense shocks to be obtained from innocent looking lead covering and other parts of mechanism, and irregular sparking at the plug. If these things are nice, then this is the way to get them. Coming to Mr. Wells' remarks about patents:—"The use and employment of a condenser—or in-

tentional added capacity—joined in parallel with the sparking plug used for firing the charges in internal combustion engines" is a pretty definite thing, relating (at the date of the patent, now 2½ years old) to a new and useful combination of practical apparatus, and not to be set aside because Mr. Tesla has devised apparatus for giving vague nightmares to theatrical audiences. The scientific principles of every invention are, of course, always old, but that fact very properly does not prevent a valid patent being given to the person who first applies those principles to a definite and practical purpose. The fact that compressed air would distend a bladder or rubber tube, for instance, has been known from the earliest times; but that did not prevent Mr. Thompson in 1845 from obtaining a valid patent on a pneumatic tyre. Meantime, I shall be happy to hear when the manufacturers of whom Mr. Norman Wells speaks are doing a good business in this combination, and shall be around to collect the royalties.—Yours faithfully,

A. C. BROWN, M.I.E.E.

The Wind-scoop a Fallacy, etc.

Sir,—It is always a wonder to me why so many riders try wind scoops and such like arrangements for cooling the engine of a fore-carriage. It seems to me that disadvantage caused by the increased resistance to the air is not compensated for by the more effective cooling of the cylinder. But, apart from this, it is clumsy and of no use when travelling with the wind. My experience is that a fan worked from the engine pulley is far the best and simplest arrangement. Might I add to your answers to L. Wallace (Liverpool) in issue of September 30th, that I have never found any ill effects from filling the carburettor of a Quadrant machine too full; but that I have found misfiring frequently due to the valve springs not being of the right strength. Pratt's "B" spirit I consider quite useless for surface carburetters.—Yours faithfully,

"Q."

Two-speed Gear and Wind Scoops.

Sir,—In answer to a question which I observed in a recent issue, re adjustment of leather band on Garrard two-speed gear, I may say there is a short link of steel wire about 3in. long on my machine connecting the levers which pull the band tight: if this is bent it will tighten up the band so that it comes into play sooner: my original leather band has now worn for over 2,000 miles driving a fore-carriage generally on the high gear, and seems as good as ever: the leather band wears rapidly at first, and soon comes to the end of its range; it is then necessary to bend the link, or make some equivalent re-adjustment. With reference to wind scoops, these are no use as usually fitted: with a fore-carriage, it is necessary to have a large one to project beyond the sides and catch the wind; and there are other objections to the wind-scoop on a low-gear engine. I have been experimenting for the last month or so with a different arrangement, suggested in my previous article, which is much more effective on the low gear, and permits me to drive the fore-carriage for practically any distance at full throttle without overheating the engine. I hope to describe this method in a future issue.—Yours faithfully,

"CYLINDER."

"Nuisances of the Road," etc.

Sir,—Allow me to bear testimony to all "Cyclomot" says on this subject, especially dogs, and to mention another grievance, namely, brewers' vans. Often and often have I tried to pass these after repeated warnings, to find, when the feat is accomplished, that the driver is fast asleep, and the horse allowed to find his way by instinct; and yet one never hears of the driver of a brewer's van being fined by the police.—Yours faithfully,

E.G.

L.G.B. Regulations.

Sir,—I would suggest that for the purpose of these regulations the word motor-cycle shall be interpreted to mean a mechanically propelled vehicle having five wheels or less (including all fore, side, or hind attachments such as fore-carriage, side-carriage or trailer) the total weight of which shall not exceed 3cwt., the total width 36in. and the total length 14ft., including all fore, side or hind attachments. I specify five wheels so as to include trailer for tricycle.—Yours faithfully,

"AGRA."

The Brittain Pulley.

Sir,—In reply to Mr. Herbert's question No. 4 in "THE MOTOR," September 16th, my patent pulley, I may say, can be run with the same driving rim on back wheel as used for V belts, and is most suitable for it, the only alteration needed to any machine being the Duplex pulley on the motor and a round belt. I have tested my pulley with water running on it and found it does not affect the grip of the belt, I have run one of these pulleys hundreds of miles and have not had any slipping in any kind of weather.—Yours faithfully,

F. BRITAIN,

8, Victoria Road, Twickenham.

Wear on Fore-carriage Tyres.

Sir,—With reference to the complaints in recent issues as to the wear of tyres on fore-carriages, is it not due to the fact that suitable tyres are not fitted for the purpose? I should like to relate my experience: I received early in July last a "Coventry Eagle Trimmo" direct: almost as soon as I started riding I had trouble with the tyres. I took a tour from this town (Stowmarket) to London, Hatley, Eastbourne, Brighton and home: every day I rode, and sometimes twice a day, I had bad punctures and bursts, so I had to patch inside and out besides binding up with webbing to get home. After reaching home (after travelling less than 400 miles in all) both the tyres I found were ruined. I wrote to the Coventry Eagle Cycle Company and they advised me to send the tyres to the North British Rubber Company, which I did; they informed me that the tyres (ordinary pattern light zin. Clinchers) were quite unsuitable for the motor fore-carriage, and if their customers thought fit to employ their tyres for other purposes than that for which they are made, the responsibility rests with them (their customers). I then forwarded that letter to the Coventry Eagle Cycle Company, who replied by saying they considered they were quite good enough for the purpose required, and that they were not sold to me as Clincher motor tyres, but simply as Clincher tyres. So after practically one month's riding I was put to the cost of two new tyres without any recompense. Kindly say if I have any remedy.—Yours faithfully,

E. DUPONT.

B17

Machine Slowing Downhill.

