

SOME EXPERIMENTS ON A FORE-CARRIAGE WITH A LIGHT MOTOR (concluded).

By "CYLINDER."

I find it much better in practice to keep the spark well advanced, open the throttle only one or two notches to compensate for the weakening of the mixture at a lower speed, rush the base of the hill on the high gear, throw in the low gear as soon as the speed begins to slacken, and keep the engine up to speed by pedalling on the steeper gradients. The heat is then mainly confined to the cylinder head, where it does no damage, except occasionally cracking a spark plug, which is easily replaced. I presume that the makers' instructions are due to fear of accidents from back-fires. I have never had a back-fire, but if it did occur I do not think it could do any damage with the Clement-Garrard machine, as the engine is free backwards on the low gear.

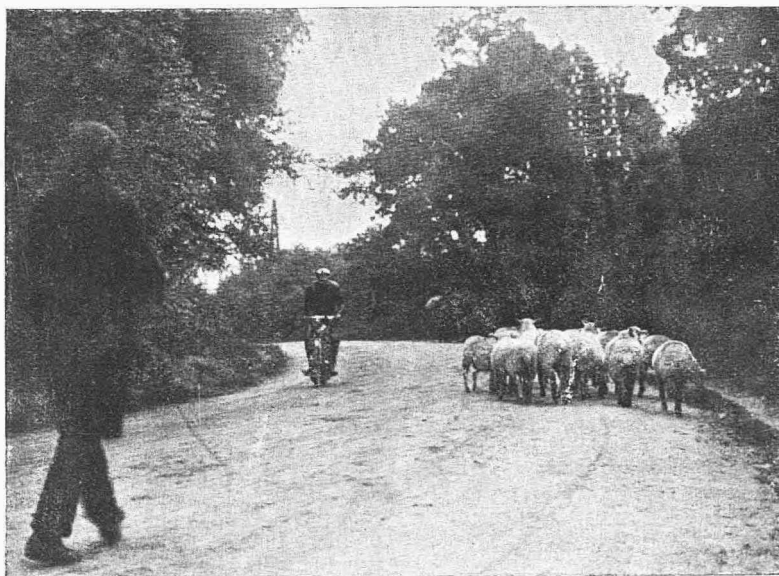
With the Garrard-Maxfield ignition, as adjusted on my machine, the spark at the maximum of advance takes place about half-way up the compression stroke when the engine is slowly turned. It must occur somewhat later at a high speed owing to inertia of the striker. This inertia is not a defect, as compared with the ordinary light spring trembler, but is required to prolong the contact sufficiently for a strong spark at high speeds, and to give good speed regulation by advancing or retarding the spark. The Garrard-Maxfield ignition device works quite well on two volts without an external spark gap, but I have generally employed a 4 volt battery, both for the convenience of having an external spark gap always in sight, and also because the dynamo, which I use for charging the cells while running, is wound for the higher voltage. With the old trembler contact I was always having misfires, if I forgot to adjust and fix up the contacts every 30 miles. With the Garrard-Maxfield contact, even at 4 volts, the platinum tips have not burnt appreciably, and I have never had a single misfire due to

the contact, though I have not cleaned or adjusted it once in 1,000 miles.

CHAIN VERSUS BELT DRIVE.

In getting a machine with four chains instead of one, I was most apprehensive of trouble from the chains, especially as the engine chains had to run so fast (one of them nearly seven times as fast as the pedal chain), and to stand the jerk of the explosion. The first trouble encountered was the loosening of the lock nuts on the chain bolts. I lost two in the first three miles. After replacing, and screwing up very carefully, they held for the next 100 miles, but owing to the vibration of the long chain against its guards, the nut eventually worked loose, the bolt caught, and broke the chain. This involved half-an-hour's delay to mend the chain. After this I divided the long chain in two parts, as already described, to get a lower gear and stop the vibration, and I riveted the ends of the screws over the lock nuts with a tack hammer, to prevent the possibility of their working loose. I think the makers or agents should always do this before sending out a machine, as it is quite easy, after riveting, to unscrew the nut with a spanner, although the nut cannot unscrew itself.

I have had no further trouble with the chains except occasional adjustment for stretching, as with a belt, but less often. The short engine chain, which runs the fastest, and gets the direct jerks from the engine, has required the most readjustment. It has stretched about half-an-inch in 1,000 miles, and the engine sprocket is somewhat worn. The wear on this chain, however, is partly due to the fact that the chain line is not true, so that the links are worn on one side. I hope to remedy this by fitting a new engine sprocket at the right distance from the frame.



An incident of the Reliability Trials.

The other chains run slower, and are partly saved from the racket by the fact that I use the high gear with the leather friction belt as much as possible. In driving a fore-carriage the leather band and the epicyclic gear have come in for rather more work than the makers contemplated, but they appear to be still in good condition. The leather band wore rather rapidly at first, but I found it easy to take up the wear by bending one of the steel wire links of the gear. The bend of the link introduced a spring which appears to save the belt somewhat. At least, it has not worn appreciably in the last 500 miles since I bent the link.

For a long run in the rain, of which we have had plenty this summer, the chain drive appears greatly preferable to the belt. I was most apprehensive that the chains would rust up and lose their efficiency. They appear, however, to keep themselves clean owing to the high speed at which they run, and, with the exception of the pedal chain, they look as bright as new, and every roller is perfectly free. After a wet run I generally wipe them with a dry rag, squirt a little paraffin on to the sprockets while turning the pedal by hand, and then rub the chain with a brush and graphite grease. The whole operation does not take a couple of minutes or soil the hands, and is nothing to cleaning a dirty belt. With a muddy, slipping belt in the rain, it would be impossible to work the engine at full power and difficult to climb any hills. The chain itself cannot slip, however wet it is, but on one or two occasions, in trying to climb a steep, greasy hill, I have known the back wheel skid and the engine race. There is then nothing to be done but dismount the passenger. This is undoubtedly a disadvantage of the single driving wheel; it would be less likely to occur with a double driver.

To run the machine as a motor-bicycle, I interchange the 5 to 4 wheels of the intermediate gear, thus obtaining a high gear of 5 to 1 and a low gear of 6.8 to 1, which is more suitable for the bicycle. With the lighter machine, the vibration of the chain drive becomes noticeable, and I think I should prefer the combined chain and belt drive which the makers are now fitting.

A TYPICAL HILL-CLIMBING TEST.

I recently had a good opportunity of testing the hill-climbing powers of the machine near a place where I was staying in Wales, where the road rises continuously through a height of 325 feet in a little less than a mile, giving an average gradient of over 6 per cent., but with three or four steeper slopes of 14 to 16 per cent. The road was very rough and curvy, so that it was impossible to go fast, but with the aid of the wind scoop I could get the machine up to the top in five to six minutes without overheating. Without the wind scoop, but with the same setting of the throttle and mixture taps, and at the same speed, starting all cold, the engine overheated and came to a standstill in the first 400 yards. By retarding the spark, and going slower, so as to give the engine more time to cool, I could get it up further, but I had to pedal harder on the steeper gradients, and the strain on the machine from the violence of the explosions was much more severe. At the slower speed, even with the throttle more than half closed, the engine has time to get a cylinder full of gas. The explosion is more violent, but the mean effective pressure is, if anything, less, as the exploded gases have more time to cool during the expansion. Both for ease of pedalling and smoothness of running it is best to keep the engine up to its most efficient speed, provided that the heat developed can be dissipated in the shorter time by suitable cooling appliances. The wind scoop, although the simplest contrivance for the purpose, is not an ideal arrangement. It works better on the high gear than on the low gear where it is most wanted, because it depends on the speed of the machine and not on that of the engine. It loses a good deal of its efficiency in a following wind, and works best in a head wind, so that, paradoxical as it may appear, it is easier to climb a long hill in the teeth of a stiff breeze. A better arrangement would probably be to put vanes on the external fly-wheel, protected by a light annular casing, arranged as a centrifugal blower to deliver a blast on the exhaust side of the cylinder head, which is always the hottest, and in my machine is also from its position the most screened from the wind. In some machines, the exhaust

gases are directed on to the cylinder with a view to cooling it. I doubt if this is much good, as the gases are generally too hot for the purpose. It would be possible, however, to arrange that the exhaust, though not actually blowing on the cylinder, should create a draught of cooler air which might be effective.

SAFETY AND BRAKE-POWER.

In carrying a valuable passenger, in traffic or in a hilly country, the question of brake power is most important. The bicycle was fitted with a front rim brake, and a moderatum back-peddalling brake, which was, of course, ample for the lighter machine. In fitting the fore-carriage, the front rim brake was replaced by two band brakes on the steering wheels, which were very inefficient. When applied very hard they would just stop the machine, fully loaded, on a gradient of 2 or 3 per cent. With the moderatum and the engine in addition I could stop the machine on a gradient of 10 per cent., but it was not safe to descend a steeper hill without dismounting the passenger. I therefore fitted a Bowden rim brake to the rear wheel. The combination could then be trusted for a 15 per cent. gradient, but the back wheel was often skidded, and I felt that it was hardly fair to the tyre. In spite of the chain drive and the heavy work it has to do, the back tyre (Clincher A Won) shows hardly any signs of wear, and has never punctured. The fore-carriage tyres have punctured half-a-dozen times, but they are obviously of older rubber and inferior make. There are difficulties in applying strong brakes to the steering wheels without interfering with the steering, but a more efficient system than mine appears certainly desirable.

DISPOSAL OF LUGGAGE.

For a long tour, or even for a week-end in the country, I have found the luggage-carrying capacity of the fore-carriage a great advantage. A heavy bag behind the saddle is a material assistance to the driving wheel in mounting hills, and can be covered by the rider's cape in rain. A large tin despatch box strapped to the lower bars of the fore-carriage will hold a complete change of clothes, and serves also as a very convenient foot rest. There is room for a waterproof canvas bag under the seat of the fore-carriage, and a holland bag for miscellaneous light articles behind the head in front of the steering bar, where it is covered by the passenger's macintosh. A bundle of coats and wraps forms a convenient support for the passenger's back; skirts and other flat articles go under the seat cushion; a lady's hat can be carried without damage pinned to the apron of the cushion under the passenger's knees; maps, food and drink are kept handy in a pocket at the side of the car; parasol, umbrella, and tennis racquets lie comfortably on the same side; and the roomy boot is a convenient receptacle for macintoshes, rubbers, and shoes. Neither passengers or luggage ever get wet as long as they stick to the car. A light macintosh sheet, 7ft. by 5ft., which buttons on to the apron in front and over the bag behind, is carried for covering the whole machine in case it is necessary to leave it standing by itself in the rain. Of course, it is hardly necessary to say that for a really heavy drencher one always takes shelter, if possible, and that one does not start on a long trip in bad weather unless it is necessary for special reasons. But for safety of steering and immunity from side-slip or skidding, and in the protection it affords to passenger and luggage, I regard the fore-carriage combination as being a distinctly good machine for touring under adverse circumstances.

ADVANTAGES OF THE FORE-CARRIAGE.

So many people say, "If you want to do all this, why not get a motorcar at once." Of course, that would be very nice, but then my machine cost only £60, and I can use it as a bicycle if I so desire. A car would cost more than twice as much at the least, and would be far more expensive to run and troublesome to look after. One man can get the fore-carriage up a few steps and in at the front door of an ordinary London house, and there is plenty of room to keep it in the hall, where it is ready at a moment's notice. Even a trailer or a side-carriage takes more room, and must be uncoupled on every occasion. With a fore-carriage you do

not require a motor house or a mechanic. With the Clement engine there is never any smell or leakage of oil. The machine is scarcely more trouble to clean than an ordinary bicycle. With a motorcar you may be badly stranded if the engine breaks down. With the fore-carriage, the engine and gear are so simple that a breakdown of the engine is very unlikely (I have never had one myself), and in any case the machine is so light that it is easy to pedal it to the nearest railway station. One man can push it up the steepest hill, and it can be stowed in any luggage compartment of an ordinary train without requiring special accommodation or extravagant rates of carriage. The worst kind of accident that is likely to happen is the buckling of the wheels through collision or steering into a ditch. Beware especially of covered carts, which can neither see or hear, and are driven recklessly round corners without taking any notice of the cyclist. Such carts are already prohibited in some enlightened municipalities, but they remain in most places a source of danger to the uncautious. The passenger in the fore-carriage is fairly well protected by the framework, but the bicycle is certain to fare badly in a collision, owing to the lightness of the wheels. The back wheel of the bicycle is the weakest point, as it has all the heavy work to do, and was not primarily designed for driving a fore-carriage. For this purpose, I think it should be built with a heavier rim and spokes, and with a larger spoke flange, especially as the width of the hub is necessarily restricted by the addition of the moderatum brake and the two driving sprockets. This

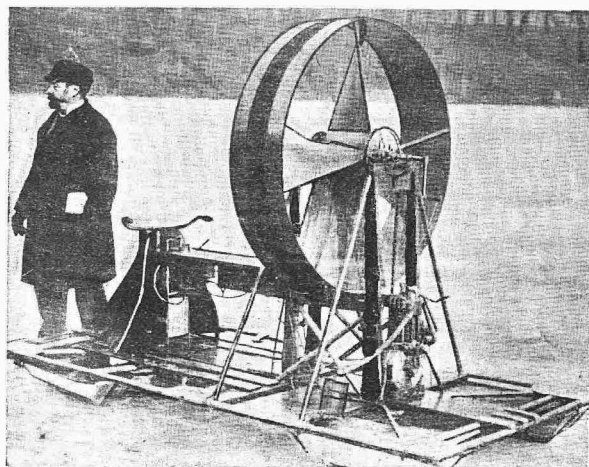
would add very little to the weight to the machine, considered simply as a motor-bicycle, and would add greatly to its reliability, as an accident to the back wheel is one of the worst to be feared from any point of view.

I may say, in conclusion, from my own point of view, the experiment of driving a fore-carriage with a light motor has been a distinct success. Apart from the good design and reliability of the machine and engine, for which the makers deserve great credit, I think that the success of the experiment has been due largely to the low pedal and engine gear, which make the machine powerful for its size and easy to handle, and to the method adopted for avoiding overheating, which makes it possible to drive the engine at full power for a longer time on the low gear. Something more might yet be gained in this direction by other devices, such as those suggested above, or by putting more metal into the cylinder head, which is unnecessarily light. But except for very long hills nothing more is really required, if the engine is properly driven and lubricated. Perhaps the speed attainable would not satisfy the wilder enthusiasts, but it is really much greater than it is safe to employ on a narrow or curly country road. On good main roads the machine is quite equal to the future legal limit of 20 miles per hour on the level, and will beat most low powered cars on a hill. For the man of moderate means and ambitions, I do not think there is at present on the market a pleasanter means of combining moderate exercise with outing, or a cheaper way of spending a week-end in the country.

AMERICAN TOPICS.

NEW YORK, August 13th, 1903.

The Pneumoslito, an American invention, was designed and constructed to demonstrate that the combination, of which it is an example—viz., a vehicle on smooth bearings, as of steel—being propelled over a smooth surface, such as ice, from an elastic though constant medium of resistance, as of the common



The Pneumoslito or Ice Motor.

atmosphere, accomplishes the transit of the vehicle more swiftly and with a smaller expenditure of energy than is possible by any other known method. The ice over which the new vehicle was first operated was somewhat rough, but hard, and when the spark was switched on and the flow of gasoline assured, two turns of the crank set the motor going. The air propeller clutch was then put in gear, and in 60 seconds from the turn of the crank the vehicle moved away, rapidly gaining in speed, until checked somewhat by pressure of the ice brake, found necessary to enable a turning to be made in safety. The machine was put through various evolutions for testing its qualities of speed, steering in circles and figures, starting, stopping, carrying weight, and of running against, with and across the wind. After making several

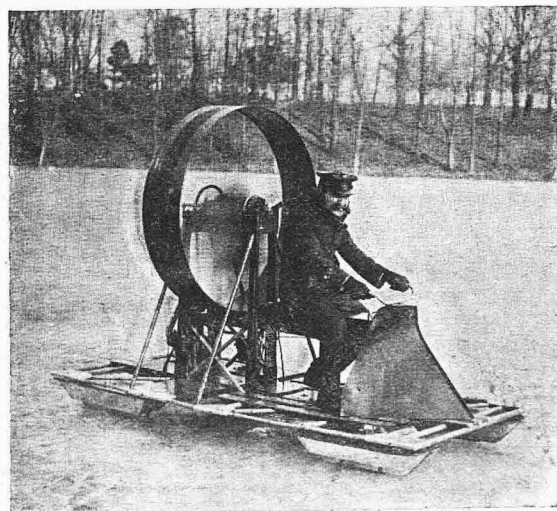
straight runs across the lake, it was generally conceded that the estimate given by A. K. Schaap, an experienced chauffeur and maker of automobiles, that a speed of 20 miles an hour would be attained on a long, free course was correct. Slower runs at 10 miles an hour and over were made by regulating the spark and the throttle.

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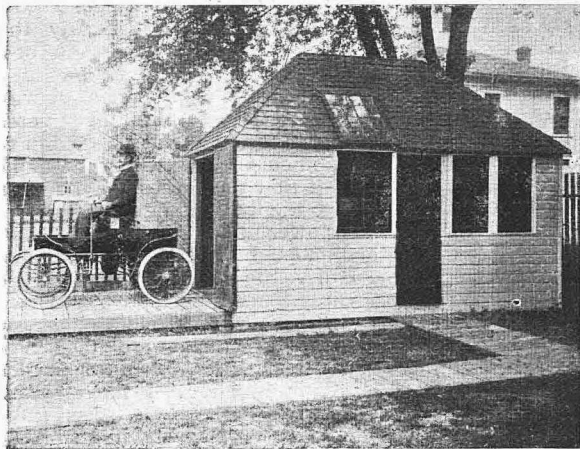
In the matter of steering, results most satisfactory were obtained, enabling the steersman to sweep round the lake in circles and figures, and to gently stop within two feet of any desired point. A striking illustration of the almost total absence of friction between the steel bearings and the ice was shown in the fact that the adding to the steersman's weight of one, two or three other men seemed to produce no falling-off in the speed, which was fully maintained.

* * *

Another apparently incomprehensible quality was discovered—viz., that of the machine running faster into the teeth of



The Pneumoslito in action.



Studebaker Electric Car and House.

the wind than before it, a tribute to the ability of the propeller. Viewed impartially, the features developed by the above performance show two hard facts: that this method of vehicle transit has greater capacity for speed, and that it is cheaper than any other yet devised. The efficient action of the little $2\frac{3}{4}$ h.p. machine will suggest proportionate results from those with engines of 50 h.p. and twin propellers, of 6 feet diameter, run at 1,200 r.p.m., which can be done. The limit of this vehicle's speed will only be found with the extreme of velocity at which propellers may be driven.

* * *

This method will surely obtain a goodly share of the transportation business now carried on by wheels. It should certainly have a practical monopoly of winter travel in the North on snow-covered roads, canals, rivers and lakes, giving cheaper and more expeditious service than by railroad. Where double track levels can be constructed with natural or artificially-frozen slide-ways a permanent and profitable carrying business may be established, which will cut the rates by rail and furnish quicker and safer travel. The great cost of steel roads, trucks, wheels, springs, brakes, their life-devouring noises and waste of power would be avoided by this method.

