

# Motor Cycling

Vol. 1, No. 15,  
May 21st, 1902.

## & Motoring

### SPARKING COILS FOR MOTOR-BICYCLES.

*All about their principles of action and details of Construction.*

[CONCLUDED.]

It is necessary to have the surface of the mercury covered with alcohol to prevent oxidation, and subsequent imperfect connection. Such an arrangement works exceedingly well upon a stationary coil, but to work it from the shaft of a rapidly revolving motor would be a different thing. If the mercury could, in some way, be prevented from splashing about, the main difficulty would be overcome, for the vibrating arm could be worked very well from the two-to-one cam; in any case, the idea is worth offering to the several specialists in motor coil building. Of course, no trembler would be required upon the coil, as the single spark of great power would be absolutely certain of firing any charge. As to the efficiency of such an arrangement, the writer might mention that he increased the spark length of a large experimental coil from six inches to 12½ inches in air, by discarding the "trembler," and fitting a mercury break.

#### The Condenser of a Coil.

In the opening part of this article was described how the sudden stopping of the magnetism of the iron wire core produced a momentary current in the coil of wire. It is this "induced" current that gives the spark when only a single winding is used. With the more usual type of coil, in which the firing spark is obtained from the "secondary" winding, this current that is induced in the primary winding must be got rid of some way or else it will re-act upon the secondary coil, and greatly reduce the spark. Now, the way it is got rid of is to cause it to pass into a condenser and charge it, and the condenser automatically discharges itself through the trembler or contact breaker at every spark, so that every time the engine is fired the condenser is charged and discharged. The construction of a condenser is extremely simple: we have just a number of leaves of waxed paper, which are interleaved with ordinary tinfoil; the alternate leaves are all connected together so that we really get two large sheets as it were separate and insulated

from each other by the waxed paper. The theory of a condenser action is by no means easy to describe in non-technical language; perhaps it will suffice to say that the metal or tinfoil sheets act as reservoirs for the electric charge, and one of the sets of foils becomes charged with positive electricity, and the other with negative electricity.

In a finished coil the condenser is not visible, as it is generally wrapped around inside the coil, or in the case of a square coil, placed alongside in the box. Having now got a tolerably clear idea of the functions of the various parts of the coil, we can proceed to consider some of the methods and details in the actual making of a spark coil.

#### The Iron Wire Core.

This must be made from the softest iron wire procurable—the softer or better annealed it is the more magnetism will be induced in it; it will also lose its magnetism instantaneously with the stopping of the current. Any residual magnetism lowers the efficiency of the coil, and is also conducive to the trembler—when such is fitted to the coil—working sluggishly or sticking; too much stress cannot be laid upon this important matter of having the core made of the finest annealed iron wire that can be got.

#### The Primary Winding

Consists of two, or, at the most, three layers of insulated copper wire of No. 14s (standard wire gauge), wound over a thin paper tube which contains the iron wire core; the best insulation for the wire is silk, for the reason that it occupies the minimum amount of room; it is quite a mistake to wind the primary coil with heavily insulated bell wire; good, single

cotton covered is the next best to silk insulation; the turns of wire must be as close as possible, then over the primary is wound the secondary winding.

It all depends upon the manner in which this—the most important part of the coil—is constructed whether we get a coil that will last indefinitely, and never give its owner a

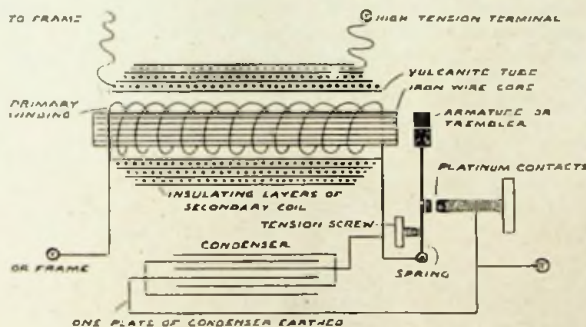


FIG. 4.

THE TREMBLER COIL, WITH SECONDARY WOUND IN LAYERS.

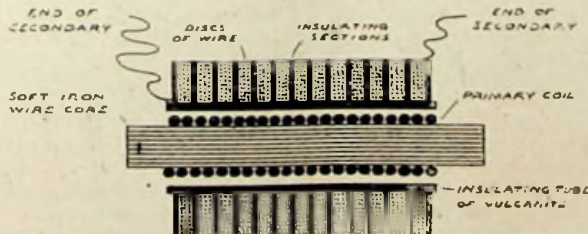


FIG. 5.—SECTIONAL METHOD OF WINDING A SPARK COIL.



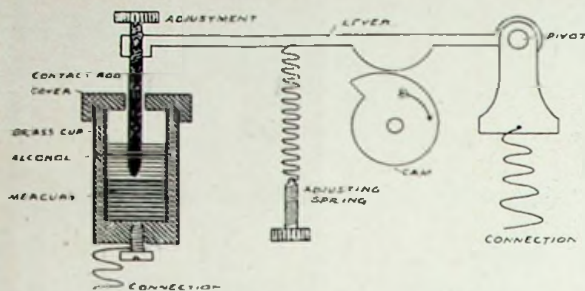


FIG. 6.—FORM OF CONTACT BREAKER WHICH GIVES THE LONGEST SPARK POSSIBLE.

moment's anxiety, or one that may break down in its insulation at some awkward moment and give the motor-cyclist immense trouble in finding out the cause of his motor ceasing to work.

A large number of the coils now supplied for motorcycle work are wound upon a very old principle, namely, that of winding the secondary in layers, and, in many cases, with bare wire, each turn being insulated by a thread of cotton, this being fed along with the wire by means of a spacing machine. This method has nothing to recommend it except its cheapness, and many of the best makers are now adopting what is known as the "sectional" method of winding the secondary; this consists in making up the coil of a large number of thin discs of wire, each disc being a separate little coil; these coils are built up on a vulcanite tube, between each being placed an insulating plate of either thin vulcanite or paraffin waxed paper; the ends of each separate coil are connected to the one next to it, so that, really, we get one long continuous coil of wire.

The great advantage of this method of winding is that it is practically impossible to have a breakdown or short circuit with it. With the layer method, the danger of internal sparking is very real, especially at the ends of the coil, where the electric tension is very high. In the actual making of the sections, the method adopted is to run the wire—which passes through hot paraffin wax first—on to a "former," or specially shaped winding bobbin. The wax causes the wire to set solid, so that the wire coil can be readily slipped off, complete in itself. A diagram of a coil wound in layers, and one wound in sections is shown, and should be carefully noted.

### Length and Size of Wire Most Suitable.

To obtain what is called a thick, hot spark, from a secondary winding, it is important to remember that the "resistance" of the wire must not be too great; this means, that a slightly thicker gauge must be adopted than is usual when making coils for experimental purposes only. Instead of using a No. 38 gauge, 35s or 36s will give thicker sparks. Then, as to the quantity to give a certain length of spark in air, so much depends upon quality of iron in the core and the number of turns on the primary winding, that only approximate figures can be given. One pound of 35s, wound in sections, should give easily  $\frac{1}{2}$  in. spark in air—using accumulators to work the coil; dry batteries, having a large amount of resistance within themselves, do not give the maximum spark length.

### A Combined Dynamo and Coil Igniter.

An arrangement that possesses many interesting features and one that has been applied successfully to motorcars, consists

of a small dynamo having a single "field" coil: built up on this is the secondary, just as in an ordinary coil, the ends of which are taken to the plug and motor frame; the magnet core of the dynamo also acts as the core for the coil, and the field winding serves as the primary coil. A condenser is provided, as in an ordinary coil. The armature of the dynamo is revolved by its pulley pressing up against the motor wheels, a special type of contact breaker being used. A diagram is shown which will convey an idea of the principle of the dynamo coil.

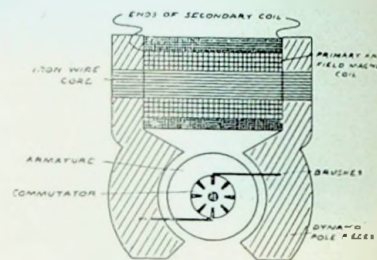


FIG. 7.—GENERAL ARRANGEMENT OF COMBINATION DYNAMO AND COIL CONNECTIONS AND CONDENSER NOT SHOWN.

A question often asked is whether the current from an induction coil is an alternating or a continuous one; the answer is that it is of the nature of a continuous current, but an interrupted one—hence we always have one end of the coil positive, and this should always go direct to the plug.

## TANDEM POSSIBILITIES.

### Mechanics Considering the Design of a Single Track Motorcycle for Two.

A representative of "MOTOR CYCLING" recently took part in a most interesting conversation with two of the leading shop men of a large cycle making concern. The location of the individuals at the time was Stratford-on-Avon, where a number of trade men from Coventry, Birmingham, and Redditch are in the habit of congregating. The direct cause of what proved to be a most interesting exchange of views was an elegant voiturette for two passengers which was standing in the hotel yard. After various commendatory remarks, one of the mechanics in question ventured the opinion that, capable as such a machine was, it would soon have a virile competitor in an elaborated form of motor tandem bicycle. Slight as it is, this remark and the subsequent conversation amply demonstrates the fact that many capable minds are at work on the development of this particular type. The field is a large one and the possibilities great, so great that it is a wonder that greater attention has not been afforded to the subject.

The following hints as to the lines upon which the machines might be developed were gleaned from the conversation referred to.

The general lines of the machine might follow those of the Coventry Humber of a few years ago which had a small steering wheel about 22 inch in diameter, and an open front, that is—the handlebar instead of being at-

tached to the fork stem was curved from the back of the front rider. The back part of the machine would be built higher than the front so as to give the driver an uninterrupted view of the road. Pedals for the front rider might be dispensed with and a seat of the suspension type provided in lieu of the saddle. The engine would be placed directly behind the front bracket. To give the best results it should be capable of running slow, and should have provision for starting independently of the pedals. It could be placed with the crank axle in the longitudinal line of the machine and drive a shaft which would obtain its first speed reduction at the rear bracket and its second at the driving wheel; an ideal drive would be one utilising bevel wheels which would be silent and could be easily protected.

Owing to the length of the wheel base much greater freedom exists for the disposition of the mechanism and tanks than is afforded when a single machine is being built; granted that the design and construction made for rigidity, the machine would ride steadily and with but slight tendency to side-slip.

It is an age of specialists, and the designer who, by consistent application and thought, produces the first practical single track machine for two people will in all probability be acclaimed as the one who solved the problem of the people's automobile.



## IN TRANSIT.

*Some Experiences of a Cyclist in the Transition Stage.*

### **An Exhaust Valve Lifter.**

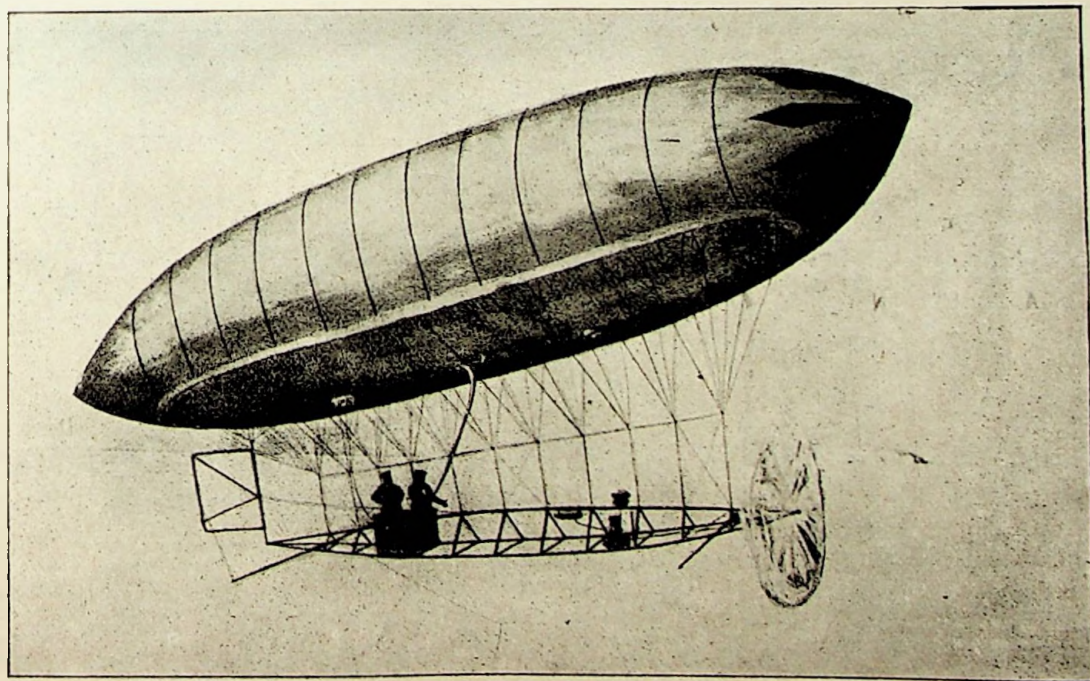
During the last few days I have been enjoying my first experiences with an exhaust valve lifter, and as a consequence, all my preconceived notions on the subject have been entirely upset. I had understood that the main use of the valve lifter was to facilitate starting, just as the act of opening the compression tap does, and I gathered that, as the aperture caused by opening the valve would be greater than the orifice of the tap, the trouble of starting would probably be lessened. But I was distinctly under the impression that the act of opening the valve would have the effect of spoiling the mixture, because, as the suction on the inlet valve would be less, only a small charge would be drawn in; and besides, this charge would be adulterated with either air or fired gases drawn in through the exhaust valve aperture. Consequently, thought I, the resulting mixture would not be an explosive one. But I find that the action is entirely different. In fact, I am able to drive on my valve lifter with better results than those formerly given by driving on the throttle.