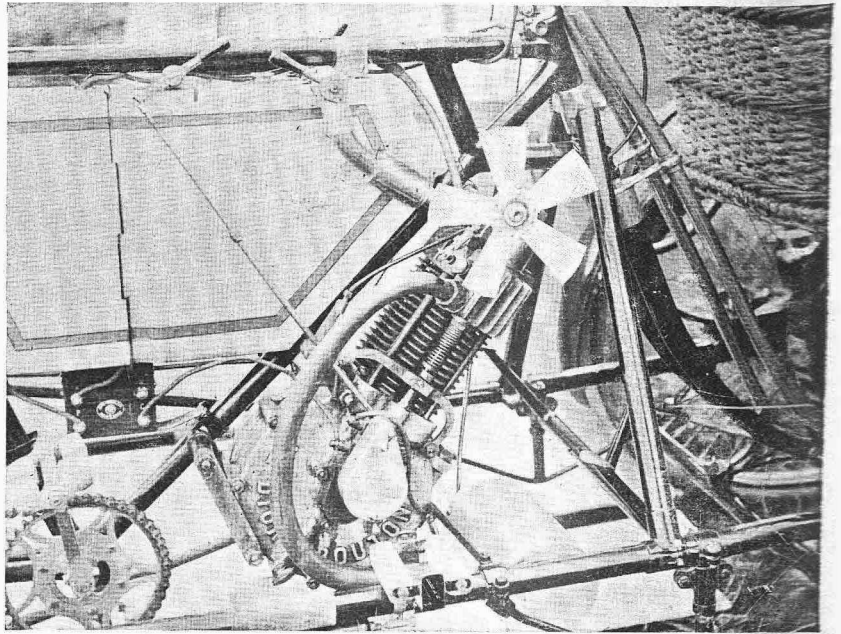
Sir,—Your correspondent, Mr. C. M. Holloway, need have no fear, I think, of his engine being defective. I have always noticed with every engine I have had, that the pace is immediately retarded when the power is shut off and the exhaust valve lifted. He will find this more so than if he merely switches off and leaves the valve to its own devices. The only explanation I can offer is that the compressed air acts as energy in a very modified form, and so helps to propel the machine downhill; at any rate, let him try the effect of running downhill *without* lifting the valve, and he will notice the difference.—Yours faithfully,

CLAUDE A. P. TRUMAN.

The "Olympia" Tandem.

Sir,—Seeing Mr. J. H. Judd's letter in a recent issue, I thought my experience of a Beeston Humber "Olympia" Tandem would be of interest, having run my machine over 3 000 miles. I have just sold it to get a car. First, as to starting; I have never had to warm up on the stand, because, if the carburetter was flooded, the engine always started at the second or third stroke of the pedals. I may say that I easily ran 140 miles on a gallon of a mixture of petrol and paraffin (12 parts of petrol to 1 of paraffin), and on good roads could average 20 miles per hour, with 17 stone up. I had a sliding collar fitted over a hole in exhaust pipe and, except when passing close to horses or going through towns, the hole was rarely closed, as one soon gets used to the noise, and a free exhaust keeps the engine much cooler. To get good results from a Longuemare carburetter the most suitable cone must be fitted (mine was a No. 3), and see that you can let in plenty of air. I strongly advise intending purchasers to specify 2½ in. Clincher tyres to all three wheels; if Messrs. Humber will fit it, water-cooling would be worth a lot.—Yours faithfully,

J. B. JOLLY.



Illustrating letter from Fredc. J. Caparn.

The "Rex" Motor.

Sir,—Having carefully read "E.F.G.'s" description of his troubles with his "Rex" and your reply thereto, may I be permitted to say how helpful I have found your excellent article on "Timing" in your issue No. 73. To my mind your correspondent will not go far astray if he follows the instruction contained therein: should he have any difficulty I should be pleased to assist him on the lines indicated if he cares to come round to my place, on the principle "No cure, no pay."—Yours faithfully,

78, Gladeville Road, Aigburth Vale, Liverpool.

Fan-cooling for Tri-car.

