

# The Motor

INCORPORATING

Motor  
Cycling & Motoring

Vol. 3, No. 78,

August 5th, 1903.

## A NOVEL DESIGN FOR A MOTOR-BICYCLE FRAME.

By H. SMITH.

The following is a description of a motor-bicycle frame, constructed, as far as possible, of sheet metal, in such a manner as to provide ample accommodation for petrol and oil supplies, coil, tools and equipment.

We are so accustomed to see frames constructed entirely of tubes that no one seems to have thought it possible to use anything but tubes; and undoubtedly there is good reason for this, considering their strength and lightness, but a tubular frame, in the writer's opinion, is inconvenient for fixing engine and tank to, and limits the size of the latter too much. As will be seen by a glance at the diagram, the writer's idea is to make the middle part of the machine from sheet metal and only have the back stays and front forks made of tubing in the usual manner. Special lugs for connecting the back stays to the sheet metal frame would have to be designed, which would be a comparatively simple matter.

The steering head would pass through the front part of the petrol tank, and the top of the tank could be curved up a little, so as to be at right angles to the centre line of the steering head. This would enable a good gas-tight joint to be made. The front part of the tank could either be square or form a semi-circle round the front of the steering head.

The distance between the sides of the frame is just enough to allow the crank case, without the end covers, to fit in, the end covers being fixed on the outside of the frame by bolts passing through them and the sheet metal. The case thus grips the sheet metal frame on each side between the crank case and covers. A circle is cut out of the frame to correspond with the inside diameter of the crank case, so that flywheels or shaft can be passed through in fixing the engine in position.

### BY ADOPTING THIS METHOD OF FIXING THE ENGINE

no lugs would be required, either on the crank case or cylinder head, thus saving a little in weight, obviating the trouble of machining to fit tubes, which operation has to be performed very accurately. The cylinder could be fixed either vertically or sloping forward with very little alteration in design. The bottom of the petrol tank comes just below where the steering tube passes through the tank, and below this the sides are cut out so as to make two neat spaces for the free circulation of air round the cylinder for cooling; the cylinder and fittings can easily be got at, and weight is saved. The spaces are shaped so as to allow enough width of metal in front of and behind the cylinder for strength, and the two pieces in front

can be further stiffened by having two or three round steel or aluminium distance pieces bolted between them at intervals from the crank case to the steering head, which would assist in reducing vibration and give lateral stability. The rest of the frame can be proportioned off in a variety of ways to suit various designs of engines, accumulators, coils, etc.

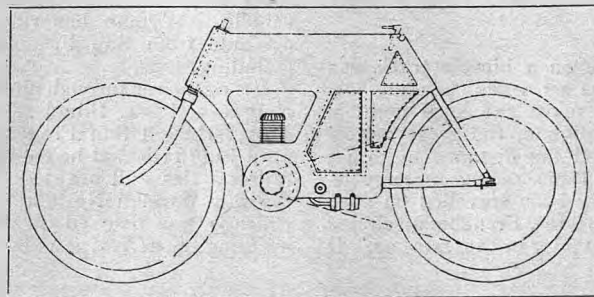
It will be seen from the diagram that this design will allow the whole space between the engine and back wheel to be utilised for compartments on account of the absence of the down tube.

### FOR TOURING PURPOSES THIS WOULD BE MOST USEFUL,

because of the considerable amount of luggage that could be carried. This would be out of sight and safe from dust or rain. The whole of the upper part of the framework from the steering head to the seat pillar could be utilised for the petrol tank and carburetter, thus giving a much larger carrying capacity than most tanks in use at present. In fact, the writer believes if it were made similar to the diagram it would hold nearly two gallons of petrol, which is an ample supply for a long journey. The small compartment behind the seat pillar would be very suitable for containing a lubricating oil reservoir of a capacity proportionate to the supply of petrol. If a belt drive is used it can be made of ample length, and the belt can easily be guarded from the rider's leg by a sheet metal bridge fastened to the frame, or if a chain drive be preferred, there should be no more difficulty in fixing it on this machine as on any other type.

The doors of the compartments are shown in the diagram on the same side as the belt, but they would, of course, be on the opposite side of the machine, and for lightness these could be made of aluminium. The silencer would very conveniently fit just behind the bottom bracket, which is a position commonly used for this purpose, and would fasten on to the bottom of the frame by two clips.