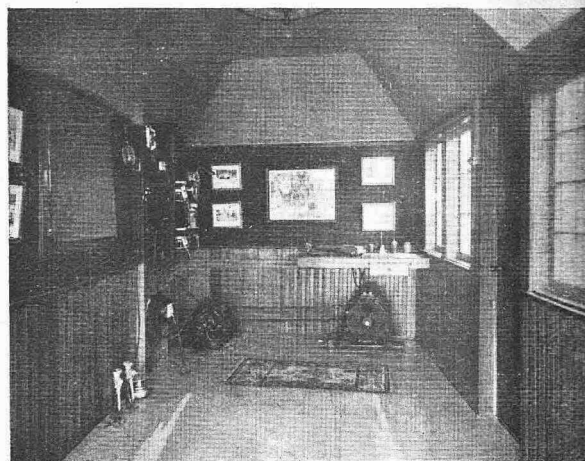
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The accompanying illustrations will serve to give an idea how conveniently a Studebaker electric can be charged and housed on a 50 by 160 foot lot in a suburban town where an electric lighting service is available. The views are at Cran-

ford, N.J., and the electric service is a 110 volt alternating current. By installing the small motor generator set, as shown in the interior illustration, the alternating current can be transformed to direct current, and the automobile charged without odour or any disagreeable feature. The ladies of the family circle can perform the operation just as completely as the men. The charging can be done rapidly, or slowly, as the occasion may require. In fact, it can be set in operation at a very low rate and allowed to charge all night, and it can be cut out by the current breaker on the wall set when the battery is fully charged. This method of charging with a motor generator set is necessary only when the lighting system is an alternating current. Were it a 110 volt direct current, a different system of charging could be installed. But as most of the towns and cities in U.S.A. use the alternating current the above will be the system chiefly used.

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Another method of generating the current on the premises would be by a gasoline engine connected to a direct current generator, and then the current could be made for an electric car without any connection with the lighting mains. Both systems can be recommended, the motor generator set being the most

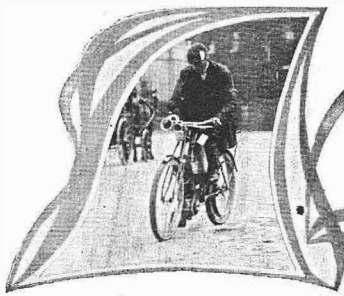


Interior of the house, showing motor generator set installed.

cleanly and easiest to care for. The illustrated method of charging can be operated by the man of all-work around the place, or by members of the family, and it places an electric car at the disposal of the owner at all hours of the day or night.



The Lincolnshire A.C. Meet, at the residence of the Chairman, Captain J. A. Co'e, at Roxholme Hall, Stamford, on Saturday week.



CYCLOMOT'S CAUSERIE.

Fair Use of the Roads.

Concerning the suggestion that motorists should take vigorous steps to ensure the observance of the laws and customs of the road there is much divergence of opinion, which is a particularly good thing, because this fact alone will serve to check the ardour of some who would otherwise be inclined to make matters somewhat too warm. There is, of course, the danger, which was pointed out in our Editorial notes last week, that a campaign of recriminatory action against other road users would only fan the flame of dislike, and the result would be open war between the two sections—motorists and all others, and in the end we should be as far away from the comfortable use of the road as ever, because of the continued friction between the various elements upon it. On the other hand, the drivers of horses are so eaten up with prejudice and hatred against the never form of locomotion that the opposite policy of turning the other cheek to be smitten can only have one effect—the horse driver will accept the behaviour as exemplifying the submission of the subject to his monarch, and he will be as contemptuous and as inconsiderate as ever. There is one point which must not be overlooked in any discussion which may take place upon this most important matter. Horse drivers have, during the course of many generations, become permeated with the notion that the road is for them and them only, and after enjoying what was practically a monopoly of the road, they are quite unable now to grasp the fact that times and methods have altered, and that an entirely new era has been entered upon. They do not see that, the road being free for all comers, they must be content to use it with consideration for everybody else; they cannot yet grasp the fact that others have appeared on the scene with rights equal to their own, and, being grossly bigoted, they are not prepared to budge one iota from the position which they have arrogated to themselves. In these circumstances, what else is there to do but to institute a course of lessons for the enlightenment and education of such people? Everyone will agree that the sooner they learn to use the roads with all consideration for all other traffic which may be upon them, or may be likely to be upon them, the better, and so the only real point at issue is the nature of the curriculum. Shall it be severe or shall it be merely persuasive? On this point the new era, with its great increase in speed, will not allow of so much latitude as did the old one. Carts may not be driven out of a side road across the main road without a single thought being given by the driver to the possibility of traffic being on the main road. Yet this is, and has been, the universal custom, and on the introduction of cycling, accidents innumerable, and oftentimes fatal, were the result. Now it cannot be contended that any possible good can be served by allowing horse drivers to continue in such bad habits, and the sooner and the sharper the lesson and the oftener it is administered, the better. Otherwise we shall go on for years being the victims of other people's folly and carelessness, and not until a new breed of road user has been developed shall we be any better off. And the hardship of it all will be that, when that does come we, personally, shall have ceased to take any interest in the world's doings. We have to work for posterity, it is true, but let us try and expedite matters so that we may ourselves enjoy some of the benefits of our work.

Municipal Negligence.

One of the points of the programme which I touched on last week was an insistence upon the local authorities paying proper attention to the roads under their charge. Since that was written I had occasion to travel eight or ten miles one evening in order to get a chat with a relative, and for that purpose I had to travel over what I suppose is one of the worst roads out of London. So bad is it, in fact, that I had not been over it for months, and when I started out I had to a great extent forgotten the horrors of it, only remembering that it was bad. Well, that ride cost me in hard cash quite thirty shillings; it tried my machine severely, and it left me an aggravated man. The vibration was simply vile, for I was jolted in and out of the saddle, the arms suffered cruelly, and the discomfort generally was abominable. When I came to start off on the return journey, I found that the accumulator case was open (this had happened twice before), and one of the accumulators was missing, the wires being broken off. So there was a 25s. accumulator gone. On the way home my acetylene lamp suddenly flew off—it was a brand new one, and the lamp bracket being extra large and thick, the clamp was a shade too small, and the constant vibration had helped it to free itself. The hood and base were dented and the value of the lamp was gone, although it is still useful. So that to say the ride cost me 30s. is no exaggeration, and this is simply because the local authorities will do little or nothing to the road. Although it is one of the main outlets from the metropolis, and has to bear an enormous amount of traffic, it is unfortunate in forming a boundary line between two big boroughs. Neither borough gets any benefit from the road, and so neither will spend money upon it. We have close to us a bridge over a river. It is extensively used by foot passengers and by cyclists. All the local authorities, however, disclaim any responsibility for the upkeep of the bridge, and during the twelve years that I have known it not a single thing has been done to it. Here is an instance where a useful footway is left in a dangerous state because there is no central highway authority.

A Convenient Lamp.

For some little time I have been using, as an alternative to the gas lamp, a Diana, burning paraffin. The burner of this lamp is of the well-known Dietz form, giving perfect combustion of the oil and providing a steady, smokeless flame. The body of the lamp is well made and, being provided with a bail handle, the usefulness of the lamp is practically doubled. I have had some good service from this lamp; it gives a splendid light, and it has never yet shown the least tendency towards blowing out, no matter how high or gusty the wind might be. I think that the lamp might be enlarged with advantage, the oil container being given greater capacity, the burner being larger, and the hood extended, and on suggesting these matters to the makers I have been told that the alterations will be made. A good paraffin oil lamp is a boon, because in it one has the most handy light giver possible. It is cleanly in use, and is instantly available, whereas a heavy oil lamp gets clogged up and dirty in a very little while, and an acetylene lamp requires five minutes' attention both before and after a ride if it is to be kept right.

HINTS AND WRINKLES.

Car Clutches that work badly.

If there is one defect more than another that is objectionable in a motorcar it is a friction clutch that goes into action suddenly or jerkily, straining the transmission gear and giving an unpleasant shock to the occupant of the car. A well designed clutch will go into action very gradually, allowing a certain amount of "slip" between the friction surfaces to take place, and thus the power from the motor is transmitted to the driving wheel gradually instead of being switched on instantaneously. Much depends upon the condition the clutch leather is in as to how the clutch works; if in a very sticky condition it will grip the metal surface "fiercely"; a treatment recommended for this is to clean the leather with waste petrol, and then give it a good soaking with collar oil, which is to be preferred to castor oil. Some drivers find a mixture of blacklead and vaseline useful for effecting a temporary cure. The strength of the spring behind the clutch cone is a very important factor, if it is too strong the clutch will "take up" harshly even when the leather is in good condition. For a slipping clutch the application of resin is to be avoided, as it quickly destroys the fibre of the leather. It is better to clean the surface and treat with castor oil.

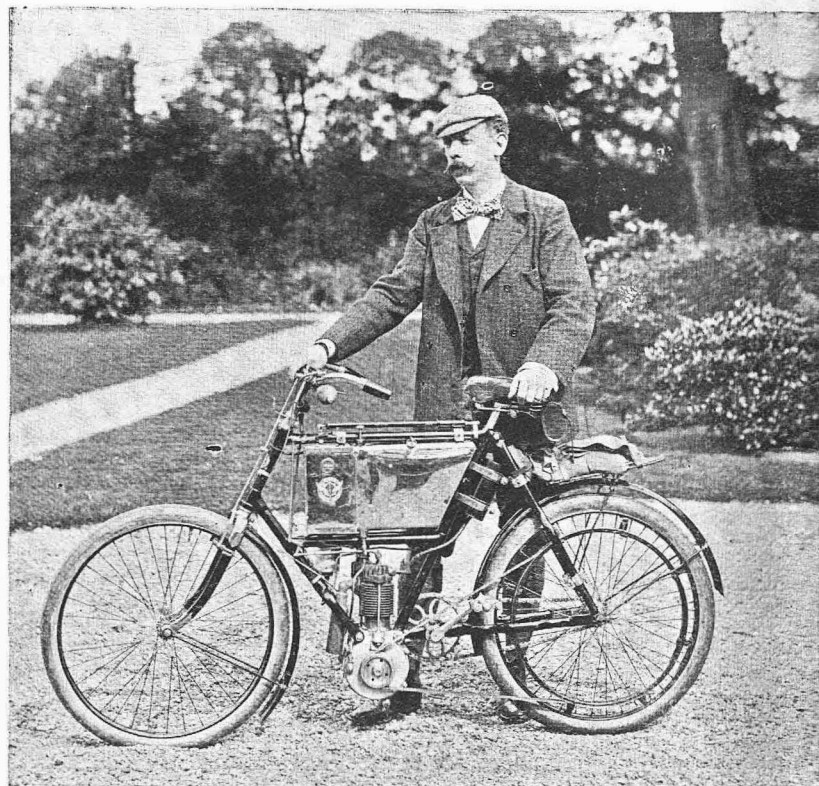
Some Notes concerning the adjustment of a Trembler Coil.

The average motorist does not like the idea of having to touch the trembler of his ignition coil. It is to him a mysterious little device of such delicacy that a hairsbreadth turn of the contact screw will stop it working and make his car or cycle a fixture for the time being. In reality the adjustment of a coil trembler is not a difficult matter when you understand its action. There is the little spring having at its free end a tiny disc or armature of soft iron which clears the iron wire core by about one-eighth inch. In the centre of the spring is a platinum tip, and coming exactly over it is the platinum point of the trembler screw. This is either supported on a bracket or in some types of high speed coils on a small rocker. The main factor in getting the correct adjustment is to arrange for the "armature" at the end of the spring to be just a shade off the iron wire core when the contact is broken at the platinum tips. If the adjusting screw is placed closer, the armature will simply "stick" on the core and not vibrate at all. No spark can be obtained, of course, if this is the case. If the armature is too far from the core, and contact is broken at the platinum tips too early, the coil will have a strong tendency to cause misfiring when the engine speed rises; or, if the accumulator is not up to full voltage it will misfire at a very low speed. Sometimes it happens that there is rather too much set on the spring, and it will only work

when the armature is very close to the core. The remedy is to reduce the set by giving the spring a slight set in the opposite direction. But this fault is rarely found in a high-class coil. Should it be found that the coil persists in stopping work, this is not unlikely to be caused by the residual magnetism in the iron wire core holding the armature fast. The reason for this fault is that the iron wire core has not been properly annealed or softened. This fault is *never* found in coils by the standard makers. A remedy for it is to remove the spring and stick a small bit of stamp paper edging on the underside of the armature to keep it out of actual contact with the core. If there is a noticeable amount of sparking between the platinum tips, it will show that a good condenser is not fitted. When an ordinary push-up make and break is used on the motor to actuate a trembler coil, it will be found necessary, as a rule, to have a more delicate adjustment than if a proper brush contact is fitted. In cases where the cam only gives a very short contact it may not be possible to get a trembler coil to work at all except at very slow speeds.

Injurious to the Valve Springs, etc.

Although it is a great convenience to be able to fix a motor-bicycle up on a stand and test the work of the various details, it is important to bear in mind that the motor should not be kept running longer than absolutely necessary. The cylinder and head get extremely hot in a very few minutes, and if there is one detail more than another liable to be damaged with the heat it is the valve springs. These springs, it must be remembered, are hardened and tempered to give them the necessary elasticity. If they are heated above a certain point they lose their elasticity and become soft, in which condition they are quite incapable of bringing the valve sharply down on its seating; hence loss of compression and back firing through the inlet valve are common occurrences. The inlet valve spring is particularly susceptible to having its temper drawn, owing to the wire it is made of being much finer than the exhaust spring. Another trouble occasioned through an extremely hot cylinder, is the fouling up of the inside in the event of lubricating oil getting past the piston. This gets burnt up into a hard cement.



[Photo by Tafayette.]

Mr. Thornhill, of Castle Bellingham, one of the pioneers of motor-cycling in the north of Ireland.



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

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OPINION

The Motorcyclist and the New Act.

Without the slightest shadow of a doubt, the new Act hits the motorcyclist particularly hard; not because he is specifically mentioned, but because no reference at all has been made to him in the Act. Now those people who profess that the motorcar and motorcycle are two entirely distinct and separate vehicles, each so easily defined that anybody can see wherein the difference lies, would no doubt like to be able to tell the motorcyclist that the Act in no wise refers to him. For that matter so should we, if we could secure the passage of a measure which, clearly defining the motorcycle and showing where the cycle ends and the car begins, would give the motorcyclist all the freedom given to the car driver, and remove some of the restrictions, as well as reduce the maximum penalties. But any person who has sat down and seriously endeavoured to draw the line of demarcation between the car and the cycle has been compelled to admit the impossibility of arriving at a satisfactory solution. And we are in a position to state that the Law Officers of the Crown recognised the same difficulty when the Bill was being drafted, and, as a consequence, the motorcycle is ranked with all other self-propelled vehicles, the only distinction being on an extremely minor matter, the registration fee. This being so, it is now incumbent upon motorcyclists, each and every one of them, to put their shoulders to the wheel and help to secure that the regulations which, under section 7 of the Act, the Local Government Board will be drawing up in the course of the next three months, shall be workable from the motorcyclists' point of view. So far as we are concerned, it is desirable that we make it clear that the words "motor cycle" in the Act shall include two, three, or four-wheeled vehicles of the cycle type, because we require the tricycle and the quadricycle to come in the same class as the motorcycle for the purpose of keeping the registration fee down to 5s. This difficulty of a definition arises at once, because if the *Trimo* is a cycle, what about the *Century* and *Eagle tandems*? And if the quad is admitted, will somebody clearly describe the difference between it and the *Alldays' Traveller*? To the eye, perhaps, the difficulty is small, but regulations must be put into words and phrases. However, that difficulty will be met later on. On the matter of the issue of licences, it has now been decided that persons over the age of fourteen years may obtain a licence to drive a motorcycle, so there is nothing we require under this head except to ensure that licences may be obtainable at post-offices. On the matter of speed, we require the reduction to six miles an hour removed in the case of a cycle and trailer,

where the total weight does not exceed, say five hundred-weight. The clause in the old regulations is necessary in order to check the speed of a heavy freight train on the roads. As to numbering, we must insist that the tablet suitable for a car is quite unsuitable for the motor-cycle, and we must devise an alternative to the method which the Board decides to adopt for cars. This will probably be a white tablet, about 9 in. long and 3 in. broad, such as is used on the Continent, and a light will have to be so placed that the tablet is illuminated at night. We must have something different for the purpose. What is it to be? Section 8 of the Act gives power to the Local Government Board to prohibit the use of motor-vehicles on narrow or special roads, and it will be necessary to ensure that the motor-cycle shall not be classed with the car, otherwise we may find many a lane closed to us. On the matter of fines little can be done, because the answer to any objection is that the sums mentioned in the Act are the maxima, and it will be in the discretion of the magistrates to suit the punishment to the offence. We think we have pointed out all the matters in which motor-cyclists are interested; how to get our ideas before the Local Government Board is the next thing. Our own suggestion, following upon a conversation which we have had with the secretary of the Auto-Cycle Club, is this: Let us have your ideas upon all of the above points; let us know what you suggest in the matter of numbering, of definition, of trailer weights, of registration fees, and so forth. Let the motor-cycle clubs of the country come to some conclusion on the various points, and then the Auto-Cycle Club will take advantage of all this mass of opinion and will draft its requirements and lay them before the Board. During the vacation period we can be quietly, but strenuously, working, and we shall be all prepared by the end of September, when the Board commences to consider the matter. We have, therefore, a month in which to do everything, and any delay may prove fatal, for the regulations now framed will remain in force for three years; it will be practically impossible to get them amended once they are published and issued to all the local authorities, and, moreover, they will serve as a pattern for the regulations which must be drafted for 1907. It must not be forgotten that the readers of "THE MOTOR" constitute the great motor-cycling community, so that their opinions will carry considerable weight. May we, therefore, count on receiving your personal views on these important matters when you have read this article?

A Protest and a Plea.

No argument yet put forward in support of the policy of retaliation has convinced us of its wisdom. Indeed, the more we read of it the more certain we are that reprisals such as are suggested will assuredly recoil upon the heads of those who adopt them. "Cyclomot," we observe, is in favour of a policy of war against the horse, and regrets that a measure could not have been introduced which dealt drastically with all forms of vehicles using the roads. With his bellicose views we entirely disagree, but we are with him in wishing that Parliament had dealt with the matter on a broader basis, and passed a measure which included all forms of locomotion within its scope. This it has not done, and regrets, under the circumstances, are vain things. We repeat that the suggestion that every motorist should constitute himself a kind of private detective, bringing actions against other road users on the slightest pretext, is an utterly foolish one, calculated to do the automobile cause a great amount of harm, and rendering it no good whatever. What we do seriously advise every motorist to do, in his own interest particularly, and in the interest of the cause generally, is to enrol himself a member of the Motor Union, the body politic of automobilism, which is likely to take the lead in all future matters affecting the motoring cause. The Motor Union has already done good work, and with the coming into force of the new Act it has an opportunity for future development which we feel sure it will fully rise to. The subscription to the Union is only a guinea yearly, and our readers should remember that in union lies strength, and that it rests with them to lend their support to an association which will gain power and influence with every individual addition to its ranks.