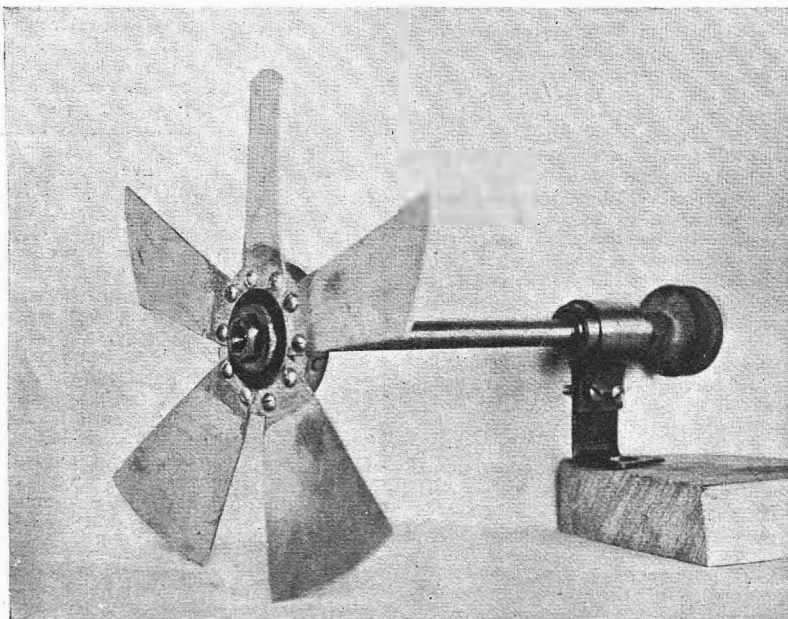
Sir,—After a great deal of experimenting I have at last found a thoroughly efficient method of cooling small motors, especially when a fore-carriage is used. The great point in my system is that the fan operates on the valve box side of the engine; if placed on the other side a fan is worse than useless. The shaft runs in a long ball bearing and is attached to engine by one of the cylinder head nuts. The bearing has a side adjustment to get perfect alignment. I have been using the fan on my own tri-car for some time, and I find the increase of power and absence of overheating are quite remarkable. The photos enclosed are of the fan in its experimental state. I have applied for a patent. I may mention that the fan will make about 5,000 revs. per minute, and takes practically no power to drive.—Yours faithfully,

FREDC. J. CAPARN, Engineer.
Port St. Mary, Isle of Man.

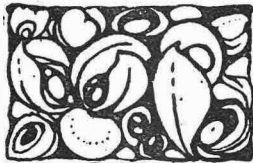
The "Bat" Carburetter.

Sir,—As a rider of a "Bat" I should like to suggest that perhaps "M.G.," who wrote in a recent issue, does not give his engine sufficient air. The "Bat" machine will start with the air and throttle levers in almost any position. It is usual to have them about horizontal, but immediately after mounting the air must be turned full on. The amount of air drawn into the carburetter regulates itself to the speed without touching the air lever. The only time I have found it necessary to partly cut off the air is when going slowly with the spark advanced. In hill climbing the air must not be cut down; on the contrary, if the hill has been rushed at speed it may be necessary to throttle down as the speed falls, as at the lower speed sufficient air does not enter the carburetter. A slight dinge in the float is not likely to affect the efficiency of the carburetter.—Yours faithfully,

W.R.I.



Illustrating letter from Fredc. J. Caparn.



OUR INFORMATION BUREAU.



SPECIAL NOTICE.

The Editor is at all times pleased to answer any queries put to him by the readers, or to receive correspondence from readers upon any motor topic. In consequence of the large number of letters received, however, he must insist upon the following simple rules being strictly adhered to:—

1. Plain writing. Type writing for preference.
2. All letters to be written on one side of the paper only.
3. Questions to be clear, terse, and to the point, without tedious preamble or needless flattery.
4. Should an immediate reply be required, an envelope must be enclosed bearing a penny stamp, and the name and full address of the sender. NOT a stamped undirected envelope.

J. Whitman (Portsmouth).—The Empire support we believe is a successful device to minimise risk of side-slip. One of our staff has tried it, and testifies to its practical value.

"Carette" (Tonbridge).—The 6 h.p. De Dion is a good all-round car. In addition to the lower-priced make you refer to, there is the "Vauxhall" car that has been doing very well of late.

E. B. Loraine (Ipswich).—(1) We could not say if the motor in question develops the power stated. No method of proving it; at least, no method a rider can adopt easily. One has to take cylinder dimensions and compare with standards. (2) Any spark plug will fit, as all engines have the standard thread. (4, 5, 7) We can answer in the affirmative. (6) There is not much between the Longuemare and F.N., if latter has a throttle and air regulator.

Lubricating Oil Query.

B. Sylvester (Brixton) writes:—(1) I have purchased at a motor depot a tin of oil "D" (made by De Dion), which they assured me was suitable for air-cooled motors; yet, on the other hand, I saw them sell the identical oil to another customer who asked for oil for a water-cooled motor. Is it suitable for both air and water-cooled motors? (2) Is there any means of preventing explosions in silencer when switching on again soon after stopping motor? (3) I have noticed that my sparking plug is a little bit dirty (though not covered with a sooty deposit); this I presume would be due to over lubrication. Would the explosions of gas tend to dirty the plug?—The "D" oil is quite suitable for either motor; only, as a rule, a less expensive oil may be safely used for a water-cooled motor. (2) It usually suffices to switch off a few seconds before raising the exhaust valve. (3) You will always get a slight discoloration on the porcelain from the products of combustion: this is not a matter of any moment.

"Trike" (Tipton) writes:—I should be glad of the opinion of some of your readers who have had experiences with a motor-tricycle. Does the gear drive, being so direct, cause excessive wear on back tyres? and for about what period would the gear-wheels be expected to last before having to be renewed? Do riders of this form of motorcycle consider it safe for town riding in wet weather? My remarks refer to the De Dion tricycle. Perhaps some of our readers will state their experiences for the benefit of "Trike."

Small Car.