Motors with water-cooled heads are coming into more extensive use for motor-bicycles of high power, and the already limited petrol capacity is encroached upon by a water tank, so that the frame has to be specially designed and every fraction of space used for tanks; but with the frame in this design there should be no difficulty in finding sufficient space for a water tank, and the cooling tubes for the water could easily be placed round the front of the petrol tank. Now that all the details of this frame have been explained there is the question of weight and strength to be considered



The sheet metal used would, of course, be either steel or aluminium, and the thickness of the metal would, of course, be determined by the strength and weight.

From a table of sheet metal the writer finds that—

20s. gauge sheet steel weighs 1.47 lbs. per sq. ft.  
22s. " " " " 1.14 lbs. " "

The area required would be, roughly, about 10 sq. ft., which would give a weight of 14 or 15 lbs. 20s. and 10 to 12 lb. for

22s. (I.W.G.) gauge, which would not be excessive. Probably the weight would be reduced by using aluminium, but the cost would most likely be increased. The strength and stability of the machine would best be found out by experiment.

Another noticeable feature about this design would be the large plain surfaces, which would not catch dust or dirt like an ordinary machine and would be much easier to keep clean.



NEW YORK, July 11th, 1903.

The figures have been falling, and the records going to smash during the past fortnight. The new short distance records, made by Barney Oldfield at Columbus, O., were particularly acceptable after the American team's failure in Ireland. The mile in 52 2-5 seconds, a reduction of 3 1-5 seconds from the figures made by Oldfield at Providence on June 20, has proved beyond a doubt that straightaway and track records in the case of the automobile, as in the case of most other speeding events, are to stand very nearly alike. Winton's records for the miles from six to ten went by the board, in the same manner as did Oldfield's previous records for the shorter distances. The five miles record is now 4 mins. 54 3-5 seconds, and the ten miles 9 mins. 54 4-5 seconds. Albert Champion, meanwhile, has again lowered the track motorcycle record for the mile to 1 mins. 3 secs., 1-5 second faster than Holden's straightaway record, made on the Florida beach last March.

\* \* \*

A mile in less than one minute on a bicycle track was made, and a new world's record was set when, bending low over his handle bars in order to make the least possible resistance to the wind, Albert Champion, the great motorcyclist and pace follower, travelled the distance in 58 4-5 seconds at Charles River Park on his racing motorcycle. This is the fastest mile that has ever been travelled on such a machine, and the manner in which the Frenchman circled around the five-lap track was spectacular in the extreme. It was a hair-raising exhibition of masterly management and of speed. He was in and out of the stretches almost instantaneously, and to the spectators looked as if he was flying through the air rather than following the smooth board surface of the circular track. The machine used by Champion was a long, fourteen horse power four-cylindered affair, with a wheel base as long as the old tandem machines, and requiring handle bars about five feet long and bent almost semi-circular in the middle to enable

him to grip them tightly. The motor is placed between the wheels, and in apposition to give it an even balance. His management of the machine was perfect, and the ease with which he followed the black line at the pole of the track was a marvel to those who witnessed the feat. It took him but three laps to get warmed up to his work, and then he was off like a rocket in his endeavour to beat the mark of 1 min. 3 secs., which he established on the same track last Tuesday night. Before people could realise how fast he was travelling, it was all over, and when the time was announced the spectators simply went wild.

\* \* \*

Riding in the interest of "The Motorcycle Magazine," for which paper he will describe his trip, George A. Wyman, the motorcyclist, reached this city on his machine from San Francisco, and has the distinction of being the first man to cross the American continent on a power-propelled road vehicle. Wyman has ridden, pedalled, and pushed his machine from San Francisco to New York in fifty days, including stops.