Join the Motor Union.

At this critical time every motorist should combine.

The Motor Union offices are at 16, Down Street, Piccadilly, W. The subscription is a guinea. Write for details.

Special attention is directed to the first editorial, and correspondence on the subject is solicited.

The General Steam Navigation Company inform us that not only do they convey motor-bicycles free on their Bordeaux tours, but also on their Scottish and Belgium trips.

Hill-climbing contests and reliability runs are of frequent occurrence in the United States. Indeed, both from the sporting and the touring points of view, automobilism is going strong across the water.

Messrs. Peto and Radford have sent along to our testing department a sample of their new patent two-way switch for ignition purposes. We can recommend it as being thoroughly efficient, neat in design and well finished, and it costs 5s. 6d. only.

The value of the motorcar as a means of rapid communication is being recognised by the Italian military authorities. It is stated that a large number of cars will be utilised in the forthcoming manoeuvres by the officers to enable them to keep in quick and constant communication with every point of the system.

The staff of the Auto Cycle Club, under the skilful control of Mr. Basil Joy and Mr. F. Straight, were located at the White Swan Hotel all through the recent trials, and worked splendidly. The work started early in the morning and extended till midnight, and oftentimes much later. The mass of detail work entailed by the trials was simply stupendous, and the way in which it was grappled with reflects immense credit upon all concerned.

Coming Events.

- Sept. 15. 1,000 Miles Trial of Motorcars, organised by Automobile Club. Cars to be in Crystal Palace at 12 o'clock.
- .. 16 and 17. Brake, Dust, and Noise Trials.
- .. 17. Press Luncheon.
- .. 18. Run to Margate and back.
- .. 19. Eastbourne and back (Westersham Hill).
- .. 21. Worthing and back (Bury Hill).
- .. 22. Folkestone and back.
- .. 23. Southsea and back (Hindhead).
- .. 24. Bexhill and back.
- .. 25. Winchester and back.
- .. 26. Brighton and back (Handcross).
- .. 28 and 29. Examination by Judges.

Mr. J. E. Hutton, of Regent Street, who handles the famous Mercedes cars, is removing to new premises at 81 and 83, Shaftesbury Avenue.

Sunbeam and Argyle cars have a new London home at the depot just opened by Mr. H. C. Dignasse, 5 and 6, Marshall Street, Regent Street, W. A large workshop fitted with machinery for repairs and gear cutting is in the basement.

A large number of members have been joining in the Kentish Auto Club runs, when some enjoyable days have been spent, including a run to Eastbourne, Hatfield, and Downe. On Thursday, August 20th, a very enjoyable run was taken to Cudham. On Saturday, the 30th ult., the run was to Brighton.

As it is the thing to report "motoring incidents," the fact that a car conveying the Duke of Devonshire knocked down a child, who dashed from behind a cart, has been widely reported. It was entirely the child's fault, and she was scarcely scratched. Had the Duke been in his horse-drawn carriage such an incident would have been ignored.

Five Napier cars have been entered for next year's Gordon-Bennett trials.

The Motor Union is asking for correspondents in various centres, and the secretary will be glad to hear from anybody willing to act.

In our next issue we shall publish a special article by the Hon. J. Scott-Montagu, M.P., setting forth what was really done on behalf of motorcyclists in Parliament.

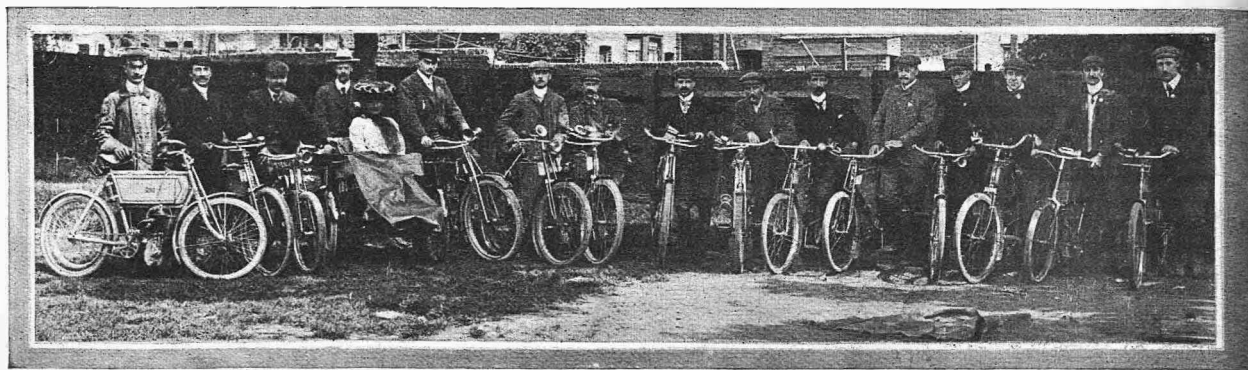
We have been asked where copies of the new Motor Cars Act can be procured. On receipt of two penny stamps the secretary of The Motor Union, 16, Down Street, Piccadilly, W., will forward an official copy.

We are glad to find that Class A for light cheap cars in the forthcoming trials is quite full. This is an encouraging sign, and shows that the trade is alive to the possibilities of the vehicle we have urged them to give their attention to.

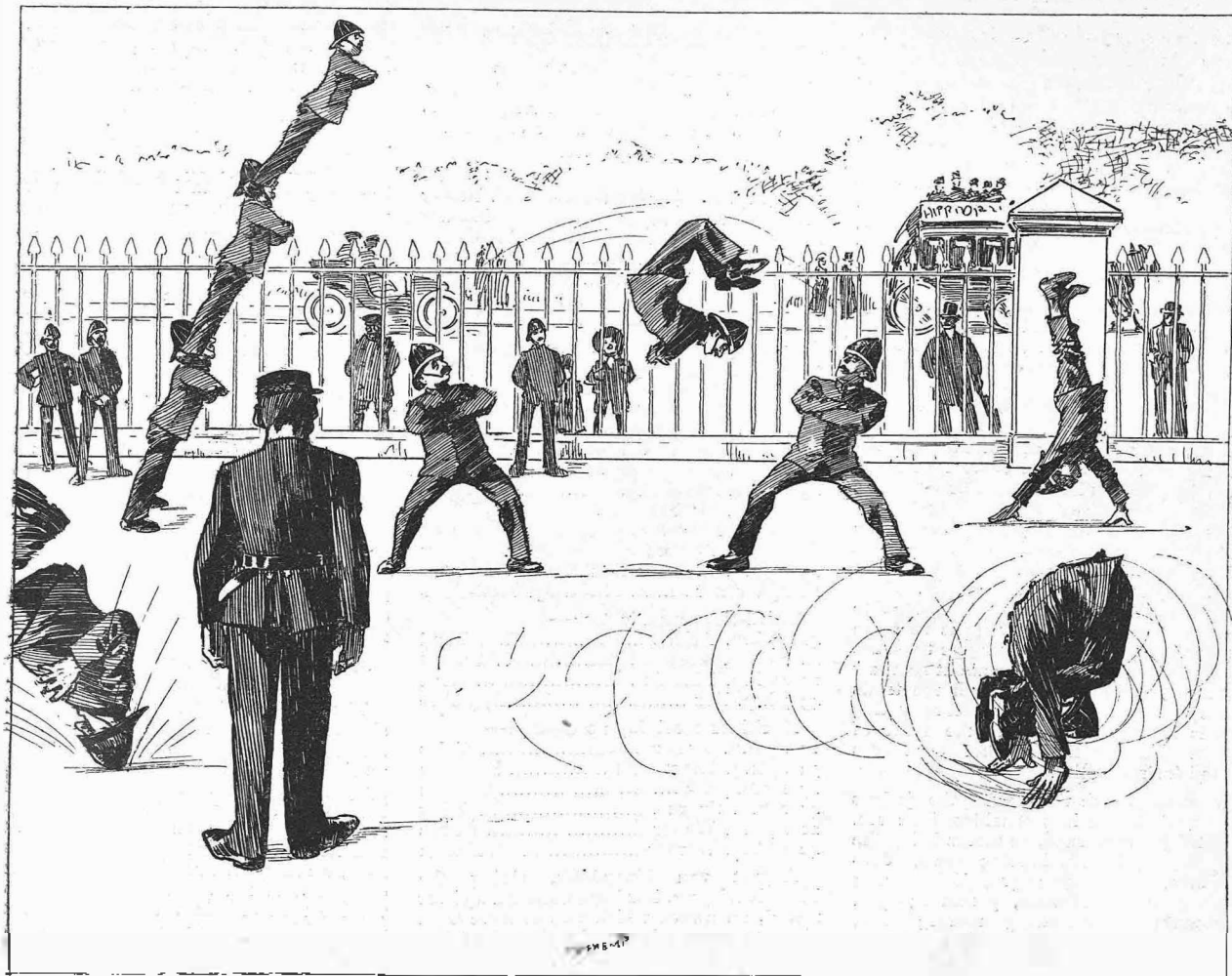
Taken all round, the observers and time-keepers in the recent trials worked splendidly. Very few who had accepted office failed to be at their posts, but occasionally an incident would occur which would delay an observer or prevent him reaching his position.

A fifty-page booklet, giving particulars and illustrations of all the manufactures of the Chater Lea Manufacturing Co., Golden Lane, E.C., has just been reprinted. There was such a demand for the 1903 issue that many applicants were disappointed. The latest edition will be sent post free upon receipt of name and address.

It will be remembered that a protest was lodged against Mr. Cecil Edge, who won the Midland Automobile Club's hill-climb at Edge Hill, near Stratford, on July 25th last, on the score that the Napier car was more highly powered than the 20 h.p. put down in the programme. At a meeting of the club last week the protest was dismissed and the judge's placing confirmed.



Some members of the Kentish Auto Club. The Club is gaining new members every day and bids fair to become a large and flourishing institution.



POLICE ACTIVITY.

Car jumping will call for so much energy on the part of the police that we can quite imagine the necessity arising for the force to be put through a complete course of acrobatics.

Troubles about the Gordon-Bennett Cup Race in 1904.

The racing committee of the German Automobile Club is in difficulties—not financial, Heaven forbid!—but as to the finding of a suitable course for the Gordon-Bennett Cup event in 1904. As all the motoring world knows, Germany has won the cup and, ergo, is bound by that very fact to discover and prepare in Germany a course for the next race. Yes, but where is it? If a route commends itself by its length, it condemns itself by its breadth—in parts at any rate—or vice versa. On the other hand, given adequate length and breadth, an insuperable objection arises from its proximity to tolerably densely populated districts. "Let us race by all means," exclaims the committee, "but for the love of the Fatherland keep down the list of slaughtered!" Such cogitations are troubling the club a good deal. English motorists can afford to laugh, but it is no laughing matter for the club. Having compassion with the worried racing committee, and also—although this is but a trifling consideration—not disinclined to give the home industry "a leg up," a German trade paper suggests the Isle of Usedom as furnishing a likely track. If the reader will take the trouble to turn to a

map of Prussia, and cast his eyes in the direction of Pomerania, he will see at the mouth of the Oder an island which looks something like a crumpled pocket edition of Great Britain: that is Usedom. Along the north-eastern edge of the island is a road "fulfilling all conditions." But what about the spectators? Are they to view from the sea? Oh, no! Spectators are amply provided for. Listen: "The cliffs—rising almost sheer—which separate the sea shore from the inland would constitute a natural gallery, on which spectators could take their seats." Fancy exploding motors rushing wildly along the strand route to the accompaniment of the roaring surf and the roaring "gallery." Romantic, is it not? The gentleman who makes this suggestion entertains no doubt whatever that the "gallery" could easily be held in check, even in the moments of wild excitement. Anyway, he begs the racing committee to dispatch an expert to Usedom to survey the proposed route. And while the expert is in the neighbourhood (says another outsider) he might push on to the Gulf of Dantzig, when between Dievenow and Putzig, a still better road is said to lie. This one is not only straight, but nearly 160 miles long, and, moreover, runs through a region that is

only sparsely populated. Well, we shall see what the racing committee makes of these suggestions—outside suggestions. Time is getting on, and the route will have to be decided upon before the end of the year.

Foxhall Keene Interviewed.

Mr. Foxhall Keene, the Yankee-German competitor in the Gordon-Bennett race, has just got back to the States, and has, of course, had to submit to the inevitable interview. New York "Automobile Topics" publishes the following observations which Mr. Foxhall Keene is reported to have made: "The international cup race was a wonderful affair; it went off like clockwork, and the arrangements were perfect. I was never so disappointed in my life as when the accident befell my machine, for really I was in an excellent position. I was running smoothly, three minutes ahead of my schedule, and not a thing to stop me from being well up in front when the machine was disabled. . . . The Bailey Law is too strict, too strict! I prefer the new law which England is about to get. That makes running an automobile at a 'dangerous speed' only unlawful, and the punishment is very severe. But don't you see, the phrase 'dangerous speed' allows wide latitude."

The Motorcycle Trials: Results.

The judges and officials have now completed their labours in connection with the reliability trials, and probably nobody is more pleased at that fact than they are themselves, although it must not be inferred for one instant that the work was approached in any spirit of boredom; as a matter of fact, the work was always given the preference over personal convenience, and it was tackled thoughtfully, considerably, and with the desire that no part of it, however minute, should be scamped. We are told that a most careful scrutiny was given to the record of each rider in order that little matters, impossible to be anticipated or provided for by the rules, should not tell harshly against a driver, and, although there has been no attempt to gloss over anything in the nature of a failure, a certain amount of latitude, according to the merits of every individual case, has been allowed. The result is that, whereas many cases of bad luck occurred, the instances where the machine has suffered in the marking may be said to be extremely few. But from this statement we must exclude tyre troubles. The one great truth which stands exposed to the naked eye by these trials is that the satisfactory brands of motorcycle tyres are miserably few. So it came about that few machines indeed went through the trials without tyre troubles, and naturally this fact is largely reflected in the table of results showing the number of marks gained for reliability.

In dealing with the results the judges have had to take into consideration: 1st, reliability on the road, 70 marks being the highest total obtainable; 2nd, convenience, 10 marks; 3rd, lightness, 5 marks; 4th, cheapness, 5 marks; 5th, efficiency of brakes, 5 marks; 6th, speed on the track, 5 marks; making 100 marks as the greatest possible score. We have in previous issues explained and described the methods whereby data was obtained for the scoring; it is now only necessary to explain that the marks have, in accordance with a very early resolution of the joint committee, remained a secret with the judges, who have merely announced their awards, dividing the machines into four classes, first, second, and third, to which certificates are issued according to merit, and a fourth class, which receives no recognition whatever. Besides these, there were the machines which started but which failed to complete the tests; so far as the judges are concerned these have been ignored, but the hope has been expressed that the judges shall issue a report which will give their finding upon the causes of the failures, and their suggestions upon such matters as seem open to alteration or improvement.

Out of the forty-four machines which essayed the trials, the number which absolutely completed them was twenty-six. Besides these, there were three which did everything except the speed test on the track, and one of these three had already put itself out of court because of the magnitude of a replacement which had been necessitated by a fracture. Of the twenty-six, seven have received first-class certificates, twelve obtained second-class certificates, and four obtained third-class certificates, the remaining three going away empty-handed. Of the certificated machines, one which secured a second-class award and two which secured third-

class awards were ridden by private owners.

The awards are as follow, and it should be noted that the order in which the names appear in each class is alphabetical, and is not necessarily the real order of merit.

First-class certificates:—

	Rider.
12 2½ h.p. Bat (spring frame)	E. B. Blaker
1 2 h.p. Bradbury	Jimshall
29 3 h.p. Chase	F. W. Chase
13 2½ h.p. Kerry	Hayes
18 2½ h.p. King	W. King
20 2½ h.p. Ormonde	A. C. Wright
24 2 h.p. Werner	Young

Second-class certificates:—

34 2½ h.p. Alldays	Siins
7 3½ h.p. Booth	S. B. Moore
2 2½ h.p. Bradbury	Milligan
35 2 h.p. F.N.	Chappell
10 2½ h.p. Griffon	Lambert
4 2½ h.p. Jap	Duffield
25 2½ h.p. Lagonda	Gunn
31 2½ h.p. Matchless	Collier
3 2 h.p. Peugeot	Galley
30 3½ h.p. Phoenix tricycle	A. Hooydonk
19 2½ h.p. Robinson and Price	Mordell
22 2½ h.p. Werner	J. Platt-Betts

Third-class certificates:—

48 2½ h.p. Ariel	Bond
26 2½ h.p. Castell	Castell
14 2½ h.p. Phoenix	Mills
43 3 h.p. Rex	Applebee

Machines receiving no award:—

17 2½ h.p. Brown	Coles
33 2½ h.p. Ewart-Hall	De Solla
27 2 h.p. Jehu	Clayton
45 2 h.p. Spark	Hirst
21 2½ h.p. Weller	Curtis
40 2½ h.p. Werner	Hoffmann

August van Hooydonk, riding the Phoenix tricycle, has been awarded a silver medal, an award which was to have been given to every winner of a first-class certificate in the private owners' class. The judges, however, have taken advantage of the authority given them and have relaxed the rules somewhat.

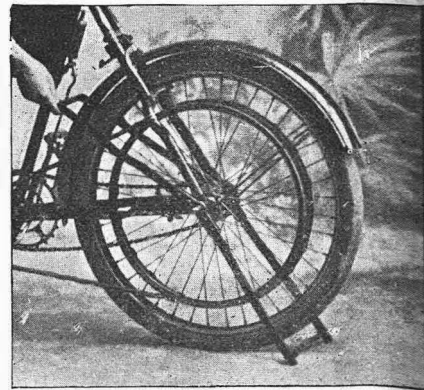
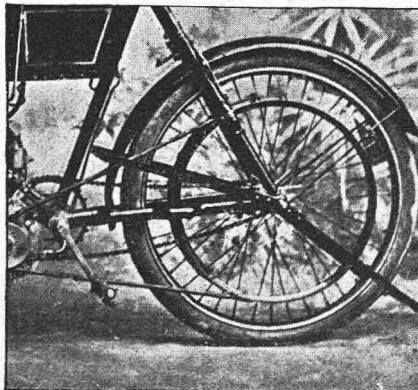
The Auto-Cycle Club's Races and Fixed Standards.