"Perplexity" (Thirsk).—A well constructed car of 5 h.p. would suit you admirably, and provision could no doubt be arranged for the baskets and parcels you speak of. You must not expect to be able to take four passengers with a 5 h.p. motor; you can, as a rule, manage three at a pinch by having a detachable rear seat. As regards tyres, doubtless the solids which you fancy could be fitted specially. The 3½ h.p. type you mention is too much out of date to be of real practical service from a commercial point of view. The car might cost anything from £110 to £150, according to equipment; that is, of course, a new car. Petrol consumption approximately 35 to 45 miles per gallon, according to load on motor: electricity, say, 2s. 6d. per 1,000 miles; lubricating oil, 6d. per 100 miles.

Heavy Petrol Consumption.

A. G. Cox writes:—(1) I should feel much obliged if you could tell me why my motorcycle uses up so much petrol? It is a Bradbury 2½ h.p., and by only just keeping the petrol running it uses a gallon in less than 70 miles' running. It is fitted with a Longuemare carburetter, with five holes in the spray nipple: I only keep the petrol just running, and if I shut it off any more it will not go at all. I notice soon after I have started that the gas pipe leading from carburetter to combustion chamber gets very wet, and, though I have screwed it down as tight as I can, it still gets covered with wet. Do you think this has anything to do with it? I have got an air lever, but no throttle valve; would it do any good to have one fitted, as I cannot afford to use so much petrol; sometimes I can only go 50 miles. (2) I have a small dynamo that I use for nickel-plating small articles; it will light a four-volt lamp nicely: do you think it would be suitable to charge up my batteries with? If so, how should it be used?—The heavy consumption may be due to want of a throttle: this is a very important matter, as you are running on full gas all the time. If compression was not good it would also mean heavier petrol consumption. (2) The dynamo would have to give at least 6½ volts to charge accumulators satisfactorily. Doubtless it will do this if you increase the speed: it would then only be necessary to couple the accumulator direct, positive pole to positive brush, without any resistance in circuit.

C.W.S. (Stratford).—We should advise you to have a look at the Vauxhall and Gordon miniature cars: they are about the right price for you, and we hear good accounts of them.

"Novice" (Fife).—There will be no risk of overheating if you see that the water circulation always remains in good order. If you overload the engine you will probably boil the water away quickly.

W. Burrow (Smethwick).—The idea you submit of electrically transmitting the power from engine is not at all feasible. You are bound to have a separate generator running from the engine, and then transmit the current to motors on rear wheels of car. With a motor for each wheel you would not require a differential gear. Petrol-dynamo-motor systems are in actual use for heavy vehicles, notably the Lornhe-Porsche system.

Primary Battery.

J. Hancox (Doncaster) writes:—I have a battery consisting of five cells, each containing one zinc and two carbon plates, which are all attached to a cross-bar, which is raised or lowered as required by means of a winding gear. Please state what electrolyte is required to be added for charging accumulators. Is it necessary to have two electrolytes instead of one? In the former case I suppose I must use porous pots. Also, shall I require an ammeter to test the current of cells?—The battery mentioned is not so good as the Fuller type, but will work fairly well as follows; make a solution of 5 ozs. chromic acid to one quart water, then add four ounces strongest sulphuric acid: keep zincs well amalgamated with mercury. You require an ammeter and resistance. Of course, if there is room, you can have the zincs in porous pots and use on the ordinary Fuller principle; that is, very dilute acid in the porous pots and chromic acid in the outer vessels.

Leaky Accumulators.

"Stondly" (Haddenham) writes:—(1) Is it ever necessary to renew the jelly in motorcycle accumulators? Mine originally had full quantity of this jelly, but it has now lost a good deal and been kept up to the proper level by the addition of distilled water. Is this all right, or is it bad for the accumulators? (2) How can I stop the acid from coming out of the accumulators past the rubber stoppers which hold the plate lugs in place? It has made a nasty mess of my tank, and often drips out of it on to the engine, etc.—We cannot understand where the jelly-like composition has gone to in your case; you can replace it of course: the materials are silicate of soda and dilute sulphuric acid. On the whole, as the cell leaks, we should be inclined to go in for a P. and R. accumulator with the dry filling. One can never make a good job of a leaking acid cell, especially when the lugs get loose. It is possible to use one of the acid proof cases supplied by Gamage's if you wish to protect the tank, etc.

E. Noyes (London, W.).—We are not aware that any record exists for the class of vehicle you refer to. The particular make in question did well in the Motor Cycling Club's 100 miles trial.

E. A. Roberts (Winchcombe).—(1) The Chater Lea frame is by far the best in your list. (2) 14s. gauge spokes good enough. (3) Gear for 2 h.p. motor 1 to 6; 2½ h.p., 1 to 5. (4) Apply to the Revenue authorities about petrol license. (5) The battery you describe is a type known as the "Gravity Daniel"; it is too expensive to use for accumulator charging. Have one of Peto and Radford's chromic batteries, with lifting arrangement for the zincs. (6) We should say have the triple head.

Surface Carburetter, etc.

A. E. Sleath (Leamington Spa) writes:—(1) What causes a puff of petrol to blow out through the air-hole in the carburetter when riding at slow speed, with small quantity of petrol in carburetter? (2) I have experienced great inconvenience through the gudgeon pin screw falling out: would overheating cause this to get away, or is it through bad fit? The first one came out in 100 miles, and three times during the next 1,000 miles. (3) The contact breaker box is very loose, and shakes a great deal; will this make any difference to the working of the motor, and is it adjustable in any way?—(1) We should fancy that your inlet valve spring might with advantage be a shade stronger, as evidently you get a blow back on the compression stroke, owing to the inlet valve not shutting quick enough. (2) Screw undoubtedly a bad fit; should advise one specially made rather long, and fit a lock nut on in addition to a split pin through the end. (3) You cannot do anything with it, except by re-bushing the hole. It will not affect the sparking if you connect the plate by a wire to the motor.