My usual method has always been to have my sparking as fully advanced as the speed of the engine, for the time being, would permit, and to increase and retard my speed by opening and closing the throttle, for in this way economy in gas would be effected, and unnecessary overheating of the engine avoided. I now find that the exhaust lifter fulfils all the purposes of a throttle lever, and others besides. By slightly opening the valve, the charge loses part of its power. This may be due either to (1) reduced suction on the inlet valve, consequently less gas is drawn in; or (2) reduction of compression; or (3) adulteration of mixture. But, whatever the cause of this lessening of the explosive force may be, it places in the hands of the driver a very subtle form of control, and one capable of giving the finest gradations of speed and power. For riding through traffic, its value is inestimable, because it practically reduces control to a single lever. The speed lever is scarcely ever raised when passing through, say, the streets of London, and if the throttle valve be thrown fairly aside, the quality of the charge can be modified by the valve lifter, and when the valve is opened to its widest, no explosion takes place at all, so that one need not touch the switch. I had two valve lifters offered to me, but I chose the Bowden, because it is light and thoroughly effective, and, greatest of all advantages, it is operated from the handle-bar. Moreover, a little pawl and ratchet are fitted, which holds the valve wide open when the lever is pulled right back, and this is of great convenience when running the machine in or out of the stable.

### **An Enjoyable Ride.**

My last trip (at the time of writing) was the run out to Dashwood Hill, and on checking off the mileage at the end of the day, I found I had ridden ninety-five miles. Considering that I was only in the saddle about five hours to five hours and a half, the distance was pretty creditable. It was a most enjoyable ride, weather and roads being perfect and the motor running with that absence of trouble to which I am by now becoming quite accustomed. In fact, I have (at least such is my fond hope) transferred all troubles from the wayside to the motor stand at home, and there made a pleasure of them. The method of doing this is to inspect the mechanism—"tinker about," if you like—and especially the parts that have a reputation for getting out of order. One result is that I have become thoroughly familiar with the minutest details, and, when a stoppage occurs, am able to quickly locate it. Thus on the ride to Dashwood the explosions ceased suddenly, just as if I had switched off the current. From the entire absence of any previous symptoms of running down, I knew that the supplies of petrol and electricity were ample, and I instantly guessed that a wire had snapped. The voltmeter, applied at the contact breaker, showed full strength of current, so I immediately put the defect down to the plug, but, chancing to again try with the voltmeter, found that no pressure was recorded. So I went to the accumulator and placed the voltmeter across the terminals, and got no result. So then I tried each cell separately, and found they recorded a full two volts each. This immediately located the trouble at the bridge of the accumulator—the one that broke off before—and a careful inspection revealed a complete fracture. So once again my temporary bridge of copper wire was made, and I rode all the rest of the day subsequently upon it. On taking the accumulator to the makers, they assured me that it was the first occurrence of the kind.

CYCLOMOT.



A NEW NAVIGABLE AIR SHIP.

Designed and built by Messrs. Spencer Bros. for the Proprietors of Mellin's Food.



## HORIZONTAL v. VERTICAL.

*A Reply by Mr. T. B. Browne to Mr. T. C. Pullinger.*

I was interested to read Mr. Pullinger's reply to my remarks, and will now endeavour to point out a few of his errors, but I am afraid that I shall have to make use of figures to uphold my arguments, which I had carefully refrained from doing in a quasi-technical article.

After all, the whole thing is purely a question of figures and nothing more. It is a fact that the pressure due to the weight of the piston is only four ounces per square inch in the engines I have referred to, and this is nothing abnormal, as pistons of this class go, so that, as I have said before, it is not enough to produce appreciable wear.

Now the compression of a petrol motor may be anything between 50 and 90 lbs. per square inch, but Mr. Pullinger does not seem to grasp the idea that the compression only reaches its maximum when the piston is at the inner end of the stroke, that is, when the connecting rod is parallel to the cylinder, and therefore, there is no side thrust at that moment.

Of course, compression begins early in the stroke, but is much lower than the maximum when the angularity of connecting rod is greatest, but, in any case, the pressure due to the explosion is very much higher than that due to compression, as can be seen from indicator diagrams, where normally the former is from three to four times as great as the latter. (See Dugald Clerk's well-known text book, "The Gas and Oil Engine.")

I quite agree that for three out of the four strokes of the cycle the piston is pressing downwards in the horizontal motor with a pressure of three or four ounces per square inch, but multiplying this by three will not produce a pressure to anywhere nearly equalise a pressure of over 200 ounces per square inch on the upper side of the piston due to the explosion when the thrust is greatest.

It is perfectly true that the Hildebrand and Wolfmüller bicycles were absolute failures, but they were a very early and crude attempt at a petrol-propelled machine, and it is a

fact that the ends of the cylinders were open, and only a few inches above the road, so that grit and dirt were sucked in at every in-stroke, so it is no wonder that Mr. Pullinger found them to wear badly.

As regards lubrication, I can only say that I have not experienced the unequal oiling that Mr. Pullinger complains of; but this is largely a question of details of design whether the motor be vertical or horizontal, and, as I before stated, the same motor will not run equally well either vertically or horizontally.

It is to be noticed that Mr. Pullinger has not a word to say against my other arguments in favour of the horizontal motor, so I conclude that he is entirely in accord with me there.

I have, of course, only treated the subject very superficially for it would fill a good sized book to do so exhaustively.

T. B. BROWNE.

From "Novice" we have received the following:—

Mr. T. B. Browne's explanation of the causes of cylinders wearing oval is at once simple and explicit, but it occurs to me that the vertical engine has nearly as much chance of wearing oval as has the inclined or horizontal cylinder. On the compression and expulsion strokes, the fly wheel is lifting the piston by means of the piston rod, whilst the opposition in the cylinder exerts its force downward. The sum total of these two forces is to drive the piston against one side of the cylinder, so causing extra wear on that side. On the propulsion stroke the pressure in the cylinder acts against the weight of the fly wheel, and the sum total of these forces is to drive the piston against the side of the cylinder opposite to the side already referred to. Thus, without the weight of piston coming within the sphere of the argument at all, it can be shown theoretically that the mere opposition of the forces at work is sufficient to cause the cylinder to become oval through wear.

"NOVICE."



*A Friendly Lead—friendly to everybody except the horse.*



# NEWS.

## The "Motor Cycling Manual."

Look out for this coming book.

The most complete book of the motor-cycle.

We shall give further particulars in our next.

The Automobile Club hold their next hill-climbing trial on June 7th.

Medieval Nuremberg is keeping well up to date by running a motor police van.

Electric ambulances are being provided by public subscription for one of the chief hospitals in New York.

Mr. Staplee Firth has given it as his opinion that the 15s. licence on motor-bicycles is perfectly valid.

A well-known cycle racing man writes us "I hope to have a motor next year; meanwhile I read 'MOTOR CYCLING.'"

A large number of competitors were disqualified in the Long Island 100 miles endurance race for excessive speed. The maximum speed was fixed at 15 miles an hour.

Every Sunday afternoon there is always quite a show of cars in the yard of the "White Lion" Hotel at Cobham. This hotel is a favourite stopping place for all. Horses, "petrol," and cycles—all appear to be welcome.

In reply to a deputation, Mr. Akers-Douglas, the First Commissioner of Works, could not see, despite the apparent conflicting opinions about motorcycles being light locomotives or not, why they should be kept out of Hyde Park when cycles and motors were admitted, and he was in favour of treating them all without distinction.

## Speedy Travelling in New York.

According to the "New York Herald," there is a general uprising of the people against the furious speed maintained by wealthy owners of motorcars in and about the city. Several prominent citizens, or rather their chauffeurs, are out on bail, charged with breaking the law in this connection. Although the owners are members of the Automobile Club of America, that body has declared its hearty sympathy with the police in their efforts to suppress excessive speed. On one asphalted avenue expert motorcyclists have been set to follow the law breakers.

## Motor-bicycles and Trailers.

Our Midland representative has, for the last month or so, been using one of Mill and Fulford's trailing cars behind his Quadrant motor-bicycle. At first the members of the fair sex appear somewhat nervous in a trailer; but with a fairly careful rider in charge this nervousness quickly wears away. There is no doubt about the fact that such a pleasurable way of getting about the country should go far to popularise this form of motor cycling. Neither the bicycle nor trailer have given the least trouble, and only on steep hills have we found it necessary to assist the engine by pedalling. Several of our old cycling friends have become so enthusiastic after a short spin in the trailer that it is a difficult matter to keep it in the cycle shed.

## History Repeats Itself.

[The first motor postal van in the service of the Government left Liverpool for Manchester on May Day, 1902.]

'Tis more than seventy years ago Since Stephenson's great loco-.

The Rocket hight,  
Sped (cause of universal stir)  
From Liverpool to Manchester  
In furious flight.

Full fourteen miles an hour it flew  
Undaunted even by the "coo,"

Which like an ass  
Would block, they feared, the iron track;  
As who should say "Monster! go back

"Thou shalt not pass!"  
But pass it did, and from fourteen  
To sixty-four that weird machine

Progressed in time:  
So great events from small have sprung,  
So from the ladder's lowest rung  
Upward we climb.

History repeats itself this May.  
When in and on the same old way

Its course began

Another infant loco-;  
Which unto mightier things shall grow—  
The Motor Van.

Encouraged by the G.P.O.  
Whose steps are sure, though rather slow

The motor's outlook  
Is just as bright as it can be;  
And now must we for poor old gee-  
Gee's final rout look.

As for the fool who tries to block  
The motor-van, he'll get a knock

Like Geordie's "coo":  
And though its speed is only eight  
As yet 'twill soon increase that rate  
To thirty-two.

SAXON BROWNE.

Bexhill.

The motor trials.

Fully illustrated this week.

The electric cabs and hansoms in use on the streets of New York now number 700.

It is interesting to note the definition of a motorcycle, as given in the programme of the A. C. Bexhill trials: a vehicle weighing under 250 kilos = 4 cwt. 3 qrs. 20 lbs.

The Polytechnic Cycling Club, as the first body to promote a motor-paced amateur cycling race, have secured a good deal of publicity thereby.

It is not wise to wait until a notice about the motorcycle licence is received. It has just been stated in court that negligence to secure one lays one open to a fine of £20.

A member of the Law Committee of the American Automobile Club was recently hauled up for furious driving. He contended that he timed himself by the telegraph poles, 40 feet apart, at five second intervals, thus making his speed under eight miles. On the strength of this he got an adjournment to produce witnesses.

The "London Argus" publishes an excellent photo of Mr. Mark Mayhew on his 50 h.p. Napier, in its current issue, together with an interesting interview. He gives as his opinion that "the London roads are the worst in the Kingdom—worse than most of the country roads, and much worse than those in Scotland." Mr. Mayhew has owned and driven over 25 motorcars during the past four years.

## Master of the King's Motors.

According to "M.A.P." a new Royal Household office has been created, that of "Master of the King's Motor-cars," and the appointment has been offered to that well-known and fearless motorist, Mr. Graham White, who took part in the Dashwood Hill trials. "The post," continues that paper, "carries with it the distinction of driving the King and the supervision of the Royal motoring arrangements. I have been given to understand that for this position a smart uniform has been designed, somewhat after the style of the state dress of the other official appointments."