We have received the following letter from Mr. A. Goodwin of the "Ormonde" Motor Company. He writes:—I think a protest should certainly be made by manufacturers against the manner in which the committee of the above club (who assumes to be the governing body for motorcycling) decided upon limiting the cylinder dimensions of engines for the various events at their race meeting upon

the Crystal Palace track on the 22nd ult. I am quite in sympathy with the idea of limiting cylinder dimensions in conjunction with weight limits, but I do most emphatically assert that it is distinctly unjust to decide upon such a course at a time that only enables the club to give notice of their decision a fortnight prior to the events taking place. It simply means that in so doing they create a standard which must of necessity give certain manufacturers an unfair advantage in these competitions, and thereby greatly decrease the interest and importance which would otherwise be attached to them. Speaking personally, it is impossible for my firm to enter a machine for any of these events, as the cylinder measurements of the "Ormonde" are such that it could not possibly do itself justice in competition with other machines, which more nearly approach the conditions laid down by the Auto-Cycle Club. If standards are to be established in the form of cylinder dimensions and weight limits, the club should announce the fact definitely, and make up their minds to adhere to them rigidly. Manufacturers will then no doubt design their new models with due regard to the standards fixed by the ruling body.

A Simple and Ingenious Cycle Stand.

There is no disputing the fact that a simple and reliable stand is now an absolute necessity on a motor-bicycle. It is no light task having to start up the engine by pedalling the vehicle in the roadway. In case of a puncture in the back tyre a stand is a great saving in time, health, and temper. Recently, when in Nottingham, we met Mr. Fred Fletcher, the safety champion of 1890. Fletcher is of an inventive turn of mind, and is eminently practical in whatever he undertakes. The new "Starteasy Motorcycle Stand," as it is called, is the simplest thing of the kind yet brought to our notice. It is always ready for use, as will be seen by the first illustration. On reaching a point when the rider desires to stop it is not necessary to walk round to find a wall or improvise a stand to place the motor-bicycle against. All that has to be done is to push the machine backward and slip the top end of the stand out of the catch. The machine may be mounted in this position, as it stands as rigid as possible. The stand will fit any recognised make of motor-bicycle. It is retailed at 17s. 6d., and all particulars may be obtained from Fletcher Bros., 69, Bath Street, Ilkeston.



A new stand for Motor-Bicycles.

THE MOTOR CYCLING CLUB 200 MILES RELIABILITY TRIAL.

The Motor Cycling Club held the third of the series of 200 miles reliability trials on Saturday, August 29th. Eighteen entries had been received, and thirteen actually competed. The competitors, marshals and checkers arrived at the Red Lion Hotel, Hatfield, on the Friday evening, as a start had to be made at six the next morning. The weather conditions did not look so promising as on the previous runs, and, as a matter of fact, heavy rain fell in the early hours of the morning, making the roads very sloppy. Several of the intending competitors had decided to ride down from London about four o'clock on the Saturday morning, to be in time for the start, but just about this time a deluge of rain occurred, and they gave up the idea. After breakfast, at 5.30, the machines were brought out to the front of the hotel and prepared. The route was the usual one, viz.: 1st stage, Hatfield to Stony Stratford, back to Hitchin, and thence to Hatfield; 2nd stage, Hatfield to beyond Berkhamstead and back; and 3rd stage, Hatfield to Hertford, Royston, Buntingford and back to Hatfield. The following competitors were despatched on their journey by Mr. D. K. Hall (R.R.A.), who was appointed official starter, Messrs. Whittall (Brown 2 h.p.), Crundall (Humber 2½ h.p.), Brown (Minerva), Mays (Vincos), Hoffmann (Werner 2½ h.p.), Johnson (Humber 2½ h.p.), Milligan (Bradbury 2½ h.p.), C. W. Brown (F.N. 2 h.p.), Moore (Booth 2½ h.p.), Garner (Rex 3 h.p.), Young (Werner 2½ h.p.), Platt-Betts (Werner 2½ h.p.), and Cox (Ormonde 2½ h.p.). The first group left at 6.10, and the others at intervals of five minutes. The roads were heavy, and the sky was very overcast at the start. Garner was put out of the run soon after starting, owing to the failure of his current. C. W. Brown was also at an early stage unfortunate with his tyres, and Young had three punctures in the space of a few miles, and also broke his belt. At about seven o'clock a very heavy shower occurred between Hockcliffe and Dunstable. On the return from Dunstable Hoffmann collided with a dog near St. Albans, and fell, but fortunately did not hurt himself or machine. He mounted again, and reached Hatfield first at 11.35.

It was found, however, that he had exceeded the time limit. Crundall was next in, at 12.12, his chain-driven Humber having run exceedingly well over the heavy roads. Whittall was next in, 12.15. He reported belt troubles, and had to make a stop to fix his tool bag. Johnson arrived next, at 12.17, and reported a non-stop. Milligan arrived at 12.20, followed by Cox, at 12.22. The latter

consistently on his Humber, experienced an inner tube burst when within three miles of Hatfield. He, however, rode to Hatfield on the rim, but decided not to continue. This left only two to complete the 200 miles non-stop, viz., Crundall and Milligan. These two competitors got back to Hatfield at 4.15, and started off again on the third stage at 4.30. By this time Mr. A. Goodwin had come up



THE 200 MILES TRIAL.
Starting at 6 a.m. Saturday morning, at Hatfield.

had experienced trouble, his combined exhaust lift and contact breaker having gone wrong. Moore came in next, but reported a stop, due to a spark plug cracking. An hour was allowed for lunch, and in the meanwhile the machines were locked up. For the second start there were only four remaining competitors, viz., Crundall, Johnson, Milligan, and Platt-Betts: these left, after re-filling their petrol tanks, between 1.12 and 1.20. After them came Brown, Moore, and Cox, who intended completing the distance if possible, in order to obtain the distance certificate. Within a few minutes after leaving Hatfield, Platt-Betts was most unfortunate in colliding with a dog, and his tyre blew off the rim. Milligan, Crundall, and Johnson were going well, according to the observers' reports, but Johnson, who had been running most

from town on his Clement car, and, in company with the chief marshal (Mr. J. A. Jackson), started off to observe on the last stage. This part of the route is the most difficult, and has several rather stiff hills. Crundall and Milligan got back to Hatfield at 7.30, having succeeded in making non-stop runs. The weather throughout the latter part of the day was all that could be desired. As was the case on the first test, the breakdowns were mainly due to the tyres. No motor defects occurred, and only one or two ignition failures. The following gentlemen acted as checkers and observers along the route: Messrs. Roberts, Fry, Quibell, James, and Evans.

The Club will be holding their 200 miles non-stop trailer-passenger contest and 50 miles non-stop single motor-bicycle competition on Saturday, September 12th. Riders who intend competing in this event should communicate with the hon. sec., Mr. G. E. Roberts, 19, Fieldhouse Road, Hyde Farm, Balham, S.W. Runs for Saturday and Sunday, the 5th and 6th September, are as follows:—Saturday, September 5th, rendezvous Chertsey ("The Swan"), tea 5.30.; Sunday, September 6th, meet at "Old Salisbury," Barnet, 11.15, for Buntingford ("George and Dragon"), lunch 1.30.

The Auto-Cycle Club's Trials.

We have received some correspondence on the subject of certain disqualifications at the Auto-Cycle Club's meeting on Saturday week. One correspondent seeks to correct our report by pointing out that a disqualified competitor did faster time than that we recorded. Of course, disqualification nullifies a performance, and our report was quite accurate. As the decision of the judges is final we see no good in admitting letters which seek to controvert such decisions.



Johnson, on the Humber, arriving back from Hatfield in the 200 miles trials.

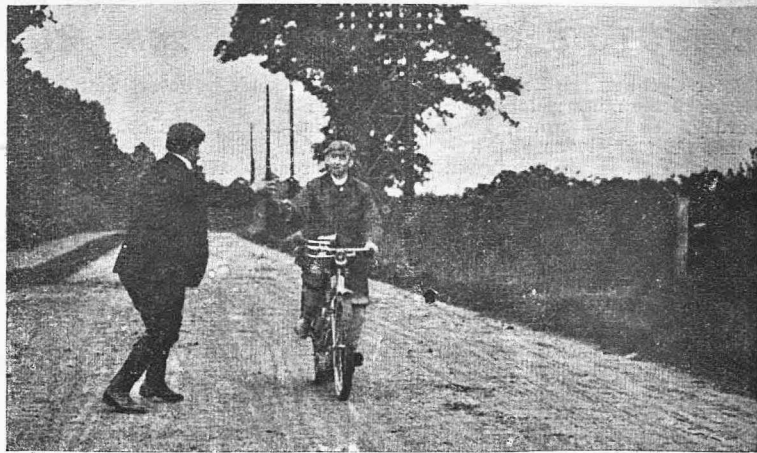
The next issue of "THE MOTOR" will contain full report and illustrations of the motor boat race from Paris to Deauville.

A Salutary By-Law.

The Cheshire County Council have added to their code a by-law which will be heartily welcomed by motorists. It is now an offence in the cheese county to leave hedge cuttings in the road for a longer period than one hour after sunset. A Cheshire farmer who, through ignorance or idleness, offended against this by-law, paid five shillings the other day to the Wilmslow magistrates for his remissness.

To Encourage the Industry!

If the new Motor Cars Bill is likely, as is predicted in some quarters, to cripple the industry in this country, how will the foreign industry be affected by some of the regulations which have recently been imposed on motor vehicles in France and Belgium? Local prejudice in Antwerp and Brussels reached such a pitch that a by-law was passed enforcing a maximum speed of 3½ miles an hour; this was in consequence of the representations made by the horse-driving community that the excessive speed of automobiles was unsuited to the average speed of other vehicles. Next, wonderful to relate, it appeared that the legal "crawl" of the motorcar rendered it an obstruction to other traffic; municipal wisdom therefore decreed that all forms of traffic should be restricted to the 3½ mile maximum; now everything moves at a more or less uniform rate, but whether it is a rate which is calculated to contribute to the gaiety of nations and to further the cause of civilization remains to be seen. In rural and provincial France the splendid possibilities of the motor vehicle are no doubt fully appreciated, but on the principle that one should learn to walk before trying to run, many of the small towns have restricted the velocity of the automobile to a walking pace. We have the walking craze rather badly in this country, but so far automo-



J. Platt Betts, giving up check to official in the 200 miles trials.

bilism has not been bitten by it. At Vanves—wherever that may be—they have a by-law which, being translated, reads: "Two motorcars travelling at the same pace are forbidden to pass one another"; and as an instance of the law-abiding spirit which pervades the Continental chauffeur it is stated that the regulation is seldom infringed.

Racing Cracks in America.

Barney Oldfield, the racing idol of the United States at the moment, has signed a contract to race only on Winton cars for the future. He is stated to have received numerous challenges already from motorists anxious to wrest the championship from him. J. Sincholle, who on a 40 h.p. Darracq, showed a fine turn of speed at the recent Empire City Trotting Club Meeting, is particularly anxious to meet Oldfield in a long race—any distance from 25 to 1,000 miles—as he considers that the strong point of the French car is endurance rather than speed.

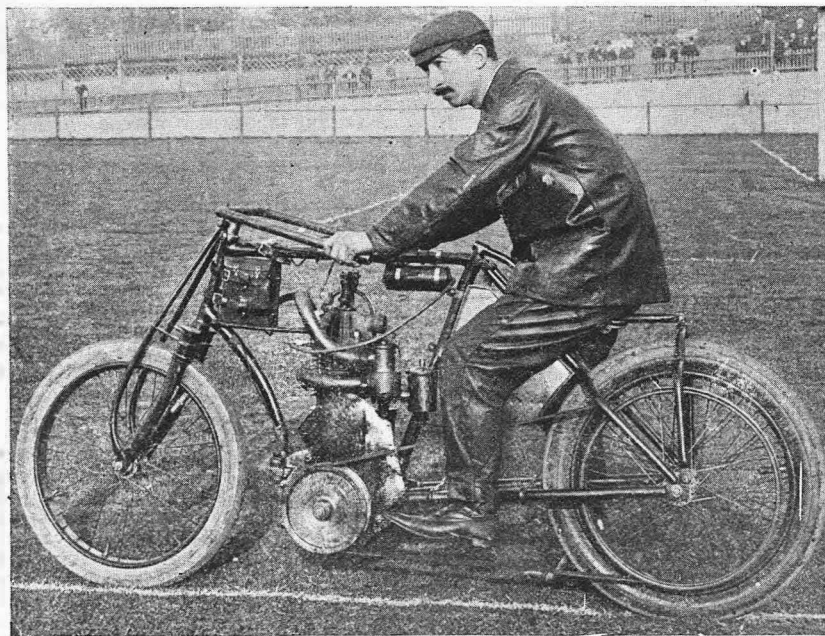
"THE MOTOR" is making all arrangements for illustrating and reporting the forthcoming trials of motorcars.

The Liverpool Motorcycle Club.

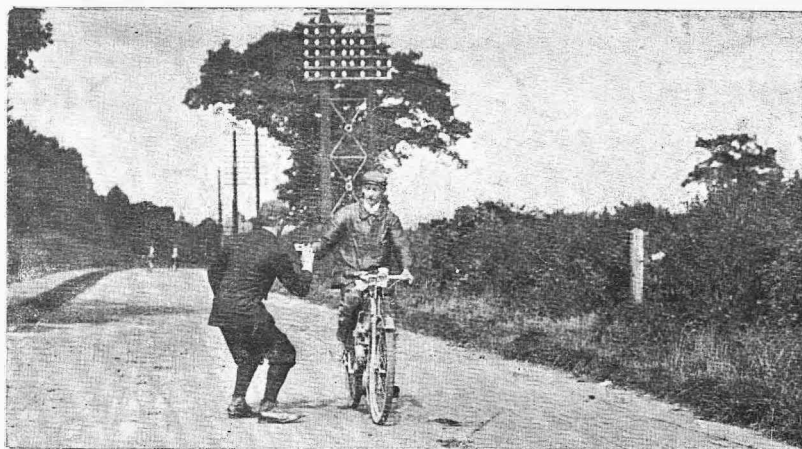
The above club held a 100 miles road trial on Sunday, August 23rd. The route was in the Chester district. Ten members competed, and the regulation speed was 15 miles per hour. Good weather conditions prevailed, and the riders had some difficulty in keeping the speed down to the limit allowed. Six riders got through with the full number of marks, and the others only experienced detail troubles easily remedied. The machines entered were an R. and P., three Humbers, a "Bat," Werner, Crosby, Royal Kiley, and two Minervas.

To Calculate the Velocity of a Motorcycle.

The method of calculating the velocity of a moving body by means of a measured distance and a stop watch produces—given a reliable watch and sufficient experience on the part of the operator—tolerably accurate results; with two operators the margin of error may be still further reduced. The obvious disadvantage of the method for everyday use is that it requires preliminary preparation, and may fail to yield useful results if the moving bodies (whose velocity it is desired to calculate) agree to move somewhere else. It will afford considerable satisfaction, therefore, to all who have a proper regard for science and law, to learn that a Welsh police sergeant has devised a method of calculating velocities which is free from the objection noticed above. The requirements are a road, two moving bodies (moving with equal or unequal velocities), and an observer. The discovery of this method was brought about in a very simple way; the observer happened to notice that a motorcycle which was proceeding in a given direction "simply shot past an electric car going in the same direction." The velocity of the car being ten miles an hour, it followed that the velocity of the motorcycle was fifteen miles an hour, the accuracy of the estimate being proved by a fine of forty shillings and costs. The student will observe that the question of the accuracy of the car's velocity may safely be neglected, since the question at issue is not the velocity of the car, but the velocity of the motorcycle.



Sigonnaud, who competed in the motorcycle match at the last meeting of the year, at Canning Town, on Saturday last.



Milligan, on Bradbury, giving up check to official in the 200 miles trial.

Lost!

One of our readers recently lost his motorcycle tool bag between Twickenham and Acton, W. If any reader has come across it we shall be glad to send him the name and address of the owner.

A Newcomer.

The "Spark" motor-bicycle, which is a machine not as yet well known, has a 2 h.p. engine with outside fly-wheel. The motor is vertical, and is held in position by three clamps from crank case to loop of frame. The drive is by V belt, and the driving rim is held by bent lugs, which allow a certain amount of spring. A surface carburettor is fitted and a special system of magneto ignition. Control is by levers on top tube. The right-hand one regulates supply to inlet valve and the left-hand lever lifts exhaust. The front brake lever when lifted cuts out the engine by short-circuiting the magneto. This machine will, we understand, shortly be made with specially designed B.S.A. fittings, gudgeon front forks, and two rim brakes.

An Irish Hill Climb.

The Motor Cycle Union of Ireland has not been very fortunate in its hill climbing trials. Their first effort in that direction this year was stopped by the police, and the competition on Saturday week, for which the County Council of Wicklow gave permission and under the Act of Parliament passed to permit the holding of the Gordon-Bennett race in Ireland, was spoiled by the weather. The hill selected was one of the steepest in the county of Wicklow, and its ascent could only be accomplished by the average motor-bicycle under favourable conditions and with a good deal of vigorous pedalling. The afternoon turned out very wet, so bad, indeed, that only a small proportion of the thirty-three entrants put in an appearance, and the road was so heavy that none of the men who tried were able to reach the top of the hill. Two of them succeeded in getting up before the competition started, but every one failed in the official trials. The main cause of the general failure was the fact that at the point of the hill where the ascent became steepest there was a sharp turn, and to take it at anything approaching speed was to court disaster. Most of the men switched off their current at the corner, and failed to get going again at any speed.

The Gordon-Bennett Cup Race.

According to the "Frankfurter General-Anzeiger," there is a likelihood of the race for the Gordon-Bennett Cup taking place in the Taunus district. The starting point will be (it is said) the Gothic Haus, and then the way will run via the Kanonenstrasse, Schnitten, Weilburg, Giesen, Usingen, and thence to the Salburg. This par is supplementary to the one appearing on page 81.

Another Win for the Motor Union.

On August the 21st at Gillingham (Dorset), Mr. H. F. W. Farquharson, of Eastbury Park, Blandford, was summoned for driving a motorcar to the common danger near Gillingham on July the 8th. The police swore that defendant was driving his car at a speed of 25 to 30 miles an hour, and that a number of children, playing in the roadway, had barely time to get out of the way. The defendant and his cousin, who accompanied him on the car, gave evidence, and stated that the speed was not above nine to twelve miles an hour, as the sharp bend in the road at Gillingham Railway Bridge would render it highly dangerous to drive at 30 miles an hour at the spot in question. Mr. Staplee Firth, who defended, having commented on certain discrepancies in the evidence for the prosecution, the case was dismissed.

A German Gordon-Bennett.

The great German painter, Professor Hubert von Herkomer, has placed at the disposal of the Bavarian Motor Club (Munich) a trophy worth £500 for international competition year by year, as in the case of the Gordon-Bennett Cup. Yet the trophy is not to go to the swift racing car, but to the most artistic, comfortable, reliable, economic and efficient—especially in hill climbing—touring car. Naturally, the speed of the car will be taken into account, yet speed will be not at all the weightiest factor in assisting the judges to come to a decision. The professor is a native of Bavaria.

The Progress of Locomotion and Intercommunication.