Starting Difficulty with De Dion Car.

C. W. Williams (Norwich) writes:—I should be very much obliged for a hint as to the cause of the following, which I confess has puzzled me.—I have a 6 h.p. De Dion Bouton car which, until recently, gave no trouble; now, however, it is impossible to get the engine to start until the spark is advanced to the utmost, where formerly it always started at the first turn of the handle when the spark was retarded to the lowest point. Once started, the spark can be retarded as much as one pleases, and the engine runs as well as ever, no misfiring, no jibbing, no overheating. The battery is a dry one. I have connected up a fresh one giving 6 volts, but with no alteration. I have cleaned out carburetter, had a fresh trembler and screw, new inlet and exhaust valves, new plugs. Compression perfect, cylinder clean, rings new and a good fit. There is a good spark at points of plug, also good ones at trembler; the electrical connections are also perfect. The petrol used is "Pratt's" in tins labelled "B." Apart from the danger of a broken wire, on account of a back fire, one feels it is not good for the engine to have such when one is starting, especially as it happens two or three times before the engine does start.—We do not think the difficulty arises from the sparking or the motor would hardly start with the spark fully ad-



SOON REMEDIED.

"Won't she go, gov'ner?"
"No. I can't get a spark."
"Try a lucifer."

vanced; we should be inclined to think you only get a very poor charge in the cylinder to start with, and this will only fire on full compression. The air regulation of carburetter may require reducing to a minimum till the speed gets up. This is especially the case if you do not flood the carburetter at starting. It is most important that you should be sure about the petrol coming through the spray and that this is not partially blocked up. We presume that the engine has the old "De Dion" contact, and that you know how to adjust it, as it is much more difficult than a positive make and break.

Accumulator Queries.

N. P. King (Monmouth) writes:—(1) Is it usual when an accumulator is supposed to be fully charged for the cell on which is the negative terminal to show a lower voltage than the other? (2) Would it be injurious to run a charge through this cell alone to bring it up to the other? (3) What causes the jelly in an accumulator to become a dirty grey colour at the bottom? Would it be advisable to wash this all out, and could one then replace the jelly by acid in simple solution? If this is bad for an accumulator, where can one obtain the jelly? (4) When charging from primary batteries is it necessary to test the amperage so long as one keeps the voltage down to one above the accumulator, and would two volts in excess be too much?—(1) Both cells should show exactly the same volts. (2) No harm in charging one separately. (3) Caused by sulphate coming off the plates. Not an easy matter to obtain the composition. If you can get it out we should advise using ordinary dilute acid. (4) Advisable to have an ammeter in the charging circuit, as sometimes you may be sending practically nothing through the cells although the charging battery may show six volts.

J.F. (Colne).—(1) Fit a 4in. pulley, measuring from half-way down the groove. (2) The new E.I.C. coil (non-trembler, as you have a plain make and break). (3) 12 amp.-hour cell is rather small in capacity, although good as a spare: have a full 20 ampere-hour size.

Dynamo for Motor-Bicycle.

J. S. Norris (Staplehurst) writes:—I have a motor-bicycle with the high tension system of ignition (accumulator and coil). Could I have a small dynamo to drive from the wood rim of back wheel, so as to charge my accumulator in the daytime, and then at night to give a light instead of an oil lamp? As I am living about ten miles from Maidstone, the nearest charging station, where they ask 1s. to charge my accumulator, I thought the above method might do; or would you advise me to have a primary battery? Would it be any cheaper? Please state the approximate cost of either.—As far as charging the accumulator is concerned the method is quite feasible, but the dynamo would have to be specially designed and have some sort of a regulator to cut it out of action when the speed fell below a certain point, otherwise the accumulator would discharge back through the dynamo. But to get a powerful light takes altogether too much electrical energy and this means that an excessively large accumulator has to be carried to supply the coil and lamp as well. We know a few riders who have constructed small dynamos for attaching to the machine, but it all means extra complication and weight, and the advantages are not worth it. Best plan would be to go in for a Peto and Radford or Fuller charging battery, and charge the cells at home yourself: this would cost from 30s. to £2 2s. and, with reasonable care, each charge of the accumulator should cost from 4d. to 6d.

H. F. Wight (London, N.)—No direct way of charging from alternating current: transformer or rectifier cost a lot, and take a lot of looking after. At 200 volts pressure a 32 c.p. lamp will pass about $\frac{2}{3}$ -ampere through cells and this will do very well.

Carburettor Query.

A. Roby (London) writes—I have a 2½ h.p. machine: all goes well after I get engine to start, but this takes a long time. Can you explain this? Re rust-proof silencer enquiry in recent issue, a friend gave me a small tin of Moreton's E.G. solution; with it I painted my engine, and it keeps its bright aluminium colour, and is not affected either by heat or rain.—The usual cause, we expect; you require to throttle air at carburettor to start. We presume you take care to flood the carburettor first.

A Stiff Motor.