His route was through nine states, Nevada, Utah, Wyoming, Nebraska, Iowa, Illinois, Indiana, Pennsylvania and New York. He left San Francisco on May 17th, and it was not until June 11th that he got to Omaha, Neb., having ridden on railroad ties and crawled through snow sheds for much of the way through Nevada, Utah, Wyoming and Nebraska. Chicago was reached on June 18th, where he was held up, awaiting the arrival of a new motor crank from San Francisco,

to replace one which broke. At Buffalo, which was reached on June 30th, however, the motor went wrong through hard usage and crystallisation, and there was a general breaking up of the bicycle. After repairs and replacements, Wyman pushed on to Albany, where he arrived on the 4th of July. Thirty miles this side of the State Capital, his motor again gave out, but the plucky youth pushed on and pedalled all night.

"I do not know my mileage," said Wyman, "for I broke or lost four cyclometers, and then ceased to

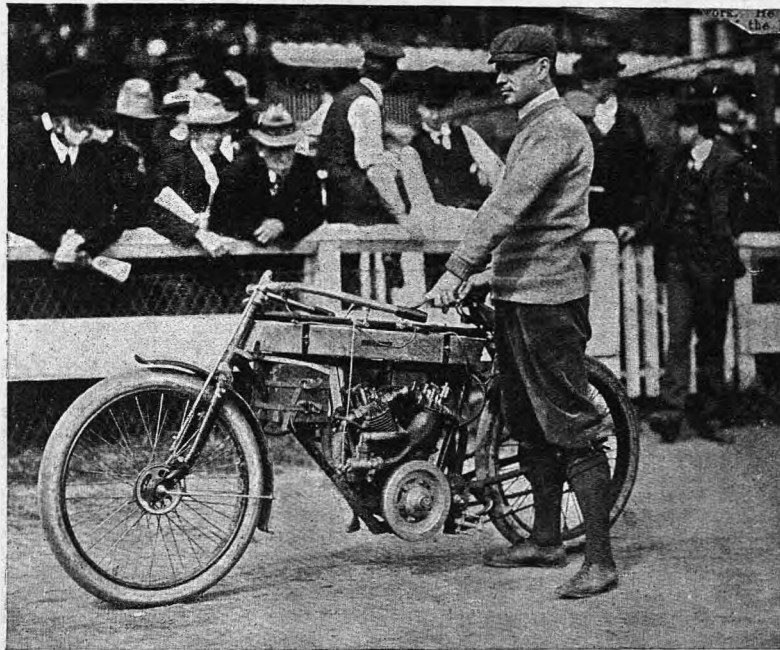


A. A. HANSEN.  
Holder of the World's 1,000 mile and 24 hour record, on a Mitchell 2 h.p. motor-bicycle.

keep an exact record. I think that I rode my machine over railroad ties and pushed it through snow sheds for fully 1,500 miles of the way." The machine that Wyman rode weighs but 90 lbs., and is  $1\frac{1}{2}$  horse power. Wyman is a smooth faced young man of 20 years. He is 5 ft. 8 ins. tall, and weighs 153 lbs.

\* \* \*

When A. A. Hansen, of Minneapolis, started after the 24 hours motorcycle record, he hardly expected to better the cycling record of 624 miles, held by A. E. Walters, the Englishman. His was the first attempt on the record for twice round the clock for a mechanically - propelled bicycle, and he hardly knew the powers of the machine for such a journey. He had expected to reach the 600 mile mark, but thought the Walters' record a little too far for him. Therefore, when the sheets showed 634 miles 75 yards at the completion of the grind, Hansen and his friends were greatly elated. In making



Albert Champion, and the machine on which he rode a mile in 58 4-5 secs.

the record he averaged 28 miles an hour, not including the stops at the end of each 100 miles to reload the gasoline tank and to eat a bit. Hansen rode his first century in 3 hrs. 15 mins. 57 secs., which completely casts in the shade the road record of 4 hrs. 28 mins. For 200 miles his time was 6 hrs. 54 mins. 56 secs., as against the road mark of 8 hrs. 35 mins., which shows how much superior the track is to the road for record riding. The 500 miles were covered in 19 hrs. 35 mins. 11 secs. Hansen claims that if the electric lights had not been turned off at night, he could have beaten 700 miles. At that time he was left in darkness, and was afraid to take any chances going at such a high rate of speed, and consequently had to slow down, losing many valuable miles. He rode a bicycle equipped with two horse-power, and carried the colours of the Congress Cycling Club. WHEEL.



ECHOES OF THE "G.B."

Frantic Tourist-Tripper: "Slower! much slower, please!! My shutter only works at 1-50!!!"