In an interesting little pocket volume,* clearly printed and illustrated with some forty cuts and plates, Mr. Beckles Willson has sketched the history of the various forms of locomotion and communication from the seventeenth century up to the present day. The author deals with all the various modes of getting about as well as with the science of inter-communication. The book may be divided roughly into five sections, dealing respectively with Steam, Electrical Locomotion (railways and trams), Navigation, Telegraphy and Telephony, Aeronautics and Cycling and Automobilm. At the present stage of the history of locomotion, when we appear to be on the eve of a revolution in road transit, as complete as that which the steam locomotive brought about, the book is especially interesting. The chapter on road locomotives give some useful information about motor vehicles and concludes with the sentence—"The motorcar is already largely influencing our social life. It has greatly extended the radius of action of everyone who has a car. . . . It will largely affect the suburban traffic of our railways, and improve the delivery of goods and parcels throughout the country. It has already begun to be used by the Post Office, and will soon be generally adopted. The roads of Europe promise to be as busy again, if not busier, than in the old posting days, and, as one writer remarks, 'instead of post horses, the cry will be for petrol.'"

*"The Story of Rapid Transit," by Beckles Willson. (Price 1s., Geo. Newnes, Ltd.)



One of the competitors arriving at St. Alban's, in the 200 miles trials.

The Motorcyclist's Case.

Considerable misapprehension exists in the minds of motorcyclists as to what was done in their interests in Parliament during the debate on the Bill. We have secured from the Hon. J. Scott-Montagu a plain statement of fact on the matter, and this will appear next week.

Southampton Motor Club.

Owing to the wet weather last Monday, the club's reliability trials were postponed till Thursday, Aug. 27th. Out of 13 entries, 11 members turned up. Mr. H. P. Byrne, of Lotton, on a 2½ h.p. Excelsior, secured the vase presented by Messrs. Humber, Ltd. Nine members went right through the run, but all lost marks at the first control (except Mr. Byrne)—they all exceeded the speed limit. The day opened fine but ended up with heavy rain.

Polished Spare Parts.

In the Reliability Trials Fred Chase carried a metal accumulator case containing spare nuts, bolts, washers, split pins, etc. Fortunately he did not require to use them. Owing to the wet weather he expected to find them a mass of rust at the conclusion of the trials; to his great surprise when the box was opened each article was so bright that it looked as if it had been burnished. The friction of a thousand miles' vibration had produced a polish that it would be difficult to equal by any other means.

A Dangerous Device.

Under the heading "A Praiseworthy Stratagem" a writer in the "Birmingham Gazette" confesses that he "has much sympathy with the driver of a four-horse coach on a narrow part of the Kenilworth Road near Berkswell the other day, who drew his vehicle right into the middle of the road when a hooting, screeching, teuf-teufing mechanism, driven by some brainless booby, came hurtling along at a good 35 miles an hour. The strategy on the part of the vehicle driver compelled the motorist to go past the coach dead slow. With a couple of high-spirited leaders in that coach it makes one shudder to think what might have been the result of a couple of frightened, plunging horses pulling a coach load of passengers into a deep ditch and overturning the lot." And it is with a driver who deliberately exposes his horses and passengers to this risk that the writer of the paragraph "has much sympathy." We consider that three individuals qualify for the title of brainless booby, the sympathetic journalist being



Barnes going full speed in the three miles match at Canning Town last Saturday.

perhaps the most brainless of the trio. If the motoring hooligan is to be suppressed it must be by the arm of the law or the voice of public opinion, but not by a resort of his own methods.

International Match.

M. FOURNIER'S TRIPLE VICTORY.

The only motorcycle contest at Canning Town on Saturday was what was described as an international three-cornered match between M. Fournier (Clement-Garrard), G. A. Barnes ("Bat"), and E. Sigonnaud. The first contest was a mile standing start, which was won easily by Fournier in 1 min. 17½ secs.; beating Barnes by thirty yards, with Sigonnaud third. Fournier's first lap was timed at 32½ secs.; and the two laps in 55½ secs. Barnes rode the mile in 1 min. 18½ secs.

In the second event, a three miles race with flying start, Fournier again scored by a hundred yards from Barnes. The former's time was 3 mins. 21½ secs. and Barnes' 3 mins. 27½ secs. Sigonnaud third.

Fournier secured his third victory in the five miles standing start event. Barnes retired at an early stage, as his tyre had already shown signs of wearing through. The two Frenchmen, however, made a good race of it, in which Fournier eventually won by thirty yards. His times were:

One mile1 min. 27½ secs.
Two miles2 mins. 53½ secs.
Three miles4 mins. 19½ secs.
Four miles5 mins. 44 secs.
Five miles7 mins. 10½ secs.

It is worthy of note that the British record stands at 5 mins. 39 secs. for the five miles, to the credit of Harry Martin.

The Law and the Motorist in America.

The American motorist does not appear, from all accounts, to receive much better treatment at the hands of the law than his British cousin. A measure known as the Bailey Law was recently passed which, amongst other not very clearly defined clauses, stipulated that every owner of an automobile should carry a State certificate, but that manufacturers and dealers should be exempt; and a sub-section provided that automobiles for which a certificate had to be procured should have the certificate number attached to them: considerable irritation and misunderstanding has been occasioned by the vagueness of the measure and by the arbitrary manner in which the police have sought to uphold it; and now the whole question has had its legs knocked from under it, so to speak, by the action of the New York court of Special Sessions, which, when considering a recent case, decided that the Act was unconstitutional, and declined to proceed with the prosecution of the defendant. This decision has placed the motorist in a rather less enviable position than before; for whereas he did to some slight extent know where he was under the Bailey Law, he is now at the mercy of any old unrepented ordinance which the New York police choose to employ against him. Some of the American magistrates, however, evince a view of common-sense and refuse to take advantage of the motorist's legally defenceless position. "Why," said an indignant justice the other day to a policeman, "did you not prefer your charge under the existing law?" "I don't know anything about it," replied the policeman, "the arraignment was made under instructions." "Arraignments," retorted the magistrate, "should be made under existing laws, instructions or no instructions." The question of identification seems to be as burning a one on the other side of the herring pond as here, to judge from a paragraph in the "New York World," which runs: "The decision of the special sessions court declaring the registration feature of the Bailey Automobile Law unconstitutional, on the ground that it discriminates unfairly against private owners and in favour of manufacturers and dealers, does not invalidate the most important part of the law, which is that regulating speed. It is necessary, however, to have some means of identification, since it is not desirable to halt a scorcher by throwing a brick at him, and it will be the duty of the legislature to provide a method to satisfy the Courts."



Fournier, who won all three races at Canning Town on Saturday last, going at high speed.

An Advert. Correction.

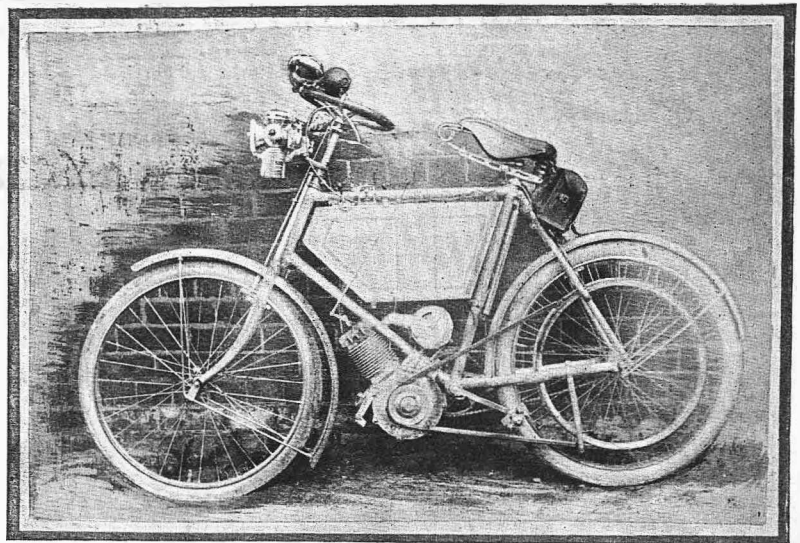
In Messrs. Bradbury's advertisement in this issue it is stated that the 2 h.p. machine can be delivered in 14 days from receipt of order. This should read "within one week." The correction could not be made in time in the advertisement.

The "Micrometer" Free-wheel.

A specially strong, accurate and easy running free-wheel for motorcycles has been introduced by the Micrometer Engineering Company, Lower Ford Street, Coventry. We have one before us as we write, and can fully endorse these claims. There is an absence of springs, and hence the pawls cannot get fixed with mud, or give a free-wheel both ways. Springs are always liable to break. The chain ring of the "Micrometer" runs on ball bearings, and appears to us capable of standing the greatest strain it could be subjected to by any motorcycle.

The Bicycle Car.

In our issue of August 9th last there appeared an illustration of what Percy Kemp describes as a bicycle car. It was a fancy idea of what we might see in the near future, but like many similar seemingly amusing skits of our artists, it was soon to bear fruit. On this page appears a reproduction of a photograph taken by a member of "THE MOTOR" staff at Skegness. The machine is the property of Mr. B. S. Gilbert, of Billingham, near Lincoln. This gentleman appears to have great faith in his wheel steering, and judging by the way he slipped through traffic he evidently suffers no inconvenience by this method. On the Saturday previous to the Lincolnshire Automobile Club meet at Skegness, Mr. Gilbert, who is a very enthusiastic motorist, won the club hill climb on the machine illustrated. The motor is controlled entirely from the wheel.



Motor-Bicycle fitted with wheel steering, described on this page.

A Hundred Miles an Hour?

Barney Oldfield, the Yankee motorcar racer, is about to run a series of trials on the Winton eight-cylindrical Gordon-Bennett racer which should settle the vexed question as to whether this car showed its true form in Ireland last July. Oldfield will ride at Louisville, Kokomo, and Cleveland, and will go for all existing records from 1 to 50 miles. He thinks that if the claims of the Winton Company are not over-confident he will succeed in doing one mile in 50 secs., on an oval track, and in 35 secs. on a straight track, this latter representing a velocity of over 102 miles an hour. The difficulty will be to find a straight mile of sufficiently good surface.

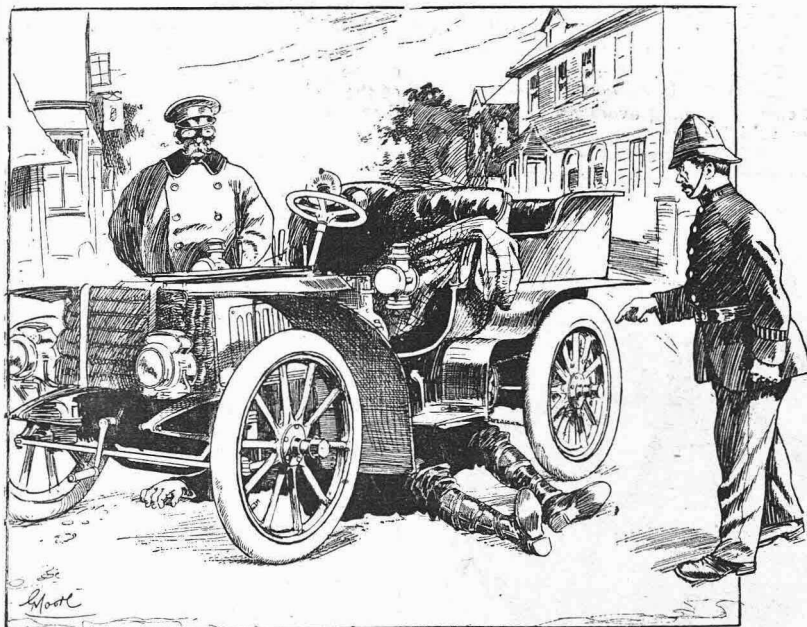
Good Second-hand Motorcycles.

At this season of the year second-hand machines can be picked up cheaply. Any one on the look out for a bargain could not do better than inspect the stock at 10A, Featherstone Buildings, High Holborn, the motor depot of the Civil Service Motor and Cycle Agency. Many makes and powers are represented, the machines having been taken in part payment for new ones. The prices are very reasonable, and the buyer is protected by the knowledge that he is dealing with an old established and reliable firm, which will take back on equitable terms any machine not approved of. The stock is kept in good order and is displayed in such a way that it can be thoroughly inspected with the least possible trouble.

The New Act.

The Motor Cars Act has now been published, and is on sale by the King's printers, and there are so many new points in it that it will pay anyone to get a copy. It can be obtained from Messrs. Eyre and Spottiswoode, New Street Square, or, by sending two penny stamps to the secretary of the Motor Union, 16, Down Street, Piccadilly, W., a copy will be despatched post free. A new provision enables a county or other council to grant registration to a manufacturer or dealer at an annual fee not exceeding three pounds, issuing to him a general identification mark which may be used for any car on trial after completion, or on trial by an intending purchaser. This will get over a difficulty and permit unregistered cars to be on the road before they have found a purchaser. According to our reading of sub-section 2 of section 2, trailers will have to be registered and provided with a registered number. In the clause dealing with the age limit it is laid down that a license for driving a car shall not be granted to a person under seventeen years of age, but a license limited to driving motorcycles may be granted to a person over fourteen years of age. A special clause has been inserted prohibiting the passage of a car over Menai Bridge except in accordance with regulations to be made by the Commissioners of Works. The Act should be studied by motorists.

D11



NEARLY A CASE!

Village Policeman: "Name and address, please?"

Motorist: "What for?"

V.P.: "Exceedin' the legal limit, and killing a man. He's run over, ain't he?"

Motorist: "No. He's only tightening up a nut."

Motor Accidents.

The numerous accidents caused by motors have occasioned the Prussian Government to order a return to be made of motor accidents. All accidents having resulted in death or bodily injury or damage to property, as well as all collisions between motors and street cars and other vehicles are to be registered. The enquiry is to cover the period between January 1st, 1901, and September 1st, 1903.

Opening up Cornwall.

A fine stretch of Cornish moorland—that between Helston and the Lizard—abounding in archaeological treasures, and running by many picturesque coves and weird caves, has now been rendered more accessible to the tourist by a service of motor-cars. Helston, a terminus of one of the Great Western branches, is some dozen miles from the Lizard, and the two places have hitherto been connected by an indifferent and spasmodic service of buses and char-a-bancs. The cars, which are 16 h.p. Milnes Daimlers, take about an hour to do the journey, and have wet weather awning attachments.

In Favour of the Tricycle.

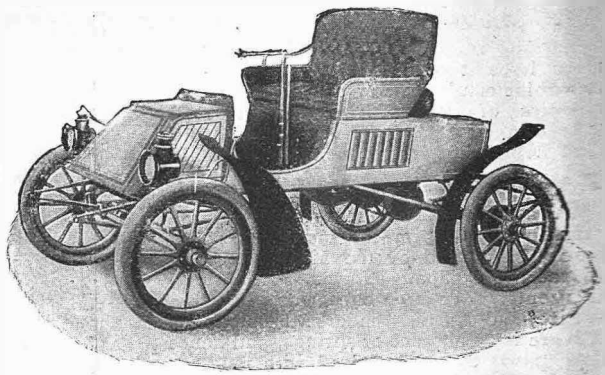
C. A. Smith writes:—"Tricycle users have doubtless noted with interest Mr. Ernest H. Arnold's admission in his letter on 'Advantages of the Trailer,' etc., and they will be glad to note that this gentleman has found the three-wheeler 'less fatiguing than the motor-bicycle.' In your excellent account of the A. C. cycle trials the following passage is important:—It pours down in torrents, and side-slips occur, or—what is really worse—are feared all the day." Riders of tricycles do not fear side-slips, as I have before pointed out in your columns; neither do they have to spend a lot of time messing about with a beastly, dirty belt, or a nasty rattling chain! Before, when I have recommended a three-wheeler, it has not always been received with approval by some of your correspondents. On all sides, recently, I have heard riders talking about the advantages of the three-wheeler. Side-slips—or the fear of them—are dangerous to the rider and disastrous to such an expensive and brittle machine as a motor-bicycle."

Military Motor-cycling Course in Austria.

Into the technical curriculum of the Austrian Army an innovation has been introduced in the form of a course of instruction in motorcycling. The new course owes its origin to the activity of the motorcyclists' section of the Austrian Touring Club, some of whose members took part in the recent balloon chase in the vicinity of Vienna, which were illustrated in "THE MOTOR." In recognition of the services of the club in connection with those balloon-versus-motorcycle experiments, the Archduke Leopold Salvator has presented it with a bronze casket on which a balloon in the act of descending is artistically represented. Naturally, the club sent a deputation to thank the Archduke, and during the audience he stated that the founding of the motorcycle course had been motivated by the experiences gained in the experiments.

Latest type "Rambler" Light Car.

On this page we illustrate the new pattern Rambler car, and it will be noticed that not only is this new model larger and stronger than the type which did so well in the Oxford non-stop run last year, but the body has been improved in design, and is now finished in red, which looks exceedingly well. A good point is that the entire mechanical parts are cased in from underneath with sheet steel, thus making it impossible for dust or wet to get in. It has seating capacity for four with back seat detachable. Power of engine has been increased so as to develop 7½ h.p., and is fitted with mechanically operated inlet valves, pressure lubricator, throttle control, high speed trembler coil, governed ignition, and automatic carburettor. Choice of tyres can be made by purchaser. There is a direct drive on top speed. It is claimed by the makers that cost of running averages 4d. per mile. These vehicles are well finished and will climb all hills. These cars are imported, body and chassis separately, assembled and



Latest type "Rambler" Light Car.

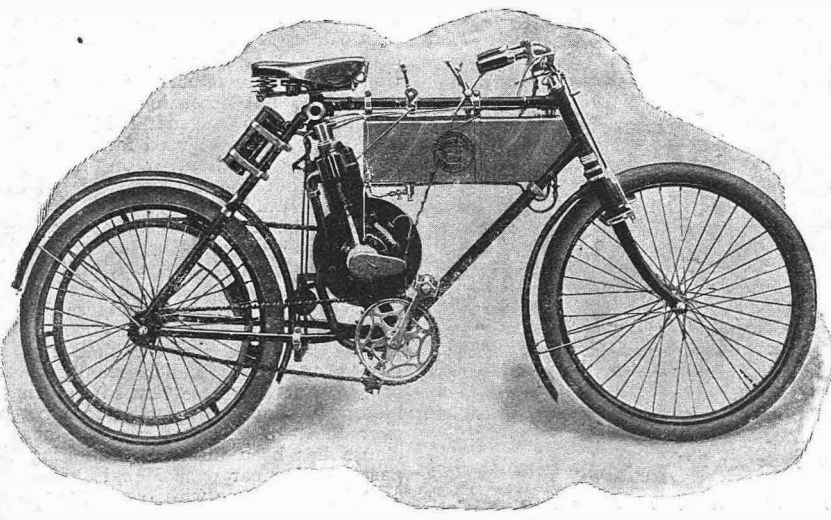
tested at Carteret Street, London, W. No car is allowed to leave the premises until thoroughly tested on road and hills. Price now, from 175 guineas, and delivery made in three days.

The Lamaudiere Motor-Bicycle.