J. Gibbs (Bedfont) writes:—My 2½ h.p. motorcycle pushes and pedals much harder than others I have tried, but goes well with the engine running: ball valve is in gear-box, with no vent from crank case but bearings. I think back pressure on piston accounts for stiffness. An oil or gas engine has open end. Is anything gained by enclosing crank so thoroughly, or may I put a valve in top or side of same?—There is pretty sure to be a vent arranged somewhere for the check valve. Sometimes they are arranged to release the air and any oil ejected into the 2 to 1 gear-case, and keep this well lubricated. You do not say if you inject a few drops of paraffin in cylinder. Nine out of ten motors will work stiffly when cold, by reason of the lubricating oil setting thick. The paraffin dissolves or thins it down, and allows the piston to move freely. Should advise you to try this before experimenting with air valve.

Humber Contact Breaker.

"Ignition" (London) writes:—My Humber motor-bicycle, which has a wipe contact and trembler coil, has developed a habit of misfiring now and then during a run, although I have satisfied myself that all the electric parts are sound; in fact, it has recently been re-wired and thoroughly overhauled. I have read several times in "THE MOTOR" that it is a good plan to connect the contact breaker base plate to motor by a wire, but in my machine there is no firm contact between the commutator wheel and the base plate. The wheel is fixed to the shaft of the 2 to 1 gear which is an easy fit through the base plate. Do you think that the return circuit through the 2 to 1 gear is good enough, or would you advise me to fit a wiper on to the 2 to 1 gear shaft and connect this to motor by a wire? I should be glad, also, if you could tell me where to obtain wood fibre for insulating purposes: I have got what is said to be wood fibre from a well known dealer in motor accessories, but I find it is very brittle and splits easily.—We do not think the misfiring is attributable to an imperfect frame connection from the contact segment. The most probable reason is that the brush does not press firmly enough on the fibre disc and consequently misses occasionally: there is also a tendency for the fibre to wear away to some extent at the segment edges and thus cause the spring to jerk. For the fibre try some firm that deals in electric accessories.

A. Davidson (St. Leonards).—(1) The performance you mention of a 1½ h.p. motor taking you up a long hill of $\frac{1}{2}$ mile in 18, $\frac{1}{3}$ mile in 12, and $\frac{1}{4}$ mile in 30 rise, at 14 miles per hour, with half gas, is certainly a good one, but not unusual if engine is properly handled and compression good. (2) You ask why it is that when the gas lever from a spray carburettor is suddenly put full forward and then back to its normal position, the engine gives increased power for several days after? We cannot say; we have never observed it, and see no reason why you should get increased power; most probably it is due to some other cause. (3) Dunhills' speed indicator is a good one. (4) Try United Motor Industries or Gamage's. (5) It is entirely a matter of opinion which motor spirit is best: we can get good results with either.

Ignition and Carburettor Queries.

"Harry" (Leek) writes:—(1) I have a trembler coil and a make and break contact on my cycle; will this make any difference in the running of the machine if the contacts are adjusted a little closer? (2) How is it I get a shock if I touch carburettor (model E Longuemare) while the engine is running? (3) On the coil there are only three terminals, viz., contact breaker, positive of accumulator, and sparking plug; how is the frame connected up with no frame terminal? (4) The sparking seems all right at the plug, and the machine runs well on the level, but I can get no power on hills: do you think the sparking will have anything to do with this (I get no misfires), or is the loss of power caused by the carburettor? I have tried all sizes of nipples and cones in same, but still do not get the power I ought to for a 2 h.p. engine. I have also checked the hot air from getting to carburettor by placing a piece of tin, with only a small hole in the pipe, between the exhaust pipe and carburettor, and also fitted a lever to the additional air supply, so as to regulate same from saddle. Do you think the gear is too high with a 4½ inch pulley and a 19 inch belt rim, outside measurements (28 inch Palmer tyres)? If so, what would you advise me to have? The lugs of frame will allow for a 21 inch rim. (5) What will prevent lubricator leaking at the bottom joint between celluloid tube and the bottom part of same? (6) What are the equivalents of 64 by 70 mm. and 74 by 76 mm. in inches?—(1) The contacts may be adjusted a little closer with advantage where a trembler coil is used. (2) Because the high tension current returns through the make and break, owing to there being one end of the secondary joined to the contact screw terminal; hence there will be a very considerable voltage or difference of electrical pressure between the frame and the earth; hence, if any part of frame is touched whilst coil is working, a shock will be experienced, as the high voltage current will pass to earth via the toucher's body. This also answers question (3). (4) The loss of power is doubtless due to weak compression, and also to gear being too high. We should advise the 21 inch back rim and a 4 inch motor pulley. (5) Try fitting a leather ring-shaped washer under the edge of tube. (6) The approximate equivalents are: 64 mm. = 2 9-16ths in., 70 mm. = 2 13-16ths in., 74 mm. = 2 15-16ths in., 76 mm. = 3 1-16th.

Difficulty with "Brown" Machine.

W.H.P. (Preston) writes:—I have a 2½ h.p. "Brown" motorcycle, fitted with Longuemare carburettor. I experience great difficulty in starting, and have to get off several times to flood the carburettor. After each flooding the engine works all right for a few yards and then stops. After a time it starts properly and then works very well. I have cleaned the carburettor thoroughly, and am at a loss to know what can be the matter. There seems to be nowhere where I can inject petrol, e.g., a compression tap, as in the "Ormonde." As I am a doctor it is of great importance to me that the engine should start immediately. I should be much obliged if you could help me.—It is important to reduce the air supply just when starting. Looks as if proper vaporising of petrol did not begin till engine warms up and hot air jacket of carburettor assists: probably a larger spray nipple would be an advantage in allowing more petrol to pass. To get the petrol or paraffin into the cylinder simply have a small hole (¼ in.) made in supply pipe just over the inlet valve and fit a small wood plug when not in use.