## HINTS AND WRINKLES.

### Fixing the Motor on the Frame.

Motors that are held on the down tube by a long single clamp should have a small centre punch mark made on the clamp and one to exactly correspond on the tube, then, if at any time it is necessary to take the motor off, it can be replaced with accuracy.

### The Adjustment of Spark-plug Points.

The exact distance at which the spark points should be adjusted depends on what length of spark the coil gives. If the coil will readily give a half-inch spark, then the maximum distance of 1-16th inch can be adopted. With small coils giving 5-16th inch spark, about 1-32nd inch will give good results. The least possible gap is 1-64th inch, and should only be used in the event of the accumulators having dropped to 3.8 volts. The trouble likely to occur with such a small gap is short circuiting with a particle of carbon. With a gap of fair length the gases exert a kind of cleaning action, and it is rare that the points get bridged across.

### How to Remove and Replace a Cylinder.

In the event of a broken piston ring or other reason for removing the cylinder, a certain amount of care has to be taken over the work. The holding-down nuts should be removed, and if the cylinder has been long in use it may have become stuck through burnt oil. It can be gently started by inserting the edge of a wood chisel between the case and flange. Once clear of the bolts the cylinder should be drawn away from the piston with the least possible amount of twisting motion, the reason for this being that, in the event of a particle of grit or metal getting between the piston and the walls of the cylinder, it would not be so likely to scratch the bore. When replacing the cylinder, first very thoroughly clean out the inside with a soft rag, and polish the bore by working the rag with a circular motion. The piston must be also scrupulously clean; see that the ring slots are spaced out, and smear them well with some clean lubricating oil. Then slightly compress the top ring to get a start in the cylinder, and do the

same with the others till the piston is well in the cylinder. Avoid twisting the cylinder, as the rings may get shifted out of position. It then only remains to fix the flange down on the crank case, taking care that both surfaces are quite clean. Any patches of charred oil would prevent a good fit, and result in oil escaping at the joint.

### When Taking the Motor Fly-wheels Apart.

If at any time it should be necessary to have to take the fly-wheels of the motor apart, say, for fitting a new bush to the connecting rod, very great care should be taken to see that the wheels go together again dead true. The least particle of grit on the coned surfaces of either the wheels or crank pin has a tendency to throw the system slightly out of truth. This would mean that when the crank case is fitted together one of the wheels might touch the case, because, as a rule, the clearance is very small. The tendency for the system to be thrown out of truth is more noticeable when the wheels have been taken apart several times.



In the early days of the motorcar, makers copied the lines of the horse-drawn vehicle. History repeats itself; so possibly in a few years' time we may see the horse-drawn carriage modelled on motorcar lines. Looking ahead, as is our wont, we have depicted the horse-carriage of the future.

**PETROL ECONOMY WITH THE MOTOR-BICYCLE.**

By **B. H. DAVIES.**

Until the transit of inflammable spirit is rendered easier, or until makers fit larger tanks, those motorcyclists who ride long distances in remote parts of the country are bound to consider carburetter economy. Personally, I have driven under these conditions with both types of carburetter, and believe I have learnt to get as much distance out of a given quantity of petrol as most people.

Taking the spray type first, the carburetter in question was an ordinary F.N. pattern fitted to a very capacious tank. When the tank was full I was troubled by flooding of the jet chamber and overheating of the engine. No adjustment of the supply valve appeared to remedy this. I also noticed that I could drive much further on the lower half of the tank than on the upper; i.e. the first gallon would take me 100 miles generally, and the lower gallon 140-150, with a 2½ h.p. engine. So I had the tank opened and a false bottom fitted, out of which led a pipe and tap to the carburetter. The depth of this division was 3 inches. The upper portion now formed a reserve tank to feed the lower portion through an ordinary screw-down valve.