On this page we illustrate the Lamaudiere motor-bicycle. The See Motor Car Supply Company, 9, Hills Place, Oxford Street, has the sole agency for England and Colonies. The engine develops on actual brake test over 24 h.p., and really forms part of the frame, taking the place of the down tube. Inserted brazed-on lugs are used where the motor is attached. A chromated raw hide twisted belt transmits the power. A jockey pulley, adjustable by lever from the top tube, enables the rider to free the engine at will, by slackening the belt so that it loses frictional contact with the engine pulley. This is particularly useful in traffic, as the bicycle can be brought to a standstill, the rider remount and dismount with the engine running all the time.

The Bad Old Days.

We often hear people talk glibly of the "good old days" to the disparagement of the present, but how little they know of the worst side of the old times of which they speak. In "M.A.P." Dr. Furnival, in an interesting auto-biography, writes: "The average life of a fast coach horse in the thirties was eleven months after it had been put on the road; twelve miles an hour, including stoppages, and in all weathers, was killing work. Old Ann Nelson is credibly reputed to have said to a driver of one of her coaches who was ten minutes late one very hot summer day, in his journey from Exeter, and excused himself by referring to the great heat: 'Never you mind that, Mr. Thompson. I find horseflesh, you find whip. If you don't keep your time, you'll go.' A striking commentary on the spirit of 'the good old days' I can still see the twelve horses of our three long-distance mail coaches standing in the yard with their bleeding knees; they all came down on a frozen bit of Egham Hill." If those people who are prejudiced against motors will pause for a moment to consider how much needless suffering is still caused to horses—a 'bus horse only lives about three years!—they might be induced to relax a little of their ill-feeling against a method of locomotion which involves no suffering to any creature. One has but to watch the suffering animals in the traffic of London to see the force of this argument.



The Lamaudiere Motor-Bicycle.



G. LIPSCOMB.

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.

Flat versus V. Belts.

Sir,—Since taking up motorcycling the slipping of my flat belt has been a continual source of annoyance, by reason of its habit of slipping when spark was advanced to increase speed. I have tried leather of various thicknesses, but found it not so good as a Dick Ballata belt, four ply; this also slipped until I tried two belts one on top of other (loose), which worked splendidly, and altogether cures the trouble. —Yours faithfully,

MAC.

Glasgow.

Sudden Motor Stoppage.

Sir,—In a recent issue of "THE MOTOR" I see a letter from "Pax" complaining about the sudden stoppage of his engine; I can quite agree with him as to the awkwardness of this, as it happened to myself several times when riding an old type Werner fitted with magneto ignition. Fortunately the belt was slipping badly at the time, or I might have had a rather bad fall. When the stop occurred I at once lifted the exhaust valve, which allowed the engine to revolve (showing that the piston had not seized), and on closing it again the engine started up all right. This occurred about half-a-dozen times in a two miles run. Before starting next day I cleaned the plug, which I found very sooty; this appeared to effect a cure, as I was not troubled with this kind of stop again. It seems to me, therefore, that this trouble is caused by a backfire owing to premature ignition of the charge by (in my case) a piece of red-hot carbon; and, perhaps, in the case of "Pax," red-hot plug points. Hoping this may be of use to some of your readers.—Yours faithfully,

A SUBSCRIBER.

Bangor.

Various Points.

Sir,—1. Cecil Hopwood will find that thin oil and Fuller's earth will prevent his clutch seizing. 2. "Goldman" cannot be serious when he says the compression forces the points of firing plug together, as pressure is equal in all directions. The general cause of missing in the case of high compression is that the current is not strong enough to jump the gap. 3. H. Hewitt Griffin will find it 4 to 1 against a mile coming out at even seconds, and not 5 to 1.—Yours faithfully,

D. TURNER BEDLING.

Tyres, Belt Hooks, etc.

Sir,—I notice that Mr. May, writing in O.P.V., has been in trouble with Dunlop tyres. I have had just the same trouble, and I fail to see how it can be due to creeping, as my covers have two holding down bolts in each. The Dunlop people changed one tube for me, and admitted that it was a bad one, and the new tube, which they themselves fitted, burst exactly the same the day after it was put in. Now about twice a week one or other goes, whether the machine is in use or not, and out of about 25 holes in the two tubes only two are caused by punctures. The cover of the back tyre is worn quite smooth, and in one or two places is nearly through to the canvas, although the tyres have not run a thousand miles. I have discarded them and adopted another make. I have seen several enquiries in the columns of "THE MOTOR" for a reliable belt hook. I have found the "Coventry" flexible belt hook to be very satisfactory as well as simple, and it can be put in with no other tool than a fair sized stone, which does away with the hammer or heavy spanner and belt punch which is almost necessary to fix an ordinary hook. I am speaking of the V shaped belt, not having had any experience with any of the others. I think if one or two fellow motorists who complain of misfiring with spark advanced would adjust the platinum tipped screw a little closer to the trembler they would be all right, as I have found that although it may give perfect contact with spark retarded it may not when the lever is moved over—this with the positive make and break system. I was very pleased with the Gordon-Bennett issue; one could almost imagine they were seeing the race instead of only reading about it. I think "THE MOTOR" contains more genuine advice than any other paper dealing with either cars or cycles.—Yours faithfully,

"AFRIC."

(We thank our correspondent for his kind remarks and good opinion. "O.P.V." is one of the most popular features of the journal.—Ed.)

Exhausting Pedalling.

Sir,—I feel I must reply to the letter by a "Doctor of Medicine" in a recent issue of "THE MOTOR" as to the effects of pedalling a heavy motor by a man with a weak heart. Now, as a sufferer in this respect, I shun a machine with pedals altogether, finding the exertion too great. I purchased a "Bat" machine, without pedals, after riding this machine upwards of three thousand miles with the greatest success; but owing to the vibration on this machine, which was fitted with a spring seat pillar, I sold it to a friend. I then went in for a "Bat" spring frame, with 2½ engine. Now this is a machine "Doctor of Medicine" should try, also anyone who may be troubled with weak nerves. Why be troubled with pedals at all? My machine never fails to start, and goes off at once on being pushed. It will take any hill round here.—Yours faithfully,

CHAS. WALLIS.

Belt Driving Suggestion Criticised.

Sir,—The arrangement for belt driving suggested, in your August 12th issue, by your correspondent, "Small Car," is impossible in every way. Here are the reasons put briefly:—(a) He allows no free engine position for starting or stopping the car; (b) on his "direct drive" position the rear axle would rotate at the same speed as his driving pulley, which, being directly coupled to the engine shaft, would turn at a speed of at least 1,500 r.p.m. A rough calculation based on a driving wheel diameter of 28 inches proves that this would drive a car at a speed of no less than 125 m.p.h.! It would be impossible then to drive direct without (1) considerably decreasing the diameter of the motor troubles; or this would give rise to belt troubles; (2) increasing the diameter of rear pulley, and as the diameter would have to be increased four or five times, the belt would be taken too near the road on the under side, and would fall foul of the body on the upper reach. This system was tried some four years ago in Paris without success; the driving pulley proved too small, and the belt speed (in consequence) too low to give an efficient drive without slipping. The belt driven car must have large pulleys designed to rotate at a fair speed; the engine should, therefore, drive direct to a counter shaft, and the reducing gear must be placed between the latter and the rear axle. Some such arrangement as suggested by your correspondent in "THE MOTOR" in an early June issue is more practical.—Yours faithfully,

STEPHEN A. MARPLE.

D15

Where Licenses can be Procured.

Sir,—Licenses for motorcycles and trailers can be obtained at any money order office in Great Britain. Each license costs 15s., and is similar to that obtained for the use of a two-wheeled carriage. It is possible that a person going to a sub-office and asking for a license for a motorcycle or trailer would be told that no such licenses were kept at that particular office, but if that person asks for a license for a two-wheeled carriage, the necessary license would be granted after the proper declaration form had been filled up.—Yours faithfully,

JAS. P. GREENING.

Grantham

Condenser Connections.

Sir,—The theory of condensers seems to be so little understood, not only by the ordinary motorist, but also by many motor makers, that perhaps a short account of their use and action may be acceptable. Diagram 1 shows the connections for a medical coil, with the condenser in the usual place—that is, connected to each side of the trembler. The action is as follows, put in non-technical terms:—A current of electricity travelling in a coil has a great objection to being suddenly stopped, consequently if the circuit is broken without a condenser the current leaps across the air gap and causes a spark. If, however, a condenser is connected, the electricity, instead of leaping across the air gap produced by the trembler, "accumulates," or flows, into the condenser, and so reduces the sparking at the contacts. This accumulation is only momentary, and then the accumulated electricity causes a momentary reverse current, which discharges when the contacts come together. But a point which is very often, if not invariably, overlooked is, that though the diagram is correct for a simple coil, the position of condenser is not correct for a motor coil with separate trembler or wipe contact. Diagram 2 (which is the arrangement of a "Nil Melior" trembler coil and trembler make and break on motor) shows that whilst the condenser protects the trembler points on the coil, it does not protect the trembler points on the motor, for a condenser, to be of service, must be connected between the ends of the primary and the points where sparking may occur, so that electricity may "accumulate" instead of sparking across. The simplest way to arrange this is to connect the condenser

right across the ends of the primary, vide Diagram 3. This, I believe, is never done, though manifestly it should always be done. The necessity of this is shown by the fact that whereas the coil trembler makes and breaks probably five or six times as often as the motor trembler, yet it is the latter which first gets its points blackened and the platinum worn away. For this reason I have often suspected my coil was connected as Diagram 2, and on opening same find that such has been the case. I have re-connected as Diagram 3, which appears to be undoubtedly the best way, as in this case the condenser protects both places where sparking may occur. As I have not run very far since the alteration was made I cannot give my experiences, but I hope to do so later on.—Yours faithfully,

J. B. BENT.

Spark Gaps.

Sir,—A good spark gap should be fitted to every motor, as it not only intensifies the current, thereby giving a better spark, but, as is well known, prevents any misfires taking place, caused by excessive lubrication on a sooty sparking plug. The number of spark-gaps on the market is legion, but very few are perfect. Many are of poor construction, and go to pieces with a little use; others have not the spark enclosed in a glass tube, which is bad. Some are heavy and clumsy; others are altogether too minute. I have seen some in which the adjustment of the points had been arranged by the makers according to their fancy, the adjustment being a fixture. This would hardly suit anyone but a novice. The worst fault I have found with some spark-gaps is that the adjusting screw has to serve the double purpose of being part of the gap and adjusted for that, and at the same time holding tight the end of high tension wire. There should always be a separate terminal for the end of the high tension wire, where the latter can be properly fixed without disturbing the adjustment of the points in the gap. Otherwise, instead of being able to adjust the points in the hand, one has to do so on the plug, and one is never able to remove the spark-gap intact for the purpose of examination, but it has to come to pieces, and the last adjustment to be disturbed, if one wishes to remove it. The only way is to examine it in its position on the plug, and this is often neither easy nor convenient. The ideal spark-gap should be (1) strongly made; (2) have spark enclosed in glass

tube; (3) be capable of adjustment of the gap; and (4) not require high tension wire to be connected direct to the adjusting screw, but have a separate terminal for this. I have bought numerous spark-gaps, and had to throw most of them away, but a very good example of the perfect spark-gap, embodying the four points set out above, is that made by Messrs. Peto and Radford, which I now use.—Yours faithfully,

LEOPOLD CANNING.

How to Prevent the Creeping of Tyres.

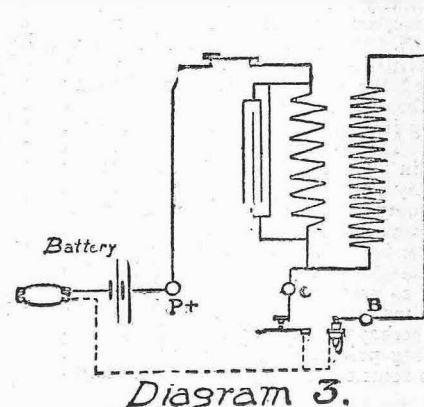
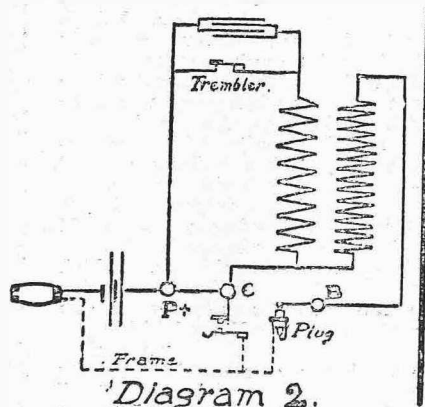
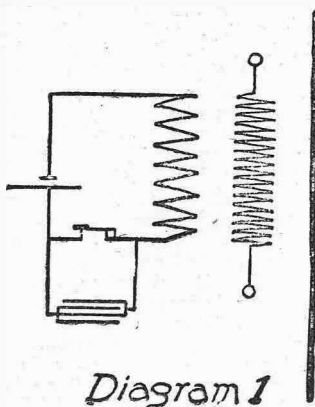
Sir,—Your correspondent, "A Constant Reader," has had exactly the same experience of what befell me on a motor-bike. The tube in the back tyre burst close to the valve seating, though it had been correctly placed, and had not run fifty miles. The trouble was remedied most successfully by having the rim pierced for a bolt at two spots equidistant from the valve hole, the bolts having a canvas covered clip in the inside to hold the tyre cover tight, and having butterfly nuts on the outside to screw firmly up to the rim. These things are exactly the same in miniature as what are to be found on the wheels of most motorcars.—Yours faithfully,

LEOPOLD CANNING.

The Handicapping of Motor-Bicycles in Races.

Sir,—A short time ago I ventured to criticise the method adopted for handicapping motorcycles. I put forward a suggestion that so much allowance should be made for the weight of the rider. I am pleased to see in a letter signed by Mr. H. A. Collier, that there are other experienced motorcyclists realising the unfairness of the present system. I feel sure that much of the success of Messrs. Chase, Crundall, Barnes and Martin is due in a great measure to their light weight, as men of 12 and 13 stone weight have no earthly chance with the same powered engines against these riders. I want to emphasise this fact in your columns, with a hope that the controlling body will see its way to making part of the handicapping system provide a definite allowance beyond a certain weight (say 7 stone) for every 5lbs. in excess of this amount. I know for a fact that men have realised the hopelessness of competing against these light weights, and have given up all idea of racing until some fairer method of handicapping is in existence.—Yours faithfully,

A. RIVETT.



Illustrating letter from J. B. Bent.

Police Traps.

In reply to correspondents, we shall be glad to publish particulars of police traps week by week, and to give as much room as is possible to the matter.—ED.]

At Sandwich, Kent.

"Sandwichite" tells us that there is a trap in the Old Cinque Port.

On the Maidstone Road.

Sir,—There are two policemen stationed between Kingsdown and Wrotham on the main road from London to Maidstone.—Yours faithfully,

"SPARK."

At Sidcup.

Sir,—There is a police trap in the High Street of Sidcup, Kent, on the main London road.—Yours faithfully,

B.H.P.

Near Warwick.

There is a trap about a mile out of Warwick, on the Stratford road, just before the Longbridge turn, the length of the trap being a quarter of a mile.

Some Yorkshire Traps

F.J., of Manchester, tells us of traps between Hull and Dunsell at the third drawbridge from Hull, also between York and Tadcaster, and at Dringhouses, and at Askham Bryan.

At Buckden.

Sir,—There is a police trap near Buckden in Huntingdonshire. There are several just round the village on the North Road, and some fines have already been collected by the St. Neots bench.—Yours faithfully,

F.E.F.

On the Bath Road.

Sir,—There is a trap between Salt-hill (Slough) and the Two-mile Brook public house, towards Maidenhead, on the main Bath Road. I was warned by some kindly cyclists, and in turn warned five or six other motorists.—Yours faithfully,

"CYCLOMETER."

At Barnet.

Sir,—Your readers will be interested to learn that stop watches have been dealt out to the Barnet police, so that great care would seem to be necessary in the neighbourhood of Barnet.—Yours faithfully,

THE WILKINSON MOTOR
ENGINEERING CO.

Kilburn.

At Welwyn.

Sir,—I believe I ran, on Sunday, into a police trap on the Great North Road at Welwyn, extending a quarter of a mile north from the church. As it happened I stopped when nearly through the trap and turned back, my suspicion being afterwards confirmed locally.—Yours faithfully,

G.F.S.

Near Stilton.

Sir,—When riding on my motorcycle last Friday, I came upon two policemen with a tape measure, measuring the road, about a quarter of a mile on the south side of Water Newton on the Great North Road (this is a little village 82 miles from town). Later on in the day I met the same two policemen on the watch just outside Stilton, and had I not been quick in spotting them, they might have had me. Readers should note these traps, as from what I heard at Stamford, they show no mercy.—Yours faithfully,

"EYE-OPEN."

A Ride to Scotland.

Sir, As motor-bicycles are every day becoming a more popular mode of conveyance, I daresay the following account of a ride to Scotland may prove of some interest. First to describe my mount. It was a 2½ h.p. Clyde, manufactured by the Clyde Cycle Company, of Leicester. It was fitted with a Simms engine and magneto ignition. I left Market Harborough on August 5th, intending to ride as far as possible, compatible with comfort. Leaving the above place by 8 a.m., I had reached Doncaster by one o'clock, travelling via Leicester, Melton, Grantham and Newark. The roads were in fine order, and I had a most successful run, non-stop save for encountering a quarter of a mile of tram lines in Leicester, which were being newly laid. The entire road being up, I was forced to walk past them, and they delayed me for fully fifteen minutes. I lunched at Doncaster, and refilled with petrol, and proceeded gaily to Darlington; the total distance for the day's journey coming out at 179 miles. I had only one compulsory stoppage, dismounting to re-adjust the valve of my back tyre. Taking into consideration that there was a very strong head wind blowing all the afternoon, I was highly delighted with my mount. The following day I rode absolutely without a stop of any kind to Dunbar—125 miles—where I put up at the Belle Vue Hotel—a most charming hostelry on the sea coast. The next day Perth was reached via Edinburgh and Queensferry. During this journey a pin in my pinion wheel carried away, and delayed me for an hour and a half at Kinross, where, with the aid of a friendly ironmonger, I was enabled to file a new steel pin to the required size and start afresh. After a day's rest I mounted again and rode my trusty mechanical steed to Inverness—114 miles without check or hindrance, returning to Struan on the following day—79 miles without accident or mishap. The above speaks well for the reliability of the Clyde bicycles, and the magneto certainly does away with any anxiety respecting accumulators and the nuisance of cracked and sooty sparking plugs. I averaged 22 miles per hour, up hill and down dale, never having to dismount at any hill, and rarely having to pedal even at the steepest. The only point that required any attention was my Lincona belt. At the end of each day I washed this with plain water, and dressed it afterwards with Lincona belt dressing, sold by the company for the purpose. Petrol, castor oil, or any other oil I have found from experience to be fatal to the life of this particular make of belt. Thanks to the above simple system of dressing, my belt is as good as on the day I started. I consider that my trip shows the 2½ h.p. Clyde to be a reliable touring machine, one which, with ordinary care, can be ridden anywhere and any distance. I have been trying the magneto machine from a view to taking one out to India, where the difficulty of charging accumulators is very considerable, the distances between the charging stations being well nigh prohibitive. I feel sure that anyone similarly situated would appreciate the magneto ignition.—Yours faithfully,

L. E. KENNARD, Captain,
15th, The King's Hussars.

The Wants Supplied.