Motor-Tricycle Queries.

"Mere Tyro" (Great Yarmouth) writes:—I have recently purchased a secondhand Humber Beeston motor-tricycle. Although I have had some pleasant runs on it, I feel that, through ignorance, I am not getting the best results out of it. Can you help me on the following points:—(1) In the carburettor is a sliding tube, with wire float indicator. Has this any other purpose than to show the amount of spirit? (2) What depth of spirit should there be in the carburettor? (3) The pipe leading from spare spirit reservoir delivers into a hole in the carburettor. Should this have a stopper or not? (4) In what position (approximately) under normal conditions should the three handles (throttle, air, and spark) be? (5) In taking a hill, what alteration in the adjustment should I make in order to get the most power out of engine? (6) I thought of having new covers to the driving wheels. Would you advise auxiliary treads vulcanised on?—(1) From the details given we should fancy you have a "Beeston" tricycle rather than a Beeston Humber chain driver. In this case the carburettor would be of the original De Dion pattern, and the sliding tube would be the air chimney. The float wire should only just project half an inch or so above the tube, as it is important that the distance between the air deflection plate and petrol surface should remain practically constant. (2) Depth of spirit is best found by experiment. (3) We should say the pipe should pass through an air-tight fitting, otherwise air would get drawn in here instead of down the chimney. (4) No average positions can be specified; running conditions are always varying. The great thing is to keep the throttle closed as much as possible, and the air-tap open. (5) For hill-climbing start with minimum of gas and spak fairly forward, and as the speed tends to slacken gradually retard the spark and open the throttle more, and if motor begins to labour, help with pedals. (6) Should advise either Bates' or Smith's bands vulcanised on by the makers. If fitted at home it is not an easy matter to make a good job.

W.A.F. (Lynn, Mass., U.S.A.)—We can say that higher powered fore-carriages are receiving attention from the manufacturers, and doubtless a two-speed gear will be adopted in some cases. At present the Humber Olympia seems to fit your requirements as nearly as possible: this can now be supplied with a hand starting device and clutch, and a lower gear than usual for travelling in hilly countries: the engine fitted is rated at 3 h.p.

Accumulator shows no Voltage.

H. Holland (London) writes:—My accumulator (2 h.p. Minerva, 30 a.h.) recently went wrong, causing misfires. Upon examining it I found that the electrolyte of one cell had turned white, and it registered no voltage, while the other cell gave 2½ volts: the electrolyte in the latter was quite clear; it consists of acidulated gelatine. As I have kept it fully charged, this can be no fault of mine; I should therefore be thankful if you could through the medium of your helpful paper explain it, as my machine will not run on the 2½ volts, and I see in "THE MOTOR" that several of your correspondents run theirs better on two volts than four.—It is quite evident that the cell that shows no voltage has sulphated. It is probably also internally short-circuited. You might try clearing out the old electrolyte and filling up with new acid of the proper strength, and recharging separately for a long period at about half an ampere: if the cell is not improved, and shows no capacity, we should see if the Minerva Co. can make it right. They make their own accumulators at Farringdon Road Repair Depot.

How to Construct a Coil.

E. Strick (Swansea) writes:—Please tell me if a coil made according to the following instructions would be suitable for a small petrol motor for driving a boat? I propose to use two accumulators, as on a motor-bicycle. The core of soft iron consists of a bundle of iron wires of No. 18 gauge, the whole forming a bundle ¾ in. in diameter and 7½ in. in length. The primary coil is wound on a cylinder of cartridge paper, having an ebonite disc 3½ in. in diameter and 1½ in. thick at each end, and the cylinder to be 7 in. long and 1 in. in diameter. The primary wire to consist of about 1 lb. of cotton-covered wire, No. 15 gauge, measuring about 20 yards. The secondary coil to consist of 300 yards (½ lb.) of silk-covered copper wire, No. 32 gauge. The condenser is made of 50 sheets of tin foil 5 in. by 5 in., with varnished paper between each sheet. I am not sure as to how the two sets of plates of the condenser are connected. Is one set connected to one end of primary winding, and the other set to the other end? Can I use wood well varnished instead of ebonite for the discs?—For the primary have not more than three layers No. 15; secondary, ¾ lb. No. 36. Particulars you mention would not give best results. Condenser is about right, but paper must be good writing paper soaked in paraffin wax. You require five thicknesses of paraffined paper between primary and secondary coil, and one turn between each layer. Join one set of plates to the end of primary that goes to contact breaker screw, and other set to the "Masse" or frame terminal of secondary. Wood ends will answer if they have been well boiled in paraffin.

More Sparking at Platinum.