## Greater Power Next Season.

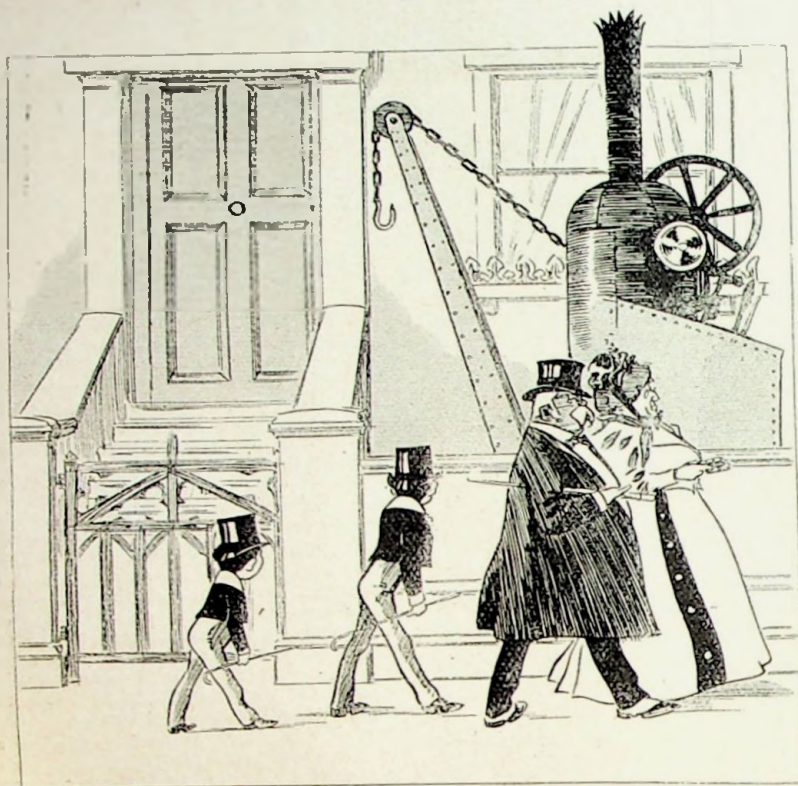
The motor-bicycle is such a comparatively recent introduction that it is not a matter for surprise that slight improvements are being effected almost daily. That the series of articles which have appeared in these columns have done much to forward the movement there is absolutely no doubt. Everywhere in trade circles the writer hears the articles quoted, and the various suggestions put forward by the various writers are carefully noted with a view to experimenting as soon as the season's trade slows down. One thing is absolutely certain, writes our representative. Next season most of the leading makers will make a 2 h.p. engine the standard, as the experience of the last few months has shown that the smaller power engine is not strong enough for all round work, that is, with a fairly heavy rider on the machine.

C



The Motorcycle Challenge Cup put up for competition by Mr. William Starley.





USEFULNESS v. ART. 1.

*Bjones scandalised his eminently respectable neighbourhood by razing his flower beds and erecting a hideous donkey engine and crane in his front garden! Just fancy!!*

### Liquid Air as a Motive Power.

Visitors to the recent show would no doubt be interested in the motorcar which was driven by liquid air. The type of motor adopted is practically the same in construction as that employed for driving by steam. There can be little doubt but that this form of energy has a future before it, and it may not be long before we have it applied to a motor-bicycle. It possesses certain striking advantages over other forms of energy, not the least being the simplicity in the methods of its application. A few facts dealing with the manufacture of liquid air may be of interest just now. Of course the liquefaction of certain gases has been an accomplished fact for many years past. Readers who know a little about chemistry are probably acquainted with the fact that sulphur dioxide gas is easily made liquid by subjecting it to a fairly low temperature and pressure; also carbonic acid gas can be liquefied in the same way. To liquefy air, the same principle is employed, but the temperature required is excessively low—in fact, some three hundreds of degrees below freezing point, and the pressure necessary is also very great. To get the initial low temperature, liquid carbonic acid is employed. On allowing this gas to expand, intense cold is produced. In the first stage of its production, a certain amount of the liquid air is allowed to expand. This still further lowers the temperature of the liquefying vessel, so that the process of liquefying the air goes on automatically. A pressure equal to 200 lbs. per square inch can be created by simply allowing a very small quantity of the liquid air to expand.

We understand from Mr. A. J. Winship, Forest Gate, E., whose new front-driven motorcycle we illustrated in "Invention" the week before last, that he has taken out full protection for it, and hopes shortly to place on the market a machine embodying the feature we described and also several others.

### A Tip Concerning the Belt.

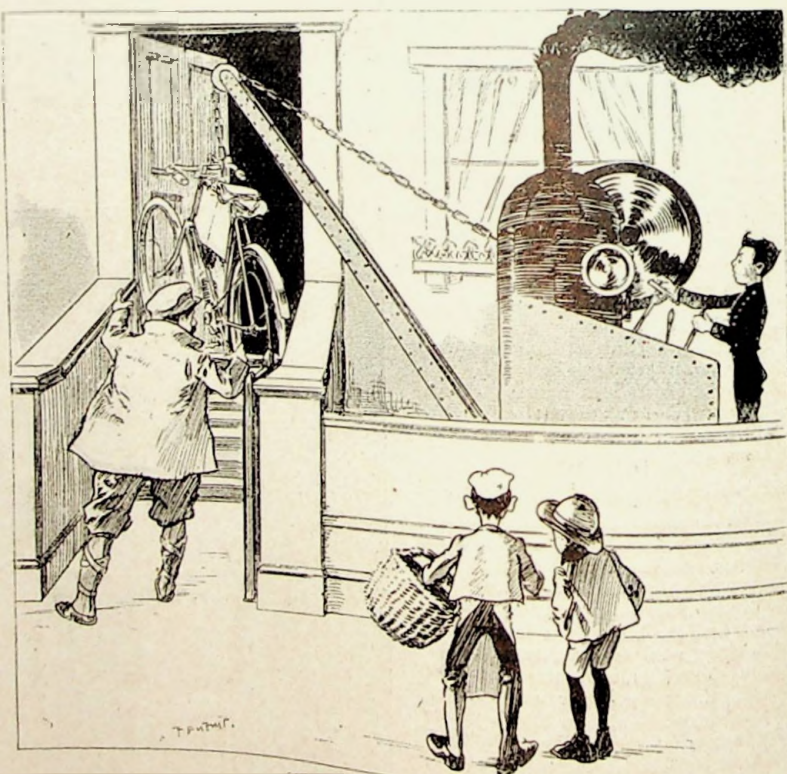
A reader sends on the following hints regarding the belt. He makes his hook from an old spoke about No. 12s gauge. It is  $\frac{1}{2}$  inch long and the hooks are short enough not to project through the leather. About once a fortnight he takes the belt off, unwinds it, and dresses the inner surface with castor oil. So treated, his belt has not broken once in 700 miles.

### An Effective Valve Lifter that Costs Nothing to Make.

A correspondent sends us particulars of an exhaust valve lifter which he says acts perfectly, and costs him less than a farthing. It consists merely of a piece of picture wire looped round the angle at the end of the rod that knocks up the valve. The other end of the wire is held by the nut and washer on the throttle lever in such a way that when the latter is right back the exhaust is slightly lifted.

### Tricks on Motorcycles.

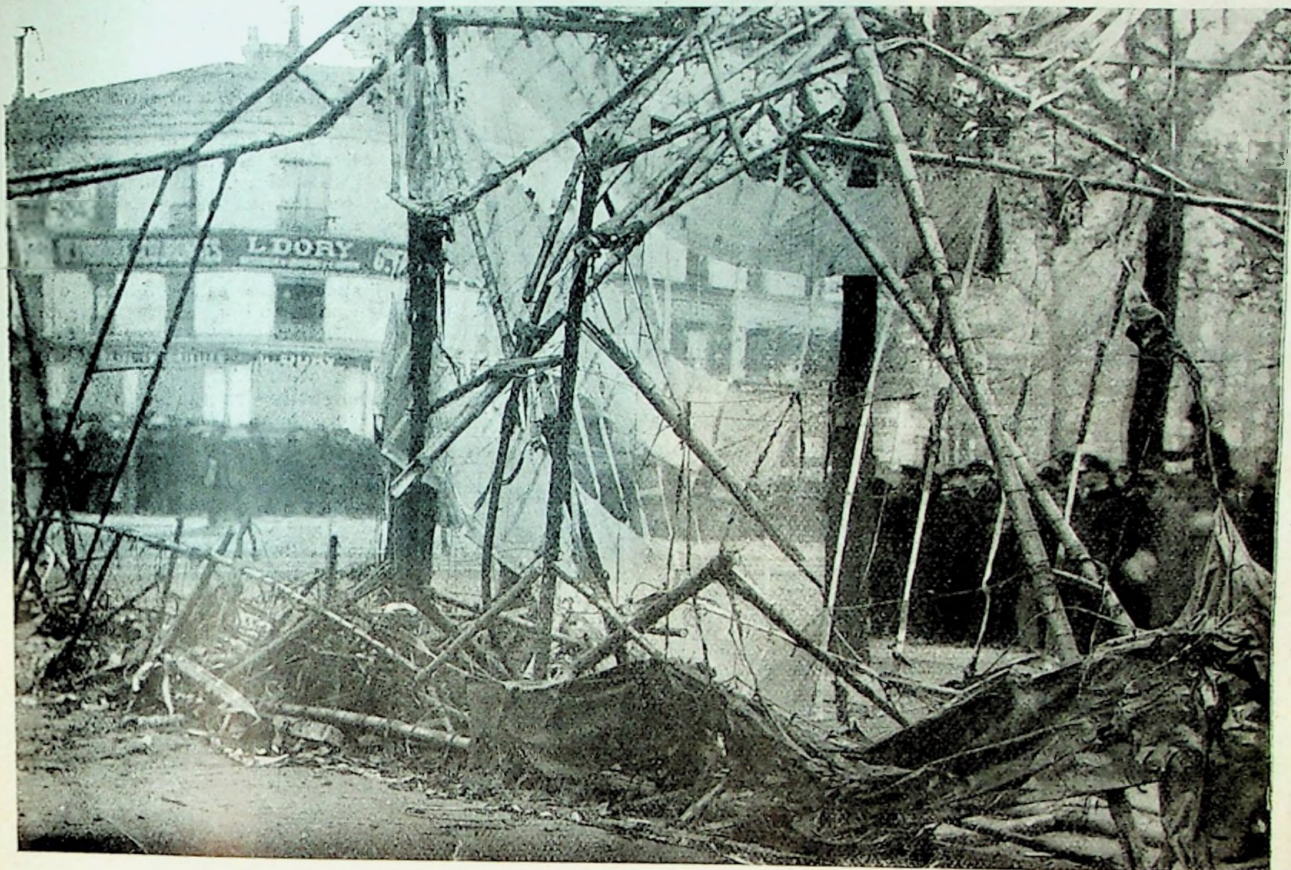
A little time ago one of the staff was chatting with Bud Snyder, who is probably the only man on the stage who does tricks on a motor-bicycle, a Singer, by the way. When at the Palace fulfilling an engagement, he did the following on the flat stage, going at 12 miles an hour:—Hand stand from handlebars, head stand from saddle—a difficult feat—going through the frame, and his usual side to side pedal jumps. These were all done whilst the machine was in motion.



USEFULNESS v. ART. 2.

*But when the truly intelligent community saw it was really the most practical way of getting his motor-bicycle into the hall they bore the infliction with resignation. This is a truly utilitarian age and art must be subservient to usefulness.*





### THE REMAINS OF THE "PAX"

A photograph of the wreck of M. Severo's great air ship, the "Pax," taken immediately after the fall. The picture gives the reader but a faint idea of the enormity of this latest tragedy of the air.

A five-miles motorcycle handicap, any type or h.p., will be found in the programme of the Bury St. Edmunds B. and A.C. sports on Friday, June 27th. Full particulars from the Hon. Sec., Mr. W. J. Sparks, 2, Hatter Street, Bury St. Edmunds.

### The Orient Motor-bicycle.

Somewhat of a radical departure from the orthodox pattern of motor-bicycle is the Orient now being placed upon the British market by the Remington Automobile and Motor Agency, 11, Tothill Street, Westminster, London, S.W. The machine is of American construction, being made by the famous Waltham Manufacturing Co., of Waltham, Mass., U.S.A., and embodies many new and novel features. The frame is of special design and construction, built to withstand all strains and shocks. The standard motor is 2½ h.p., but can be supplied from 2½ to 3½ h.p., at purchaser's choice. In appearance it is neat and compact, and judging from a short spin we had on it last week we should say that it is thoroughly efficient, and fulfils its makers' claim. We are promised a further trial, the result of which we shall endeavour to publish in the next issue of MOTOR CYCLING, together with a photograph and further details as to its working. An illustration and particulars will be found in our advertisement columns.