Sir,—In an interesting article in a recent issue Mr. Leonard Bell says: "Handlebar control is a splendid thing, and if a few brains were set to work on this important point the motorcycling community will be benefited thereby," and again, "A new petrol gauge with a protected glass sight is the desired object." I would like to point out that I have already exercised what serve me for a few brains on the first point, and have designed a machine controlled entirely by the two twisting grips, and also that my patented petrol gauge, in which the glass is well protected by being let into the side of the tank, and is further fitted with a stop valve in case of breakage, meets his second desideratum. I am supplying these fittings to the trade.—Yours faithfully,

A. C. DAVISON.

Camden Road.

A New Cooling Device.

Sir,—I have a provisional patent, No. 5,914, 14 March, 1903, re the most effective method of cooling air-cooled motors, etc. It is known that a multiplicity of points affords the most rapid radiations of heat from surfaces, and this is the principle of my method instead of the usual cast flange radiators. I electrically weld or cast on lengths of wire on to the plain cylinders, giving it the appearance of a hairdresser's revolving brush, with the wires not so closely arranged; there is no difficulty with the welding or moulding; and there is little limit to the speed of the welding operation; in fact, for a standard motor the gig could effect the welding entirely in a few seconds. The method can be applied to cooling water jacket and to cool more rapidly the present honeycomb radiators and be made much cheaper.—Yours faithfully,

M. R. D. ROBERTS

Nottingham.

A Loss of Power Explained.

Sir,—Your correspondent, T. Gosnall (Windsor), would possibly be interested in my experience. I took my engine to pieces, for which I was soon sorry, as it meant many experiments before I was satisfied that I had set the timing again correctly. But the compression was poor, and in the hot weather it overheated up hills and stopped until cooled again. At last one day I put some lubricating oil round the spark plug, where it joins the engine, and turning the pulley wheel round by hand a movement of the oil, when compression was on, showed me where the leakage was. I had removed the spark plug so many times when experimenting with the engine that I had squeezed the washer hard. A new spark plug washer settled the question, and the engine now runs as sweet and economically as ever. As to the lubricating, I have ridden my 1½ h.p. Minerva over 3,000 miles, and never let the used oil run out. I inject a third of a pumpful about every fifteen miles. The amount of oil flung from the pulley wheel on to the front mudguard flap, and that which drips from the engine, when I have finished riding, shows that there is plenty inside, and if I have any suspicion that the cylinder is getting dry I open the exhaust valve while running, and judge from the working of the dead engine. One night, soon after I had the motor, I let the used oil run out, and next night went for a ride

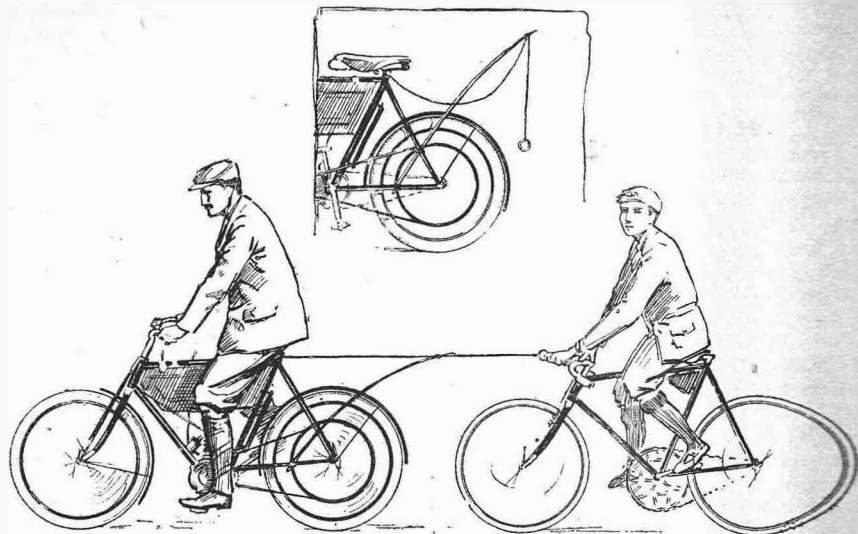
without putting more in, and in less than three miles the piston stuck, and was only persuaded to go again by the use of petrol and much hard work. But there is no mistaking the symptoms. One begins to imagine he is going uphill, but no amount of extra gas or adjustment of the spark will improve the pace.—Yours faithfully, Leytonstone. E. J. MEARS.

A Sudden Stoppage Explained.

Sir,—With reference to the letter from "Pax," of Cuckfield, I think he will find that it is the same trouble as I had myself, viz., the platinum screw with which the trembler makes contact was adjusted too close to the trembler, so that the vibration of the motor formed a contact as the piston was ascending on the compression stroke, and the spark exploded the mixture too early, thereby forcing the piston back, which accounted for the sudden stoppage. On adjusting the screw, the engine worked quite right. Hoping this information may be useful to "Pax" and other readers of your valuable paper.—Yours faithfully, "SUDDEN STOPPAGE."

Good Results from One Cell.

Sir,—Having seen several letters lately in "THE MOTOR" regarding the possibility of running a motor on two volts, I thought the following might prove interesting: I ride a machine fitted with a 1902 1½ h.p. Minerva engine, and I have experienced great trouble through the platinum contacts wearing out and causing misfiring, in fact, it was my greatest trouble. I could never run fifty miles without filing up the contacts, and a trembler (genuine Minerva) would only last about 150 miles. It was always the trembler's platinum that burnt away, the contact screw burning but slightly. After using up the platinum from three tremblers, I set about curing the defect in earnest. Starting on the coil, a "Nil Melior" enclosed in a square wooden case I opened it out and melted the insulating compound with which the box is filled, but could find no condenser. Thinking this was the cause, I made a condenser, building it up leaf by leaf, but with no improvement in the sparking. I saw in "THE MOTOR" your advice to a correspondent to insert a resistance in the circuit, and the thought struck me whether I was passing too much current through the coil. I at once tried this, by connecting up one cell of the battery only, and my platinum has not burnt up since. The battery is an ordinary 20 ampere-hour Eclair, each cell of which, when newly charged, gives 2.3 volts. The sparking plug is a very cheap one, costing only 1s. 3d., and is the only one I have used since last autumn. The points are adjusted to the thickness of a visiting card, and I find that with one cell at 2 volts the spark will jump the gap on full compression, and still be hot enough to ignite a weak mixture. I am never troubled with misfiring now, and judging from the state of the trembler I am now using, I think one trembler will last about as long as the engine does, unless the blade happens to break. I rode down from Bristol to Paignton during my holidays, using one cell of the battery only, which had not been charged for more than a month previously, and I had no trouble whatever on the way. While at Paignton, I made several excursions on Dartmoor, in one of which I kept company with friends, who



Illustrating letter from H. Salsbury.

went by coach, going to Haytor Rock, Buckland Beacon, Holne Chase, etc., and though the hills proved rather trying, I experienced no trouble throughout. I am still running on one cell, with the same satisfactory result. I have made a permanent connection to the bridge of the battery, which, of course, is positive to one cell, and negative to the other, so that I run on one cell, and can always have the other as a reserve. I trust this may be of assistance to others troubled with the same defect, and would strongly recommend them to give the method a trial.—Yours faithfully, Bristol. A. EDWARD BRYANT.

[Let us add that we recommend our readers to leave their coils alone. Our correspondent courted disaster with his.—ED.]

A Towing Device.

Sir,—The accompanying illustrations may interest motorcyclists as showing a simple and safe contrivance for towing. I rigged this up on a run with a friend from Surbiton to Clapham and, needless to say, it was successful. It consisted of a piece of thin cane, 4 ft. long, lashed to the top and bottom stays at the part cranked out to take driving pulley wheel. One end of a 6 ft. tow line (Venetian blind cord) was made fast to seat pillar, and about 3 ft. from this was fastened to within 3 inches of end of cane by what is known as a clove hitch, so that when taut the pull was direct from seat pillar and leaving about 2 ft. of cord to hang free with a curtain ring 1½ inch to 2 inch in diameter fixed to the end. When the towee casts off, the line is drawn up free of wheel by the springing of the cane, and it can be easily caught again while the motorcycle is running, and the motorcyclist can dismount in the usual manner, the cane bending and allowing either leg to pass it.—Yours faithfully,

HY. SALSURY.

Blackfriars, S.E.

THE MOTOR MANUAL.
Fifth Edition.
NOW ON SALE EVERYWHERE 1-

Accumulator Capacity.

Sir,—We have lately been testing one of our 20 amp.-hour accumulators, which was expected would run on a motorcycle about 800 miles. The result is a rather unlooked-for one. The test was as follows:—Accumulator 4 volts 20 amp.-hour. After being charged, this was connected to a stationary gas engine, fitted with electric ignition, using a trembler coil and wipe contact; engine running at a speed of 400 revolutions per minute; the number of hours engine is working daily being 12 to 15. Total number of hours run before accumulator dropped to 3 volts was 153 hours. If this is worked into number of miles at twelve per hour, the mileage comes out at 1,836. The period accumulator was working for fourteen days. It is generally understood that the slower the speed the quicker the accumulator will run out, also that a trembler coil consumes more current than a non-trembler. Why do we get this very long run with one charge? Either the mileage of accumulator stated is wrong, or else our coils take a very small amount of current. We have always been of the opinion that accumulators should run longer than they do on motorcycles and cars; therefore, there must be some reason for such very short runs being made, as is frequently stated by readers. One very good way of running an accumulator down quickly is to draw sparks from terminals with a spanner. Leaving the switch on when not in use is another good way. Accumulators are very frequently only half charged. A charge of twelve hours, and in some cases fifteen hours, ought to be given to bring them up to full capacity. We have accumulators coming in daily for recharging showing from half to one volt on a four volt set; they should never be allowed to run as low as this, it causes sulphating, and means short life to the accumulators. If accumulators were treated fairly and kept properly charged there would not be half the trouble there is with the motor, nor would the poor despised accumulator be blamed so much. Parting advice: Look after your accumulator as you would a purse of sovereigns, and put as much value on it.—Yours faithfully,

T. W. THOMPSON AND Co.
Greenwich.

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.

C.H.D. (Tamworth).—The Crypto gear is made by the Crypto Works Co., Ltd., 29, Clerkenwell Road, London, E.C.

D.S.C. (Norwood) would like to know the bore and stroke of the $1\frac{1}{2}$ h.p., the $2\frac{1}{2}$ h.p., and the $3\frac{1}{2}$ h.p. De Dion engines as fitted to tricycles. Can readers give these?

F. Thomas (Loughborough).—My cylinder is of the following dimensions, $2\frac{1}{2}$ in. bore by $2\frac{1}{2}$ in. stroke; please translate this into French dimensions for me and say what power the engine should give.—The French dimensions will be 70 mm. bore by 23 mm. stroke. The engine should give $2\frac{1}{2}$ h.p.

A Scored Cylinder.

W.J.R. (Belgrade Square, W.) writes:—The cylinder of my $1\frac{1}{2}$ h.p. French made motorcycle has unfortunately got scored through the gudgeon pin working loose, and not being fastened. Would you kindly inform me how I can take the score out, which is not of a great depth, although one can feel it quite distinctly. If I get a block of wood turned the same bore, and work this up and down with oil and emery should I be able to erase it, or would the cylinder have to be finely bored first? If so, who would do this for me? It is useless taking the cylinder to the English agents for the makers, as they take no interest in repairs, for if they had only carried out my instructions in the spring (when it took them two months to rebush the connecting rod) I should not have had to trouble you now. Needless to say, my next investment will be something English. Your advice will greatly oblige.—It is, as you suggest, false policy to neglect customers. There are so few reliable repairers that we feel inclined to recommend you to try and remove the score in the way you suggest. If you fail in this, write us again and we will then suggest a firm. Note that the block is turned perfectly true.

"Motorist" (Flixton).—The tax for a quad is two guineas annually (half fee from October 1st). For a cycle the tax is fifteen shillings.

R. Morgan.—Your suggested design tallies almost exactly with that adopted on the Bowden motorcycle (E. M. Bowden's Patents Syndicate).

F.R.C. (Parkstone) desires to know the probable cause of his motor firing regularly every second time for the first few hundred yards after starting. After this distance it is all right.—We can always get our own engine to do this when the exhaust valve is kept open at a certain point. If lifted a shade more, the engine will stop; if lowered more the firing is regular at every firing stroke. So it would seem to be a matter of the engine nicking in, in two revolutions, enough gas to make a firing charge.

Hot Exhaust Pipe.

C.H.H. (Stoke-on-Trent) writes:—Whilst riding my machine in the dark I noticed that the exhaust pipe near to the combustion chamber became red hot, also the combustion chamber near to it. The speed did not slacken, and the engine itself did not overheat. The mixture was as weak as I could make it. Could you please tell me the reason in your "Information Bureau"? There was no misfiring, and on the current being switched off no explosion occurred, as occurs when the engine is overheated.—This is not an unusual circumstance, and is due probably to the air being screened.

Side Carriages.

G.A.B. (Sutton) writes:—Can any of your readers give me any experiences as to side-carriages, and say which is the most suitable for attachment to a $2\frac{1}{2}$ h.p. Excelsior? I should be very thankful for any practical information from a rider who has had experience of this. I did think of getting a fore-carriage, but there appear to be very few indeed really reliable and thoroughly safe fore-carriages, besides which they are slow to attach and detach, and one cannot always rely on the brake connections as usually attached. Hoping to hear some views of those who have compared fore and side-carriages.

Leaking Accumulators.

C. J. Turton (Nottingham) writes:—I have had a great deal of trouble of late through the acid leaking out of my accumulator. I have tried all means of stopping it, none of which have been thoroughly satisfactory. Can you inform me if I can empty the acid out of the accumulator and replace with a non-spilling substance, and, if so, what must I use?—Do not fill your cells too full, coat the terminals with vaseline, and have a good fitting stopper in the vent hole. You could try a jelly acid, but we do not recommend it, and the trouble would be little less. Write to Peto and Radford and ask if they would alter your cells by filling them with their new paste.

E. Stapleton (Hendon).—Do you recommend me to have the new free engine clutch of Humber's fitted to my Olympia motor-tandem? At times I experience some difficulty in starting my machine by pedalling, and I understand that the new attachment does away with the trouble.—We should advise you to have the clutch fitted. See Cyclomot's notes on this clutch in the issue of July 29, and on starting difficulties in the issue of August 12th.

The Motorcycle in India.

"Beginner" (Montrose) writes:—I was thinking of taking a motor-bicycle to the North of India—Rawal Pindi way. Perhaps readers can help me with answers to the following. (1) Page 617 of issue of 28th July says that with a "Trusty" carburettor one could run on paraffin (paraffin being procurable all over India). In other issues, however, adverse opinions are generally given. What is correct? (2) Where is "Trusty" carburettor procurable? (3) P. 606 of same issue says excellent petrol at Calcutta. At what address? (4) Is Calcutta price much above home price? (5) Is petrol procurable anywhere in N. of India? (6) If it is not, would there be objections and difficulty about having it brought up by rail from Calcutta? (7) Are railway charges for freight of petrol reasonable or extortionate? (8) Does the Indian heat affect motors in any way? (9) And are there any other obstacles to one's keeping one in the N. of India?

Motor Trolleys.

W.D.H. (London, E.C.) writes:—Will you be good enough to give me names and addresses of manufacturers whom you deem the most suitable to apply to for a motor trolley, similar to the following particulars: To carry not less than ten tons of goods principally bricks; must be capable of carrying this load up an incline of 1 in 8; average rate of speed, trolley loaded, not less than eight miles per hour; it is not decided what kind of fuel will be used, so, if possible, it should be fitted for both oil and wood or coal. The net cost of working should not exceed 2d. per ton per mile. Water tank should be equal to 100 gallons capacity, as it may have to, at different times, travel through drifts with two or three feet of water over them. It must be made accordingly, and carry a maker's guarantee for at least twelve months.—We recommend you to get into communication with: Thorneycroft Steam Waggon Co., Ltd., Homefield, Chiswick, W.; Savage Bros., Ltd., St. Nicholas Iron Works, King's Lynn, Norfolk; Lancashire Steam Motor Co., Leyland; T. Coulthard and Co., Ltd., Preston; Mann's Patent Steam Car and Waggon Co., Ltd., Pepper Road Works Hunslet, Leeds; Straker Steam Vehicle Co., Ltd., 9, Bush Lane, E.C.; Yorkshire Patent Steam Waggon Co., Vulcan Works, Hunslet, Leeds. All these firms give special attention to trolley work, and will give you all information required.

R.C.T. (Crawford, Lanarkshire) writes:—I have a 1 h.p. Ariel trike, which got burned last year, and I have newly got it fitted up again. It ran splendidly last year, but now it will only run with gas full on and air lever closed, and makes a fearful noise. The spark lever must be well advanced, too, or it is no use. The carburetter is of the surface type. Engine is timed properly, spark is perfect.—It seems to us that the timing is wrong, and that you are using too rich a mixture.

A. R. & Co. (London) write:—We have received from abroad several enquiries concerning motor vehicles of a small type, particularly the one illustrated in the enclosed cutting from a German paper. This is said to be an English machine, but we cannot ascertain the name of the maker. Could you inform us?—The maker of the carriage (called a Motorette) is B. E. Dickinson, Toledo Engineering Works, Aston Brook Street, Birmingham.

A Wasteful Carburetter.

R. J. Parrott (Richmond, S.W.) writes:—I have a small 2 h.p. De Dion engine fitted with a one chamber Longuemare carburetter. The carburetter has worked well until I had a throttle fitted. In this carburetter the induction stroke of motor lifts the needle valve, and the inrushing air coming from the air holes at the bottom takes up the petrol that sprays by gravity. Just lately I have noticed petrol dripping from the air holes at the bottom of the carburetter. It occurs most when I nearly close the throttle and advance the sparking. I run with petrol tap half closed. I had the carburetter off the other day, and I noticed that by sucking up the induction pipe, the needle valve, which is fitted with a round brass disc with holes in it, lifts very easily. It would appear from this that too much petrol comes through for the air to take up. Do you think weighting the top of the needle valve or stopping a few of the jets would cure the trouble? The petrol does not escape round the needle valve, because I have ground it in. I notice that a little ring has worn round the bottom of the needle where it fits in its slot. I can only run about 40 miles on a gallon of petrol. I have not noticed any deviation in the power of motor, and it does not overheat.—It is rather a difficult matter to explain these little carburetter troubles without having the instrument under our own observation, but if the needle valve is petrol tight it may be that the introduction of the throttle has disturbed the balance of the instrument. On the jet and cone you will find a number, representing the number of grooves in the jet. Write to the United Motor Industries and ask them to send you other sizes of jet and cone, and experiment with those.