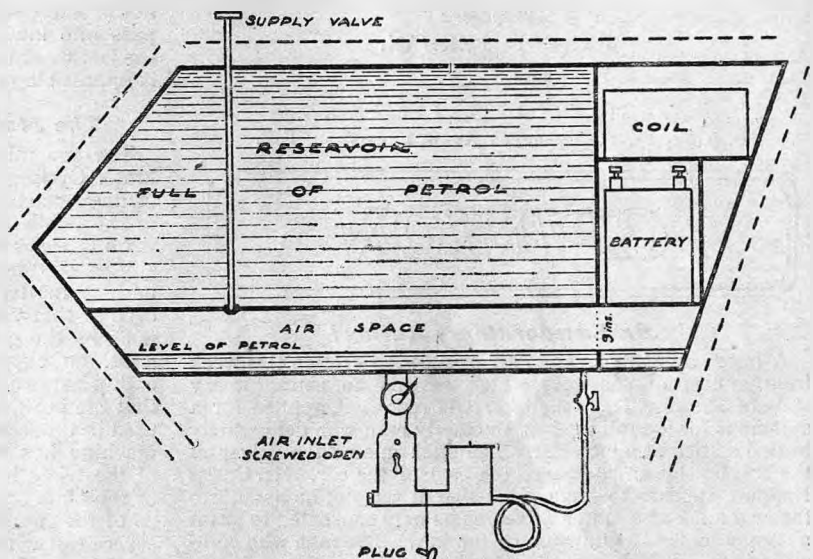
**A REMARKABLE SAVING OF PETROL RESULTED,**

and in my own private belief an increase of power, as the alteration partially amounted to a combination of the spray and surface carburetter. Users of the F.N. carburetter are often anxious to try the effect of opening the extra air inlet on side of the spray chamber. The difficulty is that the engine will not start with it open, and an expert gymnast only could wriggle it open whilst on the move; and if he did, the plate and screw would soon drop off. I opened this inlet, and tightened the screw to hold the covering plate aside; then I made a tiny plug of wood (indiarubber might be better) shaped like a miniature "touche," with a short stem, and suspended it from the inlet pipe by a flexible wire. This is inserted at starting, and when the engine is warmed up a touch of a finger will leave it dangling, and give a better mixture. If the engine is cut off for a few yards it will start again, being hot, without inserting the plug.

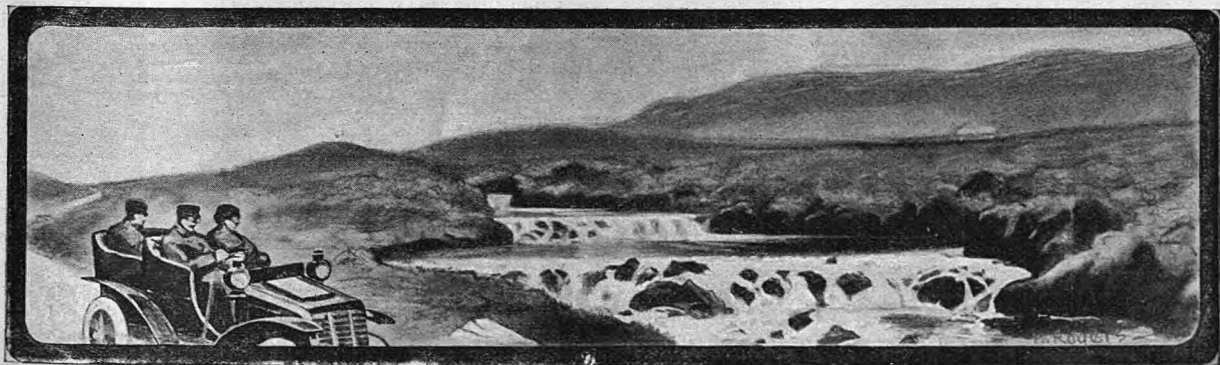
**COMING NEXT TO THE SURFACE CARBURETTER,**

most riders discover that position of the screw-down supply valve which will allow a steady trickle from the reserve tank, and maintain a constant level in the carburetter. This plan,

they say, obviates all fiddling with the mixture lever. To my mind the management of the air lever is one of the chief pleasures of driving; but, leaving that out of the question, they arrive home with say a couple of inches of stale petrol, almost boiling by the heat of the exhaust. Next day they either let this out or add some fresh spirit to it, or have starting troubles. My plan is as follows. (I know of no one else who systematically follows it, and if one has patience enough to work the air lever, it is thoroughly satisfactory.)