### The Dashwood Hill Trials Results.

The mass of material in connection with the Dashwood Hill Trials, which the Automobile Club got together from its time-keepers, its weighing stewards, its fuel measurers, and its observers, has now been collated and published, and one heaves a sigh of regret at noticing how the facts elucidated by the tests have been obscured by a host of figures and details and by a number of obvious errors. The records are incomplete, especially when dealing with the matter of pedalling on the hill. But for the physical impossibility of observing the complete performance of every vehicle, even on the hill only, we would have compiled records for ourselves. As it was, the impression on our minds when we came to write our notes of last week was that the Humber bicycle driven by B. Yates had singled itself out both for hill-climbing powers and for speed. The report confirms this in a very pleasing way. The Humber rode the hill not on a few occasions, but on each and every one of the seven ascents without demanding help from the rider, and, moreover, averaged 19.55 miles per hour on the hill, and it went the whole distance of about 70 miles on nine tenths of a gallon of fuel. The Excelsior, ridden by H. Martin, went through the trials without a stop, its speed on the hill was 18 miles an hour, and

its total consumption was less than half a gallon (we give the official figures).

The Phoenix, ridden by J. Van Hooydonk only stopped twice. Once was for a broken belt on the hill, and the other for attaching the spare battery on the home journey. His speed on the hill is recorded at 11½ miles an hour, which we believe to be hopelessly wrong, and his consumption a little over half a gallon. The Ormonde, driven by A. G. Wright, went through without trouble, except for the belt on one of the hill rides. His pace works out at 9½ miles an hour and his consumption at half a gallon. The sister machine, driven by Adams, went through without trouble, rode the hill at an average pace of 13½ miles an hour and used nearly a gallon of fuel. As showing how little the Club's report is to be relied upon we find two Ormonde facts, which explain the above figures, quite unrecorded. Wright broke his belt, and occupied time in mending it which was debited to him, thus reducing his recorded pace. And Adams's tank was leaking. There was no car (except the Mercedes and Mars high-powered racers carrying only two people) which rode the hill at anything exceeding 14½ miles an hour. The lowest recorded average was 4½ miles, and the general pace was about 10 miles an hour. Of course this is assuming that the official records are correct.





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## OPINION.

### *The Derby Day of Automobilism.*

Quite a new sport is opening up and quite a new class of sport-goer is being created by the advent of the speedy motorcar, for the British public were able on Monday to see motor vehicles travelling at a speed never previously attained in their presence. They saw for the first time and were able to realise what forty-five and fifty miles an hour really meant and, probably, as a direct result, we shall gradually hear fewer and fewer wild tales of motors travelling on the roads at "sixty miles an hour." If only the police force of the country could be given the opportunity of witnessing such demonstrations their tall yarns, as manufactured for the ears of blind Justice, would sensibly diminish. Monday's meeting at Bexhill, thanks to the immunity from police interference afforded by a private road, was educational in more ways than one. It demonstrated to the thoughtless that recklessness does not necessarily go hand in hand with speed, but rather that coolness, skilfulness, and resourcefulness were its handmaidens. To the thoughtful it demonstrated in a most unmistakable manner that the career of the motorcar has scarcely begun, whilst its manufacture has already reached that stage of reliability which one associates with the building of railway locomotives. The attention which the trade is paying to the comfort of the driver and passengers will have its immediate reward, and particularly welcome is the improvement recently effected in methods of silencing the exhaust. We confidently believe that the motor-bicycle received a distinct fillip. Cycles were seen in the races travelling at not less than thirty miles an hour, and even up to forty without any apparent strain on the driver and without a suggestion of instability, although the course was wet to the point of slipperiness. Particularly pleased were we at the sportsmanlike behaviour of all the competitors, and if the Automobile Club will seriously take to heart the criticisms which are sure to be passed upon the manifest defects in the management of the meeting (we speak quite from the spectators' point of view) and will endeavour to avoid them in future gatherings, we may confidently look forward to finding the annual Bexhill carnival the Derby Day of Automobilism.

### *Interesting Features of the Motorcycles at Bexhill.*

An observer on the look-out for novelties and smart ideas found plenty to interest him on and round about the track. Arnott's racer struck one as being a strange, rakish-looking craft, with its long wheel base, racing handlebars, and small diameter tyres. There was a look of speed and power, too, in the cut of its motor, which, by the way, was a chain driver.

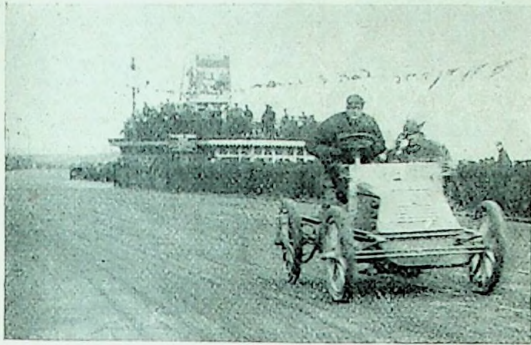
Martin's 2½ h.p. Excelsior embodies some smart ideas in its design and equipment. We noticed the driving pulley of the motor was of respectable size and section, driving by means of a special V belt on to the back wheel rim. This belt appeared to be made of two thicknesses of leather rivetted together, and the fastener passed through metal eyelets fixed to the leather. A portable stand was also cleverly contrived as a permanent fitting to the machine: this was pivoted at the back fork ends, so that it could be swung up over the back mudguards when not in use. In the ½ h.p. Soncin we had a veritable Ayer, although the design of the machine might be termed weird. The noise of the exhaust is a most peculiar one, sharp and penetrating to the ear, such as there would be no mistaking it for any other machine. The gearing must have been a high one, because, even at top speed, the explosions were by no means rapid. The position taken up by the rider is also a characteristic one, the handlebars sweeping back in the shape of a long U. The Humber chain drivers created a favourable impression by their smooth running, the musical hum of the chain speaking of the good work put into the gears, etc. A New Werner might have been noticed near the track possessing some special features, amongst which might be mentioned a new spray carburettor. The pulley on the motor also had been specially made with a view to prevent slip of the belt, transverse slots being made in it. Several Mitchell's were in evidence, and very smart they looked with their characteristic American finish. A goodly sprinkling of touring machines had been stored in and around the town, including the Minerva, Quadrant, Excelsior, F.N., Phoenix, and Chapelle, many riders having toured down on the Sunday from London and districts. From information gathered, there seemed to have been very few mishaps, and these were only of a trifling nature, such as contacts out of adjustment and belts breaking. One or two riders also experienced punctures. The progress which the motor-bicycle movement is making was well illustrated at Monday's big meeting.

### *Dashwood: Results.*

We last week referred, from the observations of our own representative, to the really excellent display made by the motor-bicycles entered for the Dashwood Hill trials. The official report, now issued by the Automobile Club, although it is full of inaccuracies, and is consequently unreliable, confirms this dictum. It is to be regretted that the Club did not make an entirely separate class for motorcycles, charging an entry fee suited to the smaller vehicle, and arranging for a proper record of pedalling on the hill and other items that would have been of interest to the public. In another column we give the figures contained in the report, and it will be seen that not only were the motorcycles a long way faster than all, except racing cars, on the hill, but that they were exceedingly economical in use. We frankly admit, however, that we have doubts of some of the measurement figures, believing that the consumption of the Humber and one of the Ormonde machines has been overstated. Again, the other Ormonde and the Phoenix made better times than those recorded, leading us to assume that, in the latter case, the trial in which the belt broke at the start was also debited to the rider. We know this was so in the case of the Ormonde.

So, as the actual results were even better than those recorded, it becomes apparent that the motor-bicycle not only does all that was expected of it but even exceeds expectations. To be able to ride for a whole day at a pace that is easily half again as fast as that attainable by the bicycle, to be able to do as much as a car and to beat it on hills, is ample recompense for the outlay entailed on the purchase of a motor-bicycle, for the very small expense of running and for the occasional overhaul and adjustment that are necessary if the best results are to be obtained. We are greatly pleased with the behaviour of motor-bicycles at Dashwood, and trust that the Automobile Club will afford the single track machine every facility in the future of showing that, however successful it is at the present day, the experience gained will reveal itself in other competitions.





## THE MOTOR TRIALS AT BEXHILL.

*A great crowd witness the interesting motor speed contests.*

Bexhill has been bathed in an atmosphere of automobilism during the past three or four days. The Earl de la Warr confidently expressed his conviction that the sports would be witnessed by ten thousand people, and, although the weather was far from being propitious, his expectations were, we believe, just about realised.

Visitors commenced to arrive as early as Friday, whilst by Saturday those who had travelled by car already commenced to outnumber those who had come down by mere ordinary methods of travel. By Sunday, Bexhill began to feel the pressure, and not only were the Sackville and Metropole full to the point of overflowing, but it was getting more and more difficult to find rooms in the town.

The chiefs of the Automobile Club had their hands very full, and one would find oneself unexpectedly and unwittingly intruding upon some committee meeting; in fact, meetings of this kind were going on practically the whole time, and we heard, as an actual fact, that, at

THREE O'CLOCK IN THE MORNING

before the racing, discussion still kept the chairman at his duty. Upon the shoulders of Mr. Roger Wallace fell many of the cares and much of the responsibility, whilst Mr. Mark Mayhew, as chairman of the Races Committee, which included such acknowledged experts on the subject as Mr. S. F. Edge, Mr. C. Jarrott, the Hon. C. S. Rolls and others, gradually acquired a set frown the product of much consideration of endless detail. The Earl de la Warr worked as quietly and unostentatiously as any body, and few

realised the sense of anxiety which the Earl felt upon the subject of the possibility of accidents occurring outside of the private road. Mr. Claude Johnson, the hard-working yet ever courteous secretary of the Automobile Club, had perhaps the lion's share of the burden, but he bore it well.

Perhaps the most notable feature of the trials was the gathering together of so many of the best class. Unquestionably motoring has taken complete hold of the higher classes, not a few of whom have taken to the racing vehicle, with its few pretensions beyond speed pure and simple.

The track extends along the sea-front from the top of Galley Hill, which lies to the east of the town, to the estate gates, at about the centre of the parade. It is about 1,300 yards in length, and is of ample width, the surface being macadam with a gravel dressing. Special pains have been taken to get it into good condition, and these efforts would have been rewarded but for the

### SATURATING RAIN THAT FILL

at pretty regular intervals each day and during nighttime. Until late on Sunday, the greater part of the course was chained off, the road on the land side of it being available for traffic, which could run on to the last few hundred yards of the course. Some magnificent cars, from the 50 h.p. Napier downwards, were running about, and a few cycles also put in an appear-

ance, but the greater number of the competitors on cycles did not reach Bexhill till nearer the hour of the racing. Some occasional bursts of speed were indulged in, but there were too many people about, not to mention dogs and small boys, to permit of much advance of the sparking lever.

On Monday morning]

THE RATTLE OF THE SILENCERS,

as the cars were passing through the wet streets, brought the town astir



F. CHASE.

*Who finished first in the race for the "Motor Cycling" Cup.*



*F. Chase finishing in the "Motor Cycling" Cup race.*



as early as six o'clock. Speed trials were being indulged in by those who wanted to try their skill at 50 an hour over the course. The big vehicles excited a not unnatural amount of interest, but many were prevented from carrying out the preliminary canter which had been promised them, because the officials took the opportunity to conduct the tests of the electrical timing apparatus. This consisted of a chronometer which was started by the car breaking a thread stretched across the road at the starting-point of the kilometre,

done, but certainly the Automobile Club has yet to learn the A B C of sport promotion. The public were almost entirely ignored, whilst the press experienced a great difficulty in getting information. The telegraph board on many occasions did no more than confirm what had already been seen and noted. Times were being posted anyhow, and we even had the time of one heat given as 1½ secs., which represents about 1,800 miles an hour.

Then there was a regrettable absence of showmanship. The waits between the heats

Humber opposed A. Westlake on a 1½ h.p. Minerva, and the former secured a well-merited win by 40 yards.

In the final heat, E. H. Arnott met B. Yates, but the former was slow in getting started, with the result that he lost about 20 yards, and it was by about this distance that Yates won. The times of these events were not obtainable. The next class in the tourists' section was for light voitures, in which C. Friswell on the Baby Peugeot, and T. Emmerson on the 6½ h.p. Century Tandem, made a good display.

In the classes for higher-powered vehicles, some excellent times were done, 30 miles an hour being attained by more than one car. The Panhard, the Lanchester, the Wolseley, all 10 h.p., did very fine service, while the prize winner was C. K. Gregson, on his 12 h.p. Gladiator. Some speed was seen when classes A and B in the tourists' section were being contested. The Hon. C. S. Rolls's 24 h.p. Mors won the first heat from R. Rouse (12 h.p. Benz), whilst Coadon, on a 12 h.p. Panhard, beat Mr. Cordingley's M.M.C. Rolls met Coadon in the final, and won handsomely in 1 min. 0½ secs.

The contest for tourist steam vehicles resulted, after several heats, in a severe tussle between the 20 h.p. Gardner-Serpollet and the Lacomble, the former winning. Its best kilometre performance was 48½ secs.—about 46½ miles an hour.