The above advice was sent by post, and a day or so afterwards we received the following from our correspondent:—

Sir,—Thanks for your advice, which I received this morning. I had two or three spare sprays, which I thought were all the same, but I found that they had six, seven and eight jets respectively. I found that I had a spray on the carburetter with eight jets. I have changed it for a spray with six jets, and it has righted my trouble. I have just run about 14 miles on less than a pint of petrol; before the alteration I could only have run five or six miles.—Yours faithfully,

R. J. PARROTT.



PEEPS AHEAD.—The British Museum, 1951.

"Cyclometer" (London, N.W.) writes:—I should be glad if a reader will say where I can procure a reliable cyclometer for use on a chain-driven Humber. The machine is an Olympia tandem, and therefore it is essential to fix the cyclometer on the driving wheel, no rigid support being available on the steering wheels. My trouble is that owing to chains both sides of the machine I cannot fix an ordinary cyclometer near enough the hub to keep the peripheral speed of the button low enough, consequently there comes a speed at which the spider overshoots the mark and fouls on the next revolution.

The Trailer and the Law.

F. C. Evans (Southsea) writes:—As a subscriber to "Cycling" and "THE MOTOR" from their commencement, I am writing to ask you if you would be good enough to give me a little information and help if it is within your power; briefly, my case is this. On the 8th inst. I was caught in the police trap on the road between Rake Hill and the "Jolly Drover" at Liss. I am now charged with driving a light locomotive with a trailer attached at a greater pace than six miles an hour, and have to appear at Midhurst shortly. I may say that I was travelling at about eighteen miles an hour, and that when the policeman jumped out of the hedge and held up his hand he was about ten yards away from me, but I was able to stop and dismount before reaching him. His charge was not of furious riding or anything of that sort, but simply as stated above. My machine is a 2½ h.p. Phoenix, and the trailer is an ordinary one. Now I am a poor young man, and should be glad if you would be good enough to give me some advice as to what you think the best course of defence to adopt, of course, without a lawyer, as that only means extra expense. In the new Motor Bill now almost law, there should be, I think, some provision made as to trailers, in the face of the great number in use, and ever increasing numbers being sold. I cannot, however, find any reference to them, and if this matter is not brought to the notice of the proper authorities, we poor motorcyclists will be

in the same sad state as formerly.—We can only advise you to read our editorial note of last week, in which it was shown that the magisterial reading of the 1890 Order, although far-fetched, is at any rate justified by the wording. Your only course is to urge that the regulation was obviously intended to apply to vehicles carrying goods, as is also suggested by the stipulation that the owner's name and address be painted on the vehicle—a course never adopted with private vehicles. You can also mention that Lord Balfour, in the House of Lords recently, promised to exempt motorcycles from the clause.

Wants to take a Passenger

G.C.G. (Cliddesden) writes:—Having sold (through your advertisement columns) my last year's Phoenix, I am anxious to get something to carry my wife as well as myself. Therefore, will you tell me which you consider the best machine for the purpose. (1) A trailer is the cheapest, but is it difficult to manage? Also isn't there a great strain to start? There is also the vexatious annoyance by the police. (2) A side-carriage. Is it easy to manage? Is there any great strain in starting? (3) Would a 2 h.p. Minerva draw these? (4) A forecarriage, such as the Humber Olympia or Trimo. First of these seem to me to be the thing, as machine runs free of engine for starting I believe, and being chain driven, can be geared low so as to keep speed down. Is the strain of starting avoided in this? Has the Trimo (Phoenix) any of these advantages? (5) Is the Olympia, can compression of engine be used as a brake? I found that a great advantage on bicycle. (6) Is there any machine of Olympia class, easy to start, at about £50.—(1 and 2) We would recommend the forecarriage. (3) No, a 2 h.p. engine would be necessary. (4) The Humber is dearer than the Trimo, but free engine is an advantage, as the machine is much more readily got under weigh. We believe in the fitting of a compression tap, so that compression may be used as a brake. The Humber is not so provided. (6) £50 is too low a price at which to expect a good article.

Some Elementary Points.

J. Jenkinson (Oldham).—It is always necessary to retard the ignition (or put the handle back, as you say) before starting any machine. As to the lack of power when "handle is back," do you sufficiently advance the ignition in order to get the engine to run at its best speed and so develop the most power? The flash you mention suggests a leakage round the combustion head. This would give a great loss of power. The free engine can be run without moving the machine. The air vent is necessary in order to relieve pressure in crank chamber. To take a 13 stone man up a hill of 1 in 14, you would want quite 3 h.p.

A Cracked Coil Case.

A.E.R. (Sheffield) writes:—I should be glad to know where I could get a case fitted to my Bassée-Michel trembler coil, as the existing case has broken. It is of ebonite, and is split in several places, and I do not know of any way of sticking it together. In any case this would be a poor job, and I think it best to send it away to be fitted with a new case. Do you advise sending to the makers? If so, what is their address?—(1) The United Motor Industries Co., of 45, Great Marlborough Street, W., will see to your coil for you. (2) Many riders favour the use of a larger carburetter than is really necessary, and the sizes of the jet and of the air funnel can easily be suited to the engine.

Understanding the Carburetter.

B. H. Palmer (Sidecup) writes:—Many thanks for information received. I have now discovered the main cause of the trouble. It appears to be the carburetter, which is either of the F.N. or Longue-mare pattern (I am not quite sure which). However, suffice it to say, I have to raise the float until the petrol spurts out at the top every time I want to use the machine. (Can this be remedied? It is not really serious, and I don't think there is anything radically wrong with the carburetter. — Certainly, it is necessary as a rule to raise the float and flood the float chamber in order to get sufficient spirit through the jet to carburette the air. The overflow of petrol is a sign that the float chamber is full and the carburetter is not choked.

Various Questions.

E.A.S. (Bristol) asks:—(1) How can I repair a leaky float which is intended to show what depth of petrol there is in the cycle tank (Minerva with spray carburetter)? (2) How long does it take for the petrol to get stale in the tank? (3) The reason why knocking takes place in the engine when going slowly uphill with the spark advanced, and is it detrimental? (4) Is it right to feel an electric shock through the high tension wire whilst holding it to test the sparking? (5) How often should the valves be ground in?—(1) If the float can be removed from the tank there should be no trouble, as a touch of solder (after all spirit has been evaporated from outside and inside) would repair the defect. (2) It depends upon the degree to which air has access to the spirit. But in an ordinary closed tank it will remain fresh for some weeks. (3) The ignition being too far advanced the piston on the upward stroke is opposed by the force of the explosion; it is most detrimental. (4) This shows that the insulation to the wire is poor. (5) About once in every 800 miles.

The Trusty Carburetter.

This device can be obtained from David J. Smith, Great Arthur Street, London, E.C. We have not tried it, so can say nothing of its merits, but if it vaporises paraffin, as it is claimed to do, it should be a most useful device for districts and countries where petrol is difficult to obtain. This will answer some dozens of enquiries about this device, including:—W.H.W. (Coventry), Beginner (Montrose), P.McT. (London, E.C.), B.C. (Manchester).

Curious Spark Phenomena.

"Scarbot Noir" (Belper) writes:—Will you please consider the following points in connection with the working of my coil, and express an opinion upon them? The coil is of the trembling variety, and all connections being made, if I disconnect the wire from the sparking-plug and hold it a quarter of an inch from the cylinder I get a spark that length; but if I increase this distance the spark goes from the high tension terminal on the coil box to the tank in which it is contained, a distance of quite an inch. It seems to follow the grain of the wood of which the coil case is made. If I now detach the coil from the machine altogether, and so place it at a sufficient distance that it cannot spark across to the frame, or any part of it, and then try the high tension wire to the cylinder, I get a spark half an inch or five eighths long. I have tried all means of insulating the coil from the case, by which I mean the metal case containing the coil, and forming part of the carburetter, etc., but without success, as the best spark I can get at the proper place is only a quarter of an inch long. The machine goes splendidly and will climb anything, but having discovered this peculiarity I am not satisfied that I am getting the best out of it, and should be glad of your advice. Is there any fear of breaking down the insulation inside the coil by making the distance between the high tension wire and the cylinder so wide that the spark cannot pass at all?—You do not state exactly the connections of the coil, because it would

make a difference if the high tension current returned via the contact maker, or had a connection through the tank. It would appear from the details that there is not a good return circuit from the motor. Probably the fittings are screwed direct on to the enamelled tubes. If there is a separate "Masse" terminal on the coil, and if this is connected by a wire to one of the bolts on the motor, you should get as long a spark there as at any part of the tank. In any case, we should put the motor in direct contact with the tank. There may be another explanation due to certain "capacity" effects of the large amount of metal surface in the tank. Lining the inside of tank compartment with sheet rubber will stop the sparking across. It is not advisable, as a rule, to take extra long sparks from the wire. It strains the insulation.

Trimo Engine Misfires.

J. A. Blears (Heaton Moor) writes:—I should be glad if you can enlighten me as to the cause of irregular firing in the engine of my Trimo. This has only recently appeared and is very annoying. The machine is quite new, having been in my possession about two months, built by the Coventry Eagle Co., and the engine fitted is a 2½ h.p. De Dion. No wiring has been detached, except at accumulator terminals, and before detaching these the positive wire was coloured red to agree with terminal, and avoid future chance of error. Accumulator is in good order, and has been re-charged and showed well up to 4.5, giving a fine long spark in the air, and a vivid one at plug points. Inlet and exhaust valves have been well cleaned and ground in, and compression is splendid. I thoroughly cleansed engine with petroleum, and drained same off all night, and gave fresh charge of lubricant afterwards. Spark-plug is mica pattern. I was out with machine recently, fixed up as a motor-bicycle, and experienced the same intermittent firing as when fitted as a force-carriage, but not so pronounced. Still, it was there, and each miss I could feel in the saddle. The carburetter is a Longue-mare, and fixed behind cylinder. I have been thinking if the fact of the holes in spray chamber being unprotected (excepting the sleeve for regulating the intake of air) would cause the misfiring. Do you think a band of fine gauze would be a good addition to the regulator sleeve? If so, I could fix it up very easily. The coil on this machine is a trembler pattern, by Guenet, and when out last I found the adjusting screw was not locked. Can this have anything to do with the misfiring? If so, what rule applies to the adjustment of the screw mentioned?—Unless you find that the engine runs hot with a normal supply of gas, we should not consider the carburetter at fault, and before doing anything to it should advise thoroughly overhauling the ignition. We presume you have a "brush" contact maker fitted to the motor, and this may not be making good contact on the metal segment. If a plain make and break is fitted, trim up the platinum and adjust to make a firm contact. You certainly should have the trembler screw fitted with a lock nut. Adjust this as close as possible to the blade to get the fastest possible vibration, but be careful it does not stick on the iron wire core. If this does not remedy matters, try a new plug—preferably a good porcelain one—and see every connection is firm.



ON THE TRIALS.
Collier starting up River Hill.

The Benz Car.

"Would-be Motorist" (Driffild) writes: Referring to the letter from "Benzite," in a recent issue, I should be obliged if you would inform me whether, in your opinion, a small second-hand Benz car, such as is advertised at from £40 to £50, would give satisfaction to anyone content to travel at from, say, 10 to 12 miles per hour on the level?—An old Benz car will give you a large amount of pleasure, not only in the driving but in the mechanical portion of it.

A Gear Case Defect.

"Yorkshire" (Sherborne) writes:—I should esteem it a favour if you would kindly answer me the following through the medium of your instructive paper: (1) Would it be possible, through careless driving of a motorcar, and yet without accident of any kind, to crack an aluminium gear box case right around driving axle box? (2) If case was thin in this part would it crack in ordinary use, or through flaw? (3) To what cause would you attribute such a crack?—We should say that such a crack as you describe could not be caused through any act of the driver, but must result from the cast being too thin to stand the work, or to the shaft being cut off line or the bearings untrue.

The Benz Car.

"Savant" (West Hartlepool) writes:—In "O.P.V." a writer recommends Benz cars for the "man of moderate means." I would like to buy one of the small cars advertised from time to time at about £30, and with that view seek your advice. Would a Benz car, 3½ h.p., carry two passengers at a speed of 10 to 12 miles per hour, and would such a small car be likely to climb ordinary hills without the passenger having to dismount? What would be likely to be the most serious defect in a second-hand car? I am only encouraged to hope to become a motorist by the price appearing to be within my limit.—We are afraid you would get nothing of much use at the figure. Best to offer £40 or £60 for one in first-class condition. You would have to get an expert to try and examine a car at the price you name, or you would risk throwing the money away.

A Two Speed Gear for a Tricycle.

"Blunderer" (Ealing, W.) writes:—Will you kindly advise an old subscriber on the following matter. I have a 2½ h.p. M.M.C. tricycle, and am fitting it up with a two speed gear, which includes a free engine. I am taking the pinion of the crank shaft and keying it on to an intermediate shaft upon which, on the left hand side, is a small sprocket wheel, and opposite this, on the engine crank shaft, where the pinion was fixed, is a slightly larger sprocket running loose and attached to the female portion of a double clutch. On the right-hand side I am placing another but smaller sprocket wheel, and, opposite this, on intermediate shaft, is a larger sprocket wheel, and this gives the slow speed as the other sprocket wheel gives the fast speed. Of course, when the clutch is midway it is out of gear, and provides a free engine. Do you see any reason why it should not work well?—The drawing accompanying your letter is somewhat rough, but we think we are able to clearly follow your plan. It should give you the high and low gears as you

desire, but, so far as we can see, you will be driving the tricycle backwards all the time. Rack numbers of "THE MOTOR" are scarce, as so few come back to us, but if you will say what dates you require we will see if we have them in stock.

Wiring Wrong.

G. T. Roberts (Pwllheli) writes:—About three months ago I bought a 2½ h.p. Excelsior motor-bike, surface carburetter, and I often cannot get it to start, especially when the engine is warm after a long journey. Some time ago I found I had no spark at plug, and thinking it was at fault replaced it with a new one, but of no avail, for on testing for spark on end of high tension wire, I found I had none there, and when I get a spark there the engine starts all right. I use a Castle accumulator, and it registers 4.4 volts. I have tried new accumulator to no purpose. I tested the wires piece by piece, and they proved satisfactory until I came to the coil. Kindly explain how to test coil and high tension wires. Should I get new coil or wires, or both? I broke the ebonite piece that fixes the contact breaker, and in replacing new one I believe I put it back wrong, as the machine goes much faster when the spark is fully retarded than it used to be. Please explain or direct me to a book number on timing. Is it possible to fix a device to start engine before mounting with these machines?—We should imagine that the wiring to the coil was inaccurate. There was an article in our issue of July 15th on wiring of various types of coil; check yours by it. There was an article on timing in the issue of July 1st. See article on testing ignition in the issue of May 27th. Starting clutches are possible. Humber's use one.

A Short Circuit.

M. C. Moxham (Boston) writes:—I shall be obliged if you can send me solution of following difficulty which has puzzled me. My motor (Minerva 1½ h.p., 1902) ceased firing after running half a mile on a recent run. On testing current at contact breaker there was a feeble spark; on attaching the 4-volt lamp to contact screw connection and frame there was a slight glow only. I then examined the accumulator and disconnected the negative wire, and was surprised to find that there was a sparking between the negative wire and attachment to the accumulator as I was removing it (switch was on at the time). The accumulator was found to be well charged (only having run 30 miles since being recharged). There was a good bright light at lamp when one wire was attached to the positive pole of accumulator and the other touching the frame, with negative wire attached in usual way to plug connection. This shows, I think, that negative connection to frame is alright. Spare wires were then put from positive of accumulator to coil, and coil to contact breaker, with no good result. My opinion is that there is a short circuit in the coil. Can you tell me from this description of affairs whether this is so?—We doubt very much if the short circuit would be in coil unless latter were a very poor one; they very rarely go wrong. The "short" is somewhere in the low tension system. Trace the fault out by means of the tests described in our issue of May 27th. The fact that the lamp glows brightly shows that there is nothing much wrong with the accumulator. The fault is probably on the negative wire.

ANSWERS BY POST.

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

Saturday, August 22nd.—G. K. Harris (Plumstead), H. C. Reading (Newthorpe), A. L. Harrison (Castlebellingham), F. W. Eccleston (Cleator Moor), H. Rimmington (Hull), C. C. Lapage (Nantwich), M. C. Moxham (Boston), O. Lees (Devonport), F. Thomas (Loughboro'), P. C. Rolt (Hove), J. Clarke (West Dulwich), R. F. Paxman (Tewkesbury), A. E. Quartier (St. Margaret-at-Cliffe), W. Gardner (Frome), H. J. Franklin (Ilford), E. P. Turner (Seldown), F. Greer (Coonstown), E. E. Morris (Stamford Hill).

Monday, August 24th.—H. W. Vallack (South Shields), W. J. Forward (Brockley), G. Stephenson (Middlesboro'), J. Hobday (Birmingham), D. S. Jones (Banbury), H. Hayles (Hounslow), L. Almond (Finsbury Park), R. Allingham (Greenwich), F. G. Hunt (Derby), A. Phillips (Rugeley), H. R. Lloyd (Wicklow), J. Robinson (Tynemouth), A. J. Lambert (Bradford), F. B. Stanbury (Torquay), W. Cobbett (Fareham), F. W. Southwell (Peterboro'), J. W. Bailey (Ashwell), H. A. Morgan (Alderley Edge), R. A. Barrow (Leicester), F. W. Atline (Faringdon), C. E. Travis (Ashbourne), J. Watson (Leeds).

Tuesday, August 25th.—F. Lee (Wolverstone Park), T. Thompson (Burgth), E. A. Nicholls (Tenby), M. J. O'Callaghan (Tralee), R. Woods (London, E.), S. Watts (Ilford), J. Clement (Eardesley), J. Milner (Broadheath), H. R. Magnier (Leek), H. A. Brereton (Swaffham), C. A. Palmer (Haddenham), R. Willis (Kingston Hill), W. Mills (Milton), T. H. Barnsdale (Nottingham), W. Hick (London, N.W.), G. Haynes (Stockwell), H. B. Colbourne (Beckenham).

Wednesday, August 26th.—W. Adamson (Humshaugh), M. Maxwell (New Galiloway), J. S. Hamill (Belfast), Dent and Sons (Tamworth), L. Hainsworth (Morley), E. L. Walker (Newcastle-on-Tyne), S. H. Chaplin (Colchester), A. V. Edwards (Hanwell), N. W. Currie (Weybridge), W. H. Reid (Glasgow), E. Sparks (Norwich), H. W. Harsnell (Croydon), R. Smellie (Mount Vernon), H. Chapman (Dover), A. Beynon (Boscombe), F. Williams (Ashford), "Rex" (London, N.W.), C. H. Smith (Birmingham), J. Sheward (Hednesford), Holloway Bros. (London, W.), R. Lockhurst (Glasgow), J. H. Stewart (Lisburn), W. D. Clough (Leeds), J. A. Hurd (Hillsam), G. J. Walker (North Walsham).

We are sorry to have to inform readers that we cannot possibly reply to queries by telephone. A staff of experts are constantly replying to letters by post and through the paper, and it is unfair to delay replies to those who are conforming to such regulations as we have laid down, by attaching any member of the staff to reply to those privileged to use the telephone. We feel sure our readers will realise that decision in this matter is prompted by our desire to be fair all round.—EDITOR.