J.J.R. (London, W.) writes:—Please advise me about the following:—The contact breaker tips of a 2½ h.p. "Pebock" motorcycle became pitted after about 15 miles. Contact breaker plate is connected to engine with double twisted copper wire. Accumulator showed fully 4 volts with voltmeter connections placed between sparking plug and pin of contact breaker: only the spring is pitted, pin remaining fairly intact: all connections good: engine was run at fairly high speed: contact breaker was sold as pure platinum, but without guarantee. If you think the trembler is at fault, can you recommend a firm that sells guaranteed pure platinum?—This appears to be a very general fault with many makes of machine. In the first place unless the platinum contacts are genuine they will speedily burn up: if you have any doubts as to the purity of yours get some platinum from Derby and Co., 44, Clerkenwell Road. But more often than not the trouble lies with the coil when using an abnormal amount of current, and not having a condenser fitted of proper capacity. Have you tried keeping the contacts well oiled?

Curious Feature with Kerry Machine.

C. M. Hill (Bridgwater) writes:—(1) Above a speed of 20 miles per hour my 2½ h.p. Kerry machine does not seem to work well; it seems as though it was misfiring, but in reality it does not, as the sound of the exhaust is quite regular, even downhill: with the engine pulling it does not go faster. I had the same trouble before, but when I put in two new valves with the same springs, it ran perfectly for nearly 100 miles: the valves I took out look all right. (2) Do you consider Stockholm tar a good thing for V belts? I find that a belt treated with it grips very well.—(1) This may be due to one of several reasons: (a) You do not get enough air for the mixture; hence the engine overheats and "drags" at high speed. This dragging is a peculiar sensation which the practised driver can detect at once: it is as though the machine were being held back with a brake on the rear wheel, and the vigorous "pull" of the explosion stroke is absent. (b) Your inlet valve spring is weak and does not shut quick enough; hence part of the compression is lost. (c) The throttle (if you have one) and spark levers are not manipulated to the best advantage; the less gas you run with, and the more forward the spark on the level, the greater pace you will have in hand by giving more gas by the throttle. The first defect (a) is easily got over by

having an extra hole with slide made in the supply pipe close to carburetter; a 5-16ths or 3/8 in. hole will do. (2) We have not tried Stockholm tar personally for motor belts, but several readers have mentioned the fact that they have used it and found it satisfactory.

ANSWERS BY POST.

In addition to answers appearing on these four pages the following correspondents have been replied to through the post:—

Thursday, October 15th.—A. B. Day (Llandaff), S. Wellby (Petersfield), W. Peck (Fulham), F. A. Morgan (Chilwell), H. E. Reeves (Barrow), Tremble Bros. (Dungannon), J. S. Cordingley (Hasingden), B. H. Carr (Exeter), H. Svensden (Newcastle), V. G. Morria (London).

Friday, October 16th.—R. E. Bradley (Southsea), E. B. Killen (Bangor), S. W. Ribbons (Hornsey), J. Lansbury (Sydenham), R. I. Jones (Abergele), J. C. West (Radstock), J. Smith (Chelsea), H. W. Percin (Guildford), J. T. Sutcliffe (Padiham), J. Ditchfield (Manchester), H. V. Stanton (Dudley), C. Seelig (London), R. F. Bridges (Oxford), A. C. Gray (London), M. Whiteside (Whitehaven), J. Herbert (Hucknall, Torkhard), E. Phillips (Wolverhampton), C. R. Crosher (Gotham), J. Wilson (Bedford), J. Matthewman (Ingleton), A. N. Booth (Scarboro'), J. C. Herbert (Wolverhampton), A. J. Blyde (Sheffield), G. R. Bray (Burnham Market).

Saturday, October 17th.—J. Johnson (Ben Rhydding), A. Hill (Melton Mowbray), W. F. McCulloch (Urmston), A. Moss (Stockport), G. Pohlmann (Bedford), L. Rajand (Westbury), J. Caffyn (Ham Street), F. J. Ashby Jones (Wimbleton), W. Wright (Pickering), J. Foulds (Coine), A. E. Sleath (Leamington), J. S. Street (London).

Monday, October 19th.—W. H. March (Sheffield), W. F. Grieg (Sydenham), G. Burnett (Ludlow), H. R. Carson (Stafford), J. Dyer (Shawforth), W. Teago (South Lowestoft), C. J. Walker (N. Walsham), F. Oakes (Nottingham), S. Phillips (Hull), L. O'Ratigan (Rathmines), F. McJaggan (Perth), J. Coate (Midhurst), G. E. Ashton (Lepton), R. Wingate (Tonbridge), W. H. Riley (Birmingham), E. Frost (Sheffield), P. Churchman (Coves).

Tuesday, October 20th.—B. S. Verity (Staincross), W. Wright (Leigh), F. W. Day (Newmarket), R. Scott (Montrose), M. Stone (Twickenham), A. L. Farrow (Oldham), Thos. Fairfield (Solihull), W. Mitchell (Nottingham), J. Hughes (Leicester), W. Woodward (Manchester), H. Jones (London), J. G. West (Thame).

Wednesday, October 21st.—F. W. Hammond (Diss), R. H. Brandreth (Stratford), G. Spicer (London), W. Finlay (Rotherham), D. Campbell (Lockerbie), H. Lester (Penrith), W. W. Evers (Wath-on-Dearne), A. Osman (Bracknell), E. Roberts (Keighly), T. Jones (Manchester), E. T. Newsome (Dewsbury), T. Barton (Little Eaton), H. Fenwick (South Shields), A. E. Sleath (Leamington), H. Mayes (Dover), R. Smellie (Easterhouse), F. Rowley (Tufnell Park), S. Knibb (Frome).

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