In class A for heavy touring vehicles, the 50 h.p. Napier driven by Cecil Edge made backs of the other competitors. In its heat it won in 55½ secs. (about 40 miles an hour), whilst in the final, in which it defeated Mr. Midgley's 16 h.p. Napier, it was apparently doing faster time, but no time was given.

The race for electric tourist vehicles was won by J. F. Ochs, on a City and Suburban, whilst in the speed section the British Electromobile Co.'s car easily got away from the Krieger, but their pace was relatively slow.

The races in the speed section were got through with much greater expedition—perhaps not unnaturally. The first event was the race for the "MOTOR CYCLING" Cup. There was a touch of speed about each heat which was quite refreshing. The heat winners were: H. Martin, who on the Excelsior beat Watson on the Chapelle; F. W. Chase, who beat S. A. East on the Shaw by about 200 yards; B. Yates on the Humber; and F. G. Notley on the Orient. In the final, Chase, who was riding a 4½ h.p. Soncin, came right away from the start and quickly



View of the Track taken from the Sackville Hotel.

and which was stopped by the breaking of a similar thread at the finishing post, the breaking of the cord in each case closing an electric circuit actuating the clock mechanism. It must be stated that the method seemed to be accurate and reliable, although many of the times were either not taken or failed to reach the telegraph board. Besides the electrical timing, the usual method, which involved a subsequent working out, was in use, and the missing figures in our report can probably be obtained from this source in time for next issue.

During the breakfast hour the whole of the course was cleared, and thereafter none but authorised persons were allowed upon it; every inlet was closed, and a number of warning boards were placed in prominent positions. The terrace, the steps, and the windows and balconies of the Sackville Hotel made an excellent coign of vantage, whilst the whole line of the track

#### BECAME PACKED WITH PEOPLE

on both sides during the afternoon. Even when the preliminary heats of the low-powered vehicles were being run in the morning the crowd of onlookers was substantial. To some of the competitors the early hour of the start, 10 o'clock, was a bit of a trial, especially as a trip to St. Leonards and back was a necessary proceeding for the purpose of being weighed.

One scarcely likes to criticise where one sees a large amount of organisation has been

were inordinately long, and as a result the programme dragged considerably.

#### THE TOURIST CYCLES CLASS

was the first to be run off, and of this there were but two heats. E. H. Arnott, on the 2 h.p. Werner, started with J. Van Hooydonk on a 1½ h.p. Phoenix, and reaped the advantage of his higher power, winning by a full 50 yards.

In the second heat, B. Yates on the 2 h.p.



E. H. Arnott on the "Various Makes" Machine.



against the  
purely speed  
machine  
which Chase  
was on. Not  
ley was' third.

of speed, and the heats were run in 46 secs. and 43 secs., Gabriel and Baras being the winning drivers. In the final, Baras rode a magnificent race and won in 42½ secs.—about 53 miles an hour.

The racing cars weighing less than 1000 kilos. (19½ cwt.) gave some fine exhibitions of speed, being driven separately over the course against the watch. The fastest time

manœuvring at the top of the hill, and its swift rush down the level and along the course attracted instant attention. He made several attempts during the afternoon, his two best performances being 41 secs. and 43½ secs. After the first of these he had a burn-up of oil in the rear of the car, so his final attempt was made on the "Easter Egg," of similar shape and design. Both of these were said to develop 120 h.p. on the brake. In one of the attempts A. C. Harnsworth was the passenger, and he came back flushed with the excitement of his rush through the air. A maximum time limit of 40 secs. for the kilometre, or 55 miles an hour, had been imposed as a condition of winning the cups offered in the big racing classes, but this pace was not once attained. However, it is said that the donors of the trophy offered for the best performance of the day have decided to present it to M. Serpollet, in recognition of his sportsmanlike attempts to win it.

The competition for the car having the best appearance received an entry of 48, and of these 36 passed before the judges. Almost every kind of motor vehicle was represented, in itself a grand testimony to the progress of the industry in this country. The task of placing the cars in order of merit, the points being for design, comfort, finish, and smartness, was a

Yates made a bad start, otherwise he would have been closer up. We understand that Chas. has since been disqualified, on account of the silence of his machine being removed.

A fine burst of speed was seen in the race for speed tricycles. Three machines started, and a close race elicited the cheers of the crowd. Chas. Jarrott's 8 h.p. De Dion won handsomely, at what looked like 45 miles an hour, Ralph Jackson on the 8 h.p. Eagle being close up.

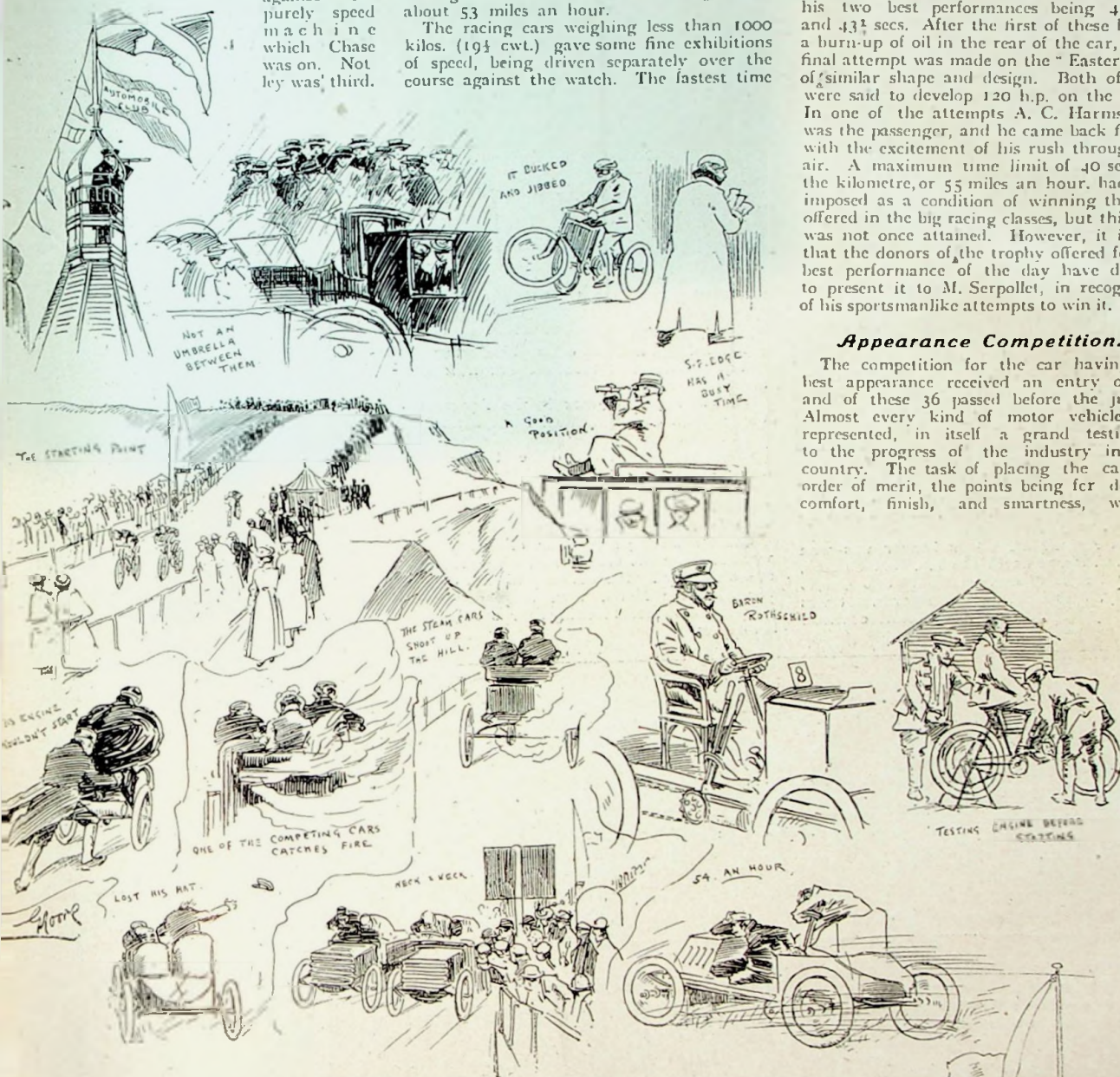
J. S. Overton won the De la Warr Cup for racing voiturettes, and S. F. Edge's 30 h.p. Gladiator, driven by Mercier, won the race for car; weighing between 12 and 15 cwt. The race for light racing cars produced a magnificent contest between three 20 h.p. Darracqs. They looked the very symbol

was made by Chas. Jarrott on the 40 h.p. Panhard, who, in two attempts, did 43½ secs and 43½ secs., nearly 52 miles an hour. The Hon. C. S. Rolls on the 40 h.p. Mors, in two attempts, did 44½ secs. and 45½ secs., gaining second prize, and Campbell Muir, on the 40 h.p. Mercedes, being third with 48½ secs.

Baron Rothschild made a couple of attempts with his 40 h.p. Mercedes, but his times were 57 secs. and 57½ secs., the slowest of all. The new Wolseley did .48 secs. and 50 secs.

Mr. Rolls won the big racer's class on his 60 h.p. Mors, doing .45 $\frac{1}{2}$  secs. against Mr. Edge's .47 secs. on the Napier.

M. Serpollet provided the sensations of the day. His unique white car, tapering to a point at the prow, could be seen every now and again



*Sketches*  
*by our*  
*Artist*  
*at Bexhill*  
*on*  
*Whit-*  
*Monday.*







*Cecil Edge winning the Race for Light Racing Cars.*

difficult one, and occupied the best part of an hour. In the end S. F. Edge secured the first prize, the House of Commons Cup, on his 16 h.p. Napier. This car was finished in dark green and silver, and looked extremely comfortable. The occupants were S. F. Edge and Harvey Du Cros, jun., with two fair American ladies, Mrs. Price and Miss Sylvia Thorne, as companions.

The second prize, the Bexhill Town Cup, most deservedly went to W. J. Peall, who was accompanied by Mrs. Peall, on his now well-known 12 h.p. Daimler.

The Automobile Club's banner was won by A. C. Harnsworth's 14 h.p. New Orleans, a novel style of car, finished in two shades of grey, with light oak mudguards. It was driven by W. D. Astell, and had seats for three.

### **Bexhill Brevities.**

Not a single accident of any kind occurred.

The crowd looking on at the races numbered about 10,000.

All the successful cars in the Appearance Competition were of British manufacture.

In the majority of instances the starts were bad, one car being left and the other gaining a substantial lead.

The only man to be cheered by the crowd was M. Serpollet. He finished up the races with two speed dashes at 54 miles an hour.

Quite a strong suggestion of Derby Day was given by the crowds lining the railings, and especially by the assembly of cars outside the Sackville Hotel, with their occupants standing on the seats viewing the sport through binoculars.



*A good view of the course, showing Galley Hill, at the foot of which the trials started.*

A 61 h.p. locomobile was highly commended for its generally tasty turn out.

Lady Mary Sackville presented the cups and banner to the winners.

### **Racing Motor-Bicycles Minus Silencers.**

#### **A PROTEST.**

H. Martin, one of the competitors in the speed contest, informs us that a complaint has been handed to the hon. sec. of the Automobile Committee for unfair racing. He states that Chase rode a Soncin without it having an efficient silencer fitted, thereby breaking Rule 15, and so obtaining an advantage over other competitors. He believes the Committee will disqualify, in which case the 2½ h.p. Excelsior will hold the "Motor Cycling" Cup, F. G. Nottley, on the 2½ h.p. Orient, being second. [We understand that Chase has been disqualified.—Ed.]

The 20 yards allowance in which to start up motorcycles was not sufficient, especially for 2 h.p. motors to get going; 50 yards at least should have been allowed.

Showers of rain continually interrupted the programme, and largely contributed to the length of time occupied. Racing commenced at ten o'clock, and was not finished till past seven at night.

Mr. Arthur Collins, the well-known impresario of Drury Lane, had a rough time on the journey down. He experienced a rather bad breakdown near Haywards Heath late in the evening, and had to sleep in his car. Mrs. Collins was with him, and they eventually reached Bexhill at 3 p.m. on Sunday.



*The Eagle Tandems which performed well in the Light Voiturette section.*

Mr. Harvey du Cros, sen., was always the centre of a little party, either in the Sackville Hotel or in the "Paddock." His sons, Harvey jun., George, and William, were with him, and we had pointed out to us Mrs. Harvey du Cros, sen. We hope we are not incorrect in congratulating the distinguished head of the Dunlop Co. upon his recent re-entry into the matrimonial state.



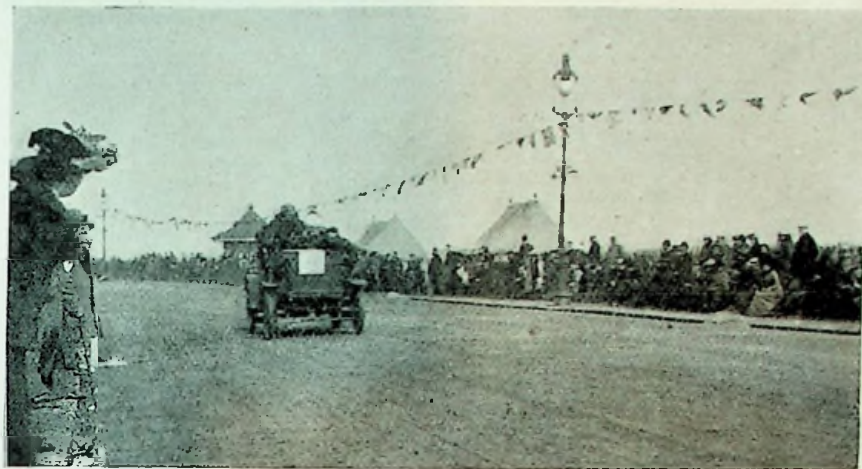
*One of the best Races of the day—Tricycles.*



### The Motor Cycling Club Run.

On Saturday, May 17th, an advance party of members of the club started from Lee for Bexhill. The weather was not propitious, heavy showers during the morning having rendered the roads greasy and treacherous. The machines ridden were fairly representative, comprising the Quadrant, Excelsior, I.N., New Werner, Phoenix, and other standard makes.

Early in the run a member of the party had a nasty side slip, bending his crank and placing himself *hors de combat* for the time being. Going easily through Eltham, Sidcup, and on to Farningham, where the party had tea, the roads were rapidly getting into fine trim. However, shortly after leaving Farningham, rain began to fall rapidly, increasing to a perfect deluge. This necessitated a delay of nearly half an hour in the shelter of a friendly inn. Off once again, running cautiously over swampy roads, it was decided to make for Sevenoaks, which was reached late on in the evening. A short circuiting difficulty had worried one member of the party for the last few miles, and the interesting sight might have been witnessed of an attempt to effect a moonlight repair. The particular member to whom this trouble occurred had, with commendable forethought, provided himself with a jack-up stand, which came in rather useful. Before reaching Sevenoaks the weather had played havoc with the members of the party, one member getting so far ahead of the others that he thought he was to be the only one likely to continue the run. Thinking discretion the better part of valour, he decided to take the train at Wrotham and make tracks for home. Curiously enough, a brother in distress, who had a mishap with his valve lifter, had similar ideas, and likewise took train back home, chancing to take the same train at a station or two farther on. Nothing daunted, the survivors got well under way again next morning, taking the main road to Hastings. On through Tunbridge the roads were rapidly improving, although great care had to be exercised when striking greasy patches under the trees and sheltered places. The scenery was strikingly fine, and could be thoroughly enjoyed with the machine bowling along at 20 miles per hour with practically no exertion on the part of the rider. Long stretches of hilly road put the motors through a pretty stiff test, and proved the practicability of these machines. More than one stranded motorcar was passed on the way, and the police were active at many places, several cars being booked for furious driving. Maintaining a steady speed over the excellent Kentish roads,



20 h.p. Gardner Serpollet, with Mr. A. J. Dew up: one of the fastest vehicles of the day.

Battle Abbey was passed and Hastings sighted about one o'clock. Negotiating the long descent into the town the party drew

into Bexhill were entered upon. This did not prove to be the pleasantest part of the trip; lack of petrol, combined with a sudden deluge of rain, managing to upset the programme slightly. However, Bexhill was reached in good time for tea, and the short tour came to a close. Taking into consideration the circumstances, the run was a decided success. E. H. Arnott, H. Kennett, E. Perman, B. A. Hunt, G. F. Sharp, J. Van Hooydonk, F. W. Weatherly, N. Scantlebury, A. Westlake, A. G. Quibell, and others took part in the run.

### The "Man in the Street" at Bexhill.

The very atmosphere reeked with the smell of paraffin. No cabs or horses to be seen; only throbbing, puffing, and snorting motors everywhere. Wild-looking individuals in strange garb—some of which would frighten a Red Indian out of his skin—had taken possession of the hotels and boarding houses. Nothing talked about, only horse-power, kilometres, exhaust boxes, sparking plugs, and such like paraphernalia—and such languages, it was like the Tower of Babel let loose. One had scarcely got off to sleep on Sunday night, before the clatter and banging of these weird creations had commenced once again. No use trying to sleep; one had to get up and see the fun. Away up the hill at the far end of the course one could see a puff of smoke and a fair-sized speck emerge from it: a few seconds, and, lo! a monster dashes past, causing the very earth to tremble. Mud, mud everywhere splashes off the wheels right up to the windows of the boarding houses; of the drivers of these distance annihilators nothing could be seen except a crouching figure with streaming hair, whose hands had a death-like grip of the steering wheel. The life insurance premium of these men must come fairly high, for there seems to be very little between them and the next world. Yes it was a strange and uncanny sight to see the flying boxes of machinery dash past at 60 miles an hour.

[These impressions of the "Man in the Street" may be very real at present, but that individual has to get used to the motor car.—Ed.]



Measuring.

Messrs. Roger Wallace, K.C. (Chairman of the Automobile Club), Claude Johnson (Secretary), and F. T. Bidlake.

up at the Royal Oak for lunch. After a ramble along the sea front, the last few miles



Assembling for the Start.



### THE "ALCOHOL" TRIALS.

What will most likely be the only motor-car race allowed this year by the French Government took place last week under the name of "Concours de l'Alcool," and what is more, it was organised by the Government itself, the idea being to encourage the use of alcohol instead of petroleum. It must be understood that the first product is a French one while petroleum can only be obtained from foreign countries.



BARDEAUX.  
Winner Motor Cycle Class in the French  
alcohol trials.

The list of events was divided into two classes, one a purely speed race over a distance of

922 KILOMETRES,

the other a tourist contest over a similar distance, but divided into three sections instead of two. The only notable absentee was Fournier who was disabled at the last minute through a mishap to his car. The start took place near Paris.

The choice was therefore divided between René de Knyff, Maurice Farman and Jarrott,

WHO REPRESENTED ENGLAND,

but the first named was out of it in the early stages owing to a slight accident to his car, and the fight lay throughout between the other pair.

However, Farman proved an easy victor, finishing first on both days. After having reached Arras first, by over half an hour on the first day, he also reached Paris again first on the second, his total time being 11 hrs, 56 min. for the 575 miles, which is remarkable when one bears in mind that rain fell during the whole of the race.

After having ridden a very fine race,

JARROTT FINISHED SECOND,

just one hour behind the winner. Both rode the same type of heavy car, a 40 h.p. Panhard.

But perhaps the most remarkable performance was that of Marcellin, who won the light car class (with a weight limit of 1,450 lbs.), and in doing so managed to finish third in the general placings, his time being only a few seconds slower than Jarrott's. He rode a 16 h.p. Darracq car.

The voiturette class resulted in a win for Grus on a Renault, and the motorcycle category fell an easy prey to Bardeaux, who finished

ALONE OUT OF FOUR STARTERS,  
on a De Dion tricycle.

On the whole the contest was a distinct success.



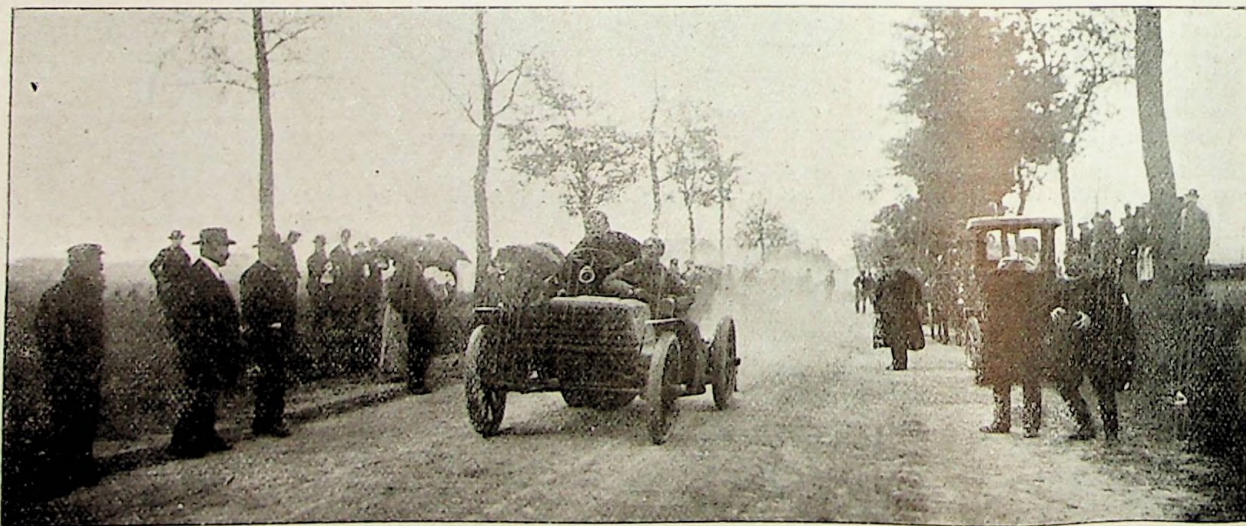
M. Farman winning the alcohol race.

The papers last week announced the approaching marriage of Mr. Mark Mayhew, the well-known motorist.

According to a recent report, motorcycles are forbidden in Munich, and motorcars are limited to a speed of 7½ miles an hour!

His Majesty has decided that no motors of any kind can be allowed on Ascot Heath during the races, for fear of accidents.

Mrs. Lewis Waller, the actress, was sued by Mr. Dick Farman, of the General Automobile Agency, Long Acre, last Wednesday, for non-acceptance of a car which she had ordered. Mrs. Waller pleaded that the car sent was unsuitable, and a verdict in her favour was returned, together with the return of the £100 deposited.



C. JARROT finishing.  
The English motist who finished second in the French alcohol trials.



## INVENTION.

*The latest improvements in motors, motor cycles, and accessories.*

### **An Ingenious Speed Changing Device.**

In the illustrations shown we have the details of an invention which it is claimed offers a complete solution to the problem of a satisfactory speed changing mechanism for motors. The name of the inventor is M. Roger de Montais, and the apparatus has successfully passed the ordeal of a

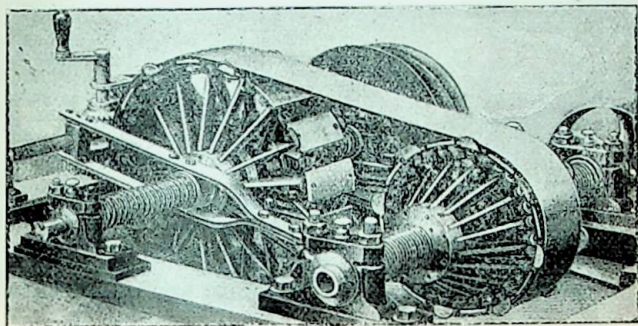


FIG. 1.—AN INGENIOUS SPEED CHANGING DEVICE.

series of most rigorous tests applied under the direction of one of the leading authorities on engineering in France. The principle of the arrangement is that of two expanding and contracting pulleys, which are connected together by means of a flat belt. The rims of the pulleys are made up of sections and each section is supported by two rods joining a V (shown in Fig. 2). The centre of each of the rods joining the V is connected by a shorter rod to a central holder just on the shaft between the legs of the V. As these supporting frames are all equal they expand and contract together. They are made from sheet steel so as to provide a slight elasticity to the system.



FIG. 2.

The middle of the pulley is in three parts, the two outer, or side holders, being able to slide along the shaft, and which thus move the levers which cause the pulley to contract or expand. This movement is regulated by a forked lever which works across one of the side bosses. One end is pivoted and the other will be seen to be carried by a block which can be moved along a right and left hand leading screw by means of hand gear. It will be noticed that the tensioning of the belt is automatically effected. The pressure of these springs diminishes as they lengthen, but at the same time the diameter of the pulley increases. The result is that if the power and flexibility have been correctly calculated the belt always remains taut. An important advantage of this device is that it is only necessary to govern one pulley in order to obtain the variations in speed. It is moreover applicable to a wide range of power, and can be adapted to anything between 10 and 400 horse-power.

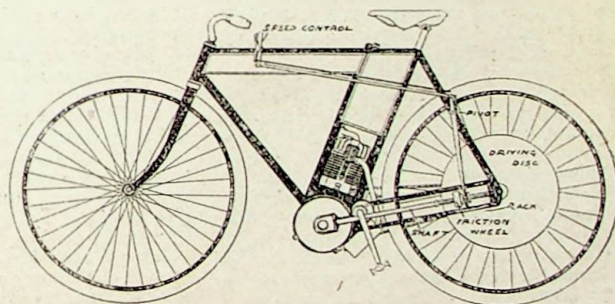
### **The Power-Transmission Problem in Motor-Bicycle Design.**

It will be generally admitted that the problem of how to best utilize the power of the motor to suit the varying conditions of road surface, gradients, and weight to be propelled, is a most important one—if not the most important—in motor-bicycle design. It is doubtful whether the employment of a two-speed gear will do more than partly solve the difficulty. To get the highest efficiency from these small

petrol motors it is necessary that they be run at their maximum speed with a constant and minimum supply of gas, and with the firing advanced as far as possible. Now just consider the means of regulation adopted at present on these small motors. To keep the speed up when climbing hills, the normal quantity of gas admitted to the cylinders must be greatly increased, and also the strength of the mixture likewise. This results, in some instances, in the motor getting over-heated and unable to take the load; then to attain a very slow speed, the wasteful method of retarding the spark and throttling the gas, results at best in the motor running very unsteady, and developing practically no power.

To overcome these difficulties an American writer on motor bicycle design has put forward a suggestion that the employment of a friction drive with speed and power varying device is quite practicable. He deals with the matter in detail and from the diagram a fairly clear idea of the management may be got. The position of the motor shown is not absolutely essential, but it is convenient for connection to the driving-wheel. The crank box forms the bottom bracket, and it will be noticed that the frame has two diagonal tubes. Between these the motor cylinder is fixed rigidly.

There are two level gears mounted in a dust-proof casing on the left side of the crank case. Through these the motor drives a transmission shaft whose rear end is carried by a ball bearing; there are also two compression tubes above and below the transmission shaft; the friction wheel is so mounted upon the transmission shaft, that although it is keyed thereto, it can be made to slide along a certain portion of it and across the face of the friction disc—this being secured to the driving wheel by the hub or spokes. Now as to the methods of controlling the position of the friction



wheel, there are many ways of effecting this, one of the most effective being that shown: the friction wheel has a grooved boss or hub which engages loosely a circular part of a lever rod which will be seen to be pivoted on the back forks. Another lever extends from this to a position on the top rail of the machine; the friction wheel is held in any desired position by means of a pawl which engages in the rack, which is mounted on the lower stay; this pawl is actuated by connecting rods which follow the levers to the rider's handle control. A spring release grip provides for positive and quick action at both ends.

The disc is bevelled off an easy curve, so that the friction driving-wheel can be run on or off with a gradually increasing or diminishing pressure. Thus, at starting, if the wheel is near the edge of the disc, the bicycle can be started at its lowest speed and without jerking. As soon as the machine is going, the wheel can be run up to the centre of the disc to increase the speed. A rigid mounting for the transmission rod would not be desirable, so a spring device would be fitted to ensure the necessary frictional contact through between wheel and disc. The adoption of this system of driving would not require the use of a spark advance or throttle valve, and thus the machine could be controlled by one lever.



## OTHER PEOPLE'S VIEWS.

Correspondents are asked to write their views in a brief and concise form. We have been obliged to hold over several interesting letters this week owing to pressure on our space.

### Engine Position.

#### *Because of Vibration, favours the Horizontal.*

Sir,—I think, from the point of view of vibration, that the horizontal motor would be the best, as the thrust is in the direction of travelling and also parallel to the road. This would, undoubtedly, make the vibration less than the vertical, but as regards wear and tear, I would rather not express any opinion, as this has to be proved. I do not think that the tests ought to be made on a fixed bed plate in a shop, but on the bicycles themselves whilst running over give and take roads, as the wear and tear without vibration will not be so much as with.

Could not the motor on the Singer bicycle be turned round to any position? If so, why not subject three bicycles to an experiment of running them each 500 miles with the motors placed (1) vertically; (2) horizontally; and (3) inclined, and then give each cylinder a micrometer test?—Yours faithfully,  
L. A. WILLCOX.

#### *Inclines to the Vertical.*

Sir,—I must add my opinion in favour of the vertical engine which is preferred by so many of your readers.

Mr. Browne's article on the horizontal engine reads very well, but I feel sure that when he has had further experience of horizontal motors, he will follow the suit of all the best makers and speak emphatically in favour of the vertical type.

Only recently, on the attempted non-stop run from Glasgow to London, the Wolseley car (which is a similar type of vehicle to the Benz, but with chain instead of belt from engine to gear), had to abandon the run on account of cylinder lubricating troubles.

The horizontal cylinder seems to lubricate well while everything is perfect, but if the least thing goes wrong with the supply (such as a stoppage in the pipe), trouble begins and probably very serious trouble too.—Yours faithfully,  
ERNEST H. ARNOTT.

#### *Compared with other types.*

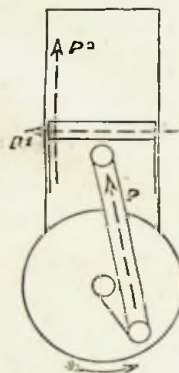
Sir,—Very few locomotive engines have the cylinder horizontal. Generally they are slightly inclined, especially goods engines. Marine engines are either horizontal, vertical, or diagonal (angle of 45°), or oscillating. Land engines are either vertical or horizontal, or any angle in between, to suit locality or buyers' requirements, and they all work equally well, so that if a steam engine is any guide, the position of the engine is a mere matter of taste.—Yours faithfully,  
"STEAMER."

#### *Champions the Vertical.*

Sir,—I think that the vertical position for the engine is the best. Suppose that in the horizontal or inclined position the cylinder does not wear oval more than the vertical. (1) Which looks the neatest? (2) What advantage has it in being strapped to the bottom tube? (3) Is it as securely fastened to the tube as it is when fixed in the position of the New Werner?

I should like to point out that the vertical

position is not free from uneven wear, as Mr. T. C. Pullinger points out. The same applies to a vertical engine, with the exception of the weight of the piston.



When the fly wheel is carrying the piston up, the thrust is transmitted along the connecting rod to the piston, where it is split up into forces acting at right angles to each other, one force (P1) acting at right angles to the cylinder wall, and the other force (P2, which is the greater) acting parallel to the cylinder wall.

In motors which are driven with a crossed belt, this thrust against the cylinder wall acts on the upper wall; it therefore counteracts the weight, to an extent, of the piston on the lower wall in an inclined motor.—Yours faithfully,  
WILFRED N. LIVERSIDGE.

### Petrol v. Motor Spirit.

Sir,—I have noticed lately a paragraph in your paper dealing with the question of motor spirit, and stating that petrol was better than Pratt's motor spirit for use in motorcycles. As one who has used both spirits, I am fain to admit that I cannot find any appreciable difference between them.

Altogether too much importance is made of the so-called quality of spirit, and I am convinced that nine times out of ten the trouble that is experienced with a motor is due to some cause quite distinct from the spirit.

Over-lubrication of the cylinder is frequently a cause of carbon deposits being found on the platinum points of the sparking-plug, yet it is almost invariably placed to the discredit of the spirit. Again, faulty explosions are attributable to the three following causes:—Failure of the electric spark, improper admixture of air and spirit vapour, and faulty compression, and have nothing whatever to do with the quality of the spirit used. Complaints of this latter proclaim the amateur.

Providing the spirit is of the proper specific gravity (a densimeter will soon determine this), and free from grit, there is nothing except ignorance to prevent it doing its work well and efficiently in any motor, and whether it was distilled in London or New York, or Timbuctoo cannot possibly have any influence on its quality.

If the fact that the density of petrol varies with the temperature were more generally known, perhaps we should have fewer complaints, as riders would soon learn to vary their mixture accordingly.

Apologising for trespassing on your time and space, yet feeling the matter is of some importance.—Yours faithfully,  
"EXPERIENTIA DOCET."

### Belt Troubles.

Sir,—The twisted motor-bike belt never can be satisfactory, the twisting causing the tension to be on different directions of the leather, and therefore increases stretch.

A better belt would be made of flexible steel multiple wire cord, this cord to be filled with leather washers of the required diameter. This makes an excellent gripping belt, and the stretch is very little; even the little stretch that does take place can be taken up by inserting an additional washer or two. These must have a diagonal slit from the internal hole to outside, to allow of placing in position and cementing together again.—Yours faithfully,  
T. HAMPSOX.

### On Petrol.

Sir,—Re your article on petrol in issue of "MOTOR CYCLING" of the 7th inst., and your paragraph on page 208 concerning its dangers. Your remark therein to the effect that "there need never be the least fear of the petrol getting ignited by the electric spark" is not altogether borne out by a recent experience of mine.

In common with many other folks, I have lately acquired a motor-bicycle. My machine is fitted with a spray carburetter, and, with several types of these, as many of your readers doubtless know, it facilitates starting, if one depresses the float until the petrol shows its presence by flooding. I acquired a knack of testing the machine before starting out by grasping the back stays in the right hand, lifting the back wheel, giving a vigorous thrust on the left pedal with the foot, simultaneously switching on the current and letting the motor run for a few moments.

On one occasion this was followed by a big burst of flame from the carburetter, and an exciting time ensued in the endeavour to smother the flames before any damage was done. In this I fortunately succeeded, but although I have several times since tried, intentionally, to repeat the operation in order to find out the cause of the fire, I have never been able to do so, and up to the present it is somewhat of a mystery to me how it arose. The carburetter is below the motor crank chamber. There is a small tube leading from the end of the silencer and passing transversely across the pulverising chamber of the carburetter. The open end of the tube does not communicate with the inside of the carburetter, and theoretically any exhaust gases passing through it are directed downwards, and away from the carburetter.

If any of your readers can throw light on this matter in your correspondence columns I should be glad to be favoured with their opinions.—Yours faithfully,  
T. W. BLUMFIELD.

### Single Lever Control.

Sir,—As "Duplex" criticises our combination lever with such manifest impartiality, will you kindly allow us space for a short reply? He says, "The machine ran as well or better than any bicycle I have been on." Yet, on the other hand, he says, "One cannot retard the ignition and open the throttle for hill climbing."

It seems to us that "Duplex" got the effects he wanted without knowing how he got them. Let us explain. The combination lever does not advance the ignition at all until after the throttle is fully open; it follows, therefore, that the condition asked for, namely, a full



supply of gas in conjunction with retarded ignition, as required in hill climbing, is perfectly provided for by the single lever control. The only difference is that it is provided by one lever instead of two, and without any chance of error, either by the beginner or the expert.

As to "running at full speed with throttle nearly closed, and the ignition at a very early point," such as would be required for very high speed down a gentle incline, it will probably be information to your correspondent when we state that when the machine is running at ordinary high speed on ordinary roads, say, 30 miles an hour, the lever is not advanced to its fullest, neither is the ignition. By moving the lever still further forward, it begins to close the throttle and proportionately advances the ignition. Thus is obtained the second effect that "Duplex" is in search of, namely, small supply of gas, very high speed, correspondingly quick ignition, with small combustion and the engine kept cool.—Yours faithfully,

THE QUADRANT CYCLE CO., LTD.,

WILLIAM PRIEST,

Managing Director.

### The Dashwood Trials.

Sir,—In your report re the Automobile Club Trials at Dashwood Hill on Saturday last, you state that I "on the Humber, managed on more than one occasion to do the journey without using the pedals." As a matter of fact, I ascended the hill seven times without once assisting the motor. Your statement, therefore, is distinctly misleading, as it would convey the impression that in at least some of the trials I assisted the motor. I shall be glad, therefore, if in your next issue you will make the necessary correction, and give me full credit for my performance.

Whilst writing on the subject of these trials, I would suggest that in future competitions each machine should make the full number of ascents without a stop. On Saturday, as much as half an hour elapsed between some of the ascents. This would give an undue advantage to a competitor whose engine was running very hot, as it would give time for the engine to cool down and would thus place him as advantageously as another competitor whose engine was keeping cool. As one of the chief sources of lost power, and, consequently, hill-climbing capabilities, arise from engines getting hot, the value of my suggestion is obvious.—Yours faithfully,

BERT YATES.

(We gladly publish Mr. Yates' letter and hasten to assure him that we had no intention whatever of misleading, and regret that our report should have been capable of such a construction. Our representative endeavoured to be here, there, and everywhere, but signally failed, and so he did the best he could.—Ed.)

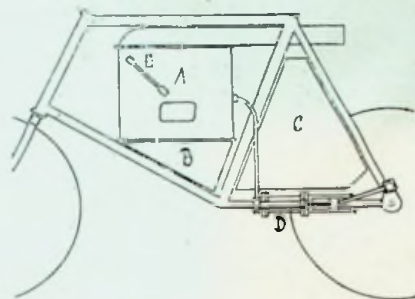
### How an Ormonde Fared.

Sir—In your article on the above you mention Mr. Yates on his Humber as climbing the hill on one or more occasions without use of pedals. Might I also say that my last three ascents were also accomplished without use of pedals; also that 25 miles of the non-stop home journey (thanks to the consideration of Mr. Perman, on his 12 h.p. Gladiator, with whom my observer rode) was done on the rim, my back tyre being punctured by a tack which I saw some boys diligently laying at High Wycombe. This, I think, speaks well for my Ormonde, as the wheel has not given at all, while the Dunlop-Bartlett motor-bicycle tyre, shows no signs of the doing it must have had, and it did bump a trifle at places.—Yours faithfully,

JAMES ADAMS.

### Steam Bicycles.

Sir,—As your correspondents, V. O. Smith and P.G.G. wish to construct a steam bicycle, perhaps the enclosed sketch and description from memory of a practical steam bicycle may interest them. The boiler A is a flat, multitubular one, 18 inches long, 6 inches wide, and 18 inches deep. The fire box was about 5 inches wide, 17 inches long, and 8 inches in depth, and the fuel was coke or charcoal. B is the ash pan, C the water tank. The engine D was an ordinary single cylinder, about 2 inches diameter, and 4 inch stroke, driving direct on the back wheel. The feed pump was worked direct off the cross



head, the usual practice and simplest. E is the water gauge, placed in a slant, to be seen easily from the saddle. The usual safety valve and pressure gauge were fitted. One stoking of coke was said to be sufficient for a 20 mile run, though liquid fuel, petrol and paraffin could be used. Four gallons of water would probably be enough for a run of the same distance. The above mentioned bicycle was described in the "American Machinist" about two or three years ago, and was described as breaking the then track records at an alarming rate when the trials were brought to an abrupt termination by the death of the rider and builder on the machine through heart failure.—Yours faithfully,

STEAMER.

### Another Claimant.

Sir,—I enclose photo of motor-bicycle. I see that a Mr. Chatfield has described in last week's "MOTOR CYCLING" the exact replica of my design. I beg to inform you that I have had this design on the market since October 10, 1901, and have sold machines since then with the exact frame that Mr. Chatfield claims to have brought out. The bicycles are made and sold by Mr. W. James, Fairfield Cycle and Motor Works, 468, Eccleshall Road, Sheffield, and we fit 2½ h.p. De Dion engines, special tanks to carry petrol for 100 miles, spray carburetter, and automatic lubricator. The belt is special hide, our own make. Complete machine



costs £45. Any tyres can be fitted. The cycle in photo enclosed was ridden from Sheffield to Birmingham, 84 miles, on a trial run, with only three stops for refreshments, in four hours and a half. The roads in some parts were greasy, but side-slip was not encountered, the machine being handled with utmost ease. Trusting you will give credit and honour where honour is due.—Yours faithfully,

J. W. LUCAS.

### The Sparking Current: Is it an Alternating or Continuous one?

Sir,—I notice your contributor, "Cyclomot," publishes an article this week in which he states that the consensus of opinion regarding the effect of reversing the current would show that it is immaterial in its effect at the plug, owing to the induced current being an "alternating" one—that is one rapidly changing its direction of flow, in fact, it may be some thousands of reversals a minute.

Might I be allowed to say that this opinion is fundamentally wrong? It is a remarkable fact how general is the idea—even amongst people with a good general knowledge of electrical matters—that an induction coil acts exactly like a transformer. As far as the principle of induction of the secondary current is concerned, it is so, but the direction of the flow is undoubtedly uni-directional. There certainly is a very slight reverse current at the moment of making contact, but it is at the demagnetising of the iron wire core that the firing spark is produced, and as the core always gets magnetised in the same direction, the induced current must flow through the coil the same way at every break. The current is, of course, a pulsatory one, or, it would be more correct to say, an intermittent one. Having had a large experience in the actual making of experimental coils giving sparks up to 16 inches in length, and these work on exactly the same principle as a motor coil, I can assure "Cyclomot" that it does not make a big difference whether you spark from a point—which should be the positive end of the secondary—on to a disc or plate. One coil I have, giving 13 inch spark, gives its full effect on a disc 4½ in. diameter; the positive end of the coil terminating in a needle point. Reversing matters, reduces the spark to 5 inches, hence I always recommend the insulated point of the sparking plug to be the positive.—Yours faithfully,

"ELECTRICAL ENGINEER."

### Care of Accumulators.

Sir,—I have lately been much surprised to find how little the average motor man cared for his ignition accumulator. Now the life of any accumulator is at the best short, but careless use tends to still shorten that life.

The good working and durability depend on the quality of the electrolyte in a great measure, yet this is often impure and of the wrong density, which should be 1.180.

The water used for diluting the acid should be pure, rain water or distilled water being preferable to tap water. Yet, water containing such impurities as chlorine, iron, ammonia, nitric acid, etc., is often used; no wonder the poor cell "gives out."

Some riders can't understand why "flashing" or short-circuiting a cell should ruin it, and last week I even caught an electrician (Ahem! Yes! In the city, too!) gaily charging up a set of car cells with about three times the maximum charging current.

If the rider will give a little attention to his accumulator from time to time, he will be well repaid for his trouble.—Yours faithfully,

"ELECTRICAL READER."



## OUR INFORMATION BUREAU.

A large number of replies have been dealt with through the post. Information on all subjects pertaining to Motors, Motorcycles, and Motoring generally, will be given to readers who seek such information or advice. Any reader who desires to ask a question with a view of ascertaining the views of other riders based upon actual experience should send his query, which will be inserted, and replies to such questions will duly appear, if of general interest; if not, a reply will be sent by post; a stamp, therefore must always be enclosed.

D. P. (London, S.E.).—We can endorse your choice of a Phoenix tandem. It should climb an average hill without assistance.

D. Smith (Bedford).—These carburettors are supplied by Brown Bros., Ltd. You might also give the "Meredith" a trial.

C. F. (Peckham).—We can speak well of Calvert's motors. Many of his ideas conform well with our notions as to correct design of a motor for a bicycle.

L.R. (London, S.W.).—We can thoroughly recommend the Ormonde. The workmanship of the motor is extra good, but it would not be fair to say that it is an all round better machine than any other on the market.

### Water Cooling.

J.S.R.R. (London, E.C.).—Yes; you will find that the addition of a water cooler will materially increase the power of the motor. It will be much better for hill work especially. The power can also be extended by increasing the size of the valves and raising the compression. A loose cam or pinion wheel would certainly tend to cause a miss fire now and again; better have it firmly keyed on its shaft.

### Belt Slipping.

G. A. B. (Sutton) seeks information about his belt. Is there any method to avoid the slipping? and his is of the flat variety. "Is it advisable," he asks, "to roughen the small pulley wheel with a file, or punch holes in it to help get a better grip, and prevent slipping? I dare say some of the experts on your staff could give me the benefit of their trials and experience." Have you dressed the belt with castor, or, better still, "collan" oil? A better plan than either you mention is to fasten a strip of raw hide around the pulley face; this you could do either by cementing it on or rivetting. Then, of course, a jockey pulley properly placed would prevent slipping to a large extent.

### Spare Parts for Abroad.

A. S. (Mallow) is shortly going to Ceylon, and is taking with him an Ariel tricycle. What spare parts should he provide himself with to last three or four years? If he is going to get through a deal of riding he will require a good stock of parts, say, at least three each of the following:—Sparkling plugs (De Dion) and an E.I.C. plug, exhaust valves and springs, trembler blades and platinum screws, driving bands and fasteners, 2 inlet valves complete, 2 spare accumulators, several lengths of insulated wire for low and high tension, half a dozen each size valve washers, spare nuts for the motor and bicycle (say, 3 of each), insulating tape, copper wire, repair outfits, 2 spare inner tubes, 1 outer cover for tyres.

H.S.M.—We should advise you to get the Special Excelsior; the workmanship is the highest possible, and you would do well to write them (Bayliss, Thomas and Co.) stating your special requirements.

### The Rectifier Illustrated.

A very large number of readers have taken advantage of our offer to send particulars of the rectifier for charging accumulators from an alternating current. We shall be glad if readers in future will write direct to the General Electric Co., Victoria Bridge, Manchester.

### Running Troubles.

H. W. (Cheltenham).—Your difficulty is due in all probability to (1) either faulty adjustment of contact breaker, or else your accumulators are discharged. See the contents are clean, and batteries over 2 volts each. (2) You must weaken and reduce your mixture, and put your ignition lever at its latest point. (3) On a good level road you should be able to run 10 or 12 miles without admitting more petrol; but this is so dependant on circumstances.

### Speed Limit for Motorcycles.

B. L. P. (Lamberhurst) wishes to know if a motorcycle is under the same regulations as motorcars in regard to speed, i.e., the maximum of 12 miles an hour. Yes, the motorcycle is amenable to the same regulations, although so far very few cases have been tried; and, absurdly enough, at least one court has held that the maximum speed for a motorcycle drawing a trailer is six miles per hour! Our correspondent compliments us upon our paper, which is called "The Ready Reference" in his district.

### Parts Required.

Nelgar (London, E.C.) wants (1) the address of some firm who can supply him with a carburettor drain tap such as we recently described. You would get a drain tap from The United Motor Industries, 42, Great Castle Street, Oxford Street, W. (2) The belt fastener illustrated on page 161. Mr. Calvert, Woodville Road, Mildmay Park, N., would supply this. (3) You had better write Quadrant Co. as to supplying their throttle attachment separately from their machines. (4) Of the two machines mentioned we prefer the F. W. (5) Yes; "spray" and "pulverising" are synonymous terms.

R. C. P. (Southsea).—The address you require is Messrs. Carless, Capel, and Leonard, Hackney Wick, London, N.E.

C. R. (Runcorn).—The address of the Wilkinson tread makers is the Wilkinson Tyre Factory, Princess Street, Huddersfield.

R. K. (King's Lynn).—We believe the "Shaw" has a good local reputation, and, as it possesses a more powerful engine, it must naturally be better at hills than the others you name. On the other hand, it is a rather heavy machine to manage.

### With a Trailer.

E. T. (Kensington).—We do not think you would find the exhaust or dust troublesome. You might just be able to notice the smell of the petrol now and again, but if the exhaust box is taken well under the frame this would be very slight indeed. The trailer would be sufficiently high up to clear the dust, you will find.

### To get Best Results.

C.B. (Bristol) wishes to know the proper way to adjust and regulate the spray carburettor on the Ormonde engine, or could we let him know of any book which mentions that carburettor. His difficulty is principally ignorance as to when the upper set of air channels are intended to be used. Rather difficult to explain, as we have had no actual experience, but we believe that the London Autocar Co. or United Motor Industries would give particulars as to management of this carburettor. In any case, C. B. might experiment until he gets maximum results.

### The Clement-Garrard Motor.

A. J. H. (Dublin) wants to know (1) the name of the firm supplying the Clement-Garrard motor. You had better write to the Garrard Engineering Co., Magneto Works, Ryland Street, Birmingham, who will supply all information. And (2) could we candidly recommend him to attach one of these engines to a first grade Raleigh full roadster, of this year's pattern? Yes, we should say that the workmanship could not be better. You may fit it to your Raleigh, but first have the forks strengthened by running two light tubes from axle of front wheel to the handlebar clip.

### About the Ormonde.

A.M. (London, S.E.) has ordered an Ormonde, and would like to be enlightened on one or two points, and these are as follows: (1) Does oxidizing wear well, and is it expensive? You will find the oxidizing stand well with ordinary care. (2) I find the ordinary Bowden lever causes my hand to ache. Are the twisted handles an improvement or a disadvantage? We believe the lever arrangement to be the most efficient. (3) Which kind of driving belt would you recommend? Get a  $\frac{3}{4}$ -inch twisted hide—but an inch flat belt, if at all possible. (4) Are the New Departure hubs satisfactory for motorcycles? Yes; the New Departure hubs are used to a large extent for motorcycles. (5) Could I take an electric light from my accumulator, or would it affect the engine? You could run a four-volt electric lamp from your battery without affecting your motor, but you would use up the current quicker. (6) What tools are advisable to carry on a journey? Look up a former article—"Roadside Repairs."

## "CYCLING."=====

Every motor cyclist should read the most popular cycling paper, which is published every Wednesday, and contains all the cycling news. It is always full of interesting illustrations, news-pictures being its strong feature. This week's "CYCLING" contains illustrated reports of the principal

## Whitsun Racing.

together with a mass of varied and entertaining literary and artistic matter. This issue is on sale on Thursday, one day late, owing to the Whitsun Holidays.