I start with the right amount of fresh spirit in the carburetter, the supply valve closed, and (in these days of heavy petrol) usually with the cap of air chimney removed. The air lever will now be wide open. As the level of the petrol in the carburetter sinks I close the air tap gradually, and perhaps replace the cap until the spirit in the carburetter is practically exhausted. Then—and not till then—I admit cool, fresh petrol from the reserve, and open wide the air supplies again. Above all I am careful to adapt the amount admitted to the length of the journey, so that I always reach home with an empty carburetter. Then I have no trouble starting next day, in spite of a heavy machine, dense petrol and a slight up-gradient. The question of petrol economy is an important one now that the touring season has commenced, and these few notes, I trust, will prove specially useful just now.



**THE HOLIDAY TOUR.**



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

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## OPINION

### An Extraordinary Ruling!

A letter appears in our correspondence section this week from a firm of solicitors which reveals an extraordinary state of affairs. The solicitors, it is recorded, applied for a summons for assault against an elderly man who deliberately hurled a stick at a motorist. The stick missed the driver of the car, but hit and damaged the back of the car. Mr. Curtis Bennett appears to have ruled that it was not an assault to throw a stick at a motor driver, so he only consented to grant a summons for the damage to the car. The man who committed this wilful assault stated that he had previously been nearly knocked down by a motorcar, and he seems to regard this as a perpetual grievance, for which he is justified in taking recriminatory measures against all motorists. When the summons was heard he admitted the damage, and swore that he threw the stick in the public interest, and Mr. Curtis Bennett held that it was not done wilfully with intent to damage the car. This is a most extraordinary decision, and it opens the way for prejudiced people to act upon the suggestion of Sir Ralph Payne-Gallwey for the legalised use of the shot gun. Presumably, if a man with a grievance deliberately shoots a motorist, and swears he did it in the public interest, it would not be wilful murder. From such a ruling as this one is able to get an idea of the reign of terror which is likely to prevail if the Motor Cars Bill becomes law. If a stipendiary magistrate can distort the law in this way under existing conditions, what may we expect from the prejudiced "unpaid," invested with the power, as they will be, to inflict exorbitant fines, or, at their option, to consign the unhappy motorist to gaol for three or six months!

### The Bill.

The Motor Cars Bill, as passed by the House of Lords, is dealt with in an excellent article in the current "Automobile Club Journal," and the following extract will show that the opinion of the official organ of the Automobile Club coincides with that expressed in this column on the most objectionable features of the Bill:—"Unfortunately, it can but be urged against the Bill as it stands at present that it assumes that the justices and policemen are infallible and the automobilists probable law breakers *ipso facto*. It places more confidence in the average justice of the peace and the policeman and less in the automobilist than is justified by the circumstances. For example, on the evidence of a single policeman, stationed with instructions to secure the conviction of motorists

proceeding at a pace dangerous to the public (and plenary discretionary powers in this connection), who will naturally consider his reputation and promotion depend upon his securing the conviction, such evidence being heard by two justices of the peace who may be prejudiced, it will be possible for a really considerate automobilist to be fined £20 and his licence suspended for five months without appeal. The arbitrary degree of power thus given to the justices, and the manifest disadvantage under which the automobilist labours, combine to render this portion of the Bill, at least, altogether unsatisfactory as the basis of a permanent settlement." This fairly sums up the possibilities as the Bill stands, but there is every prospect of a long debate in the Commons on a Bill of such a contentious nature, and although Mr. Balfour has intimated that the Bill cannot pass unless those interested in the subject restrain their debating power, the Leader of the Opposition has frankly stated that such restraint could not be exercised. Thus, it is hardly likely that the Bill can pass into law this session, and what it will be like when the last word has been said on it in the House of Commons it is impossible to conjecture.

### The Motor Cycling Club Reliability Trials.

The 200 miles trials of motor-bicycles, promoted by the Motor Cycling Club with the object of proving the reliability of these machines, will do much in the direction of showing to the public that the cheapest and most simple of all the various types of motor vehicles can no longer have the stigma of "unreliability" attached to it. When one looks back a matter of only three seasons, and considers that even at that very recent period the motor-bicycle was looked upon by the general public as merely an experiment, or, at least, an expensive toy, which none but the mechanical enthusiast would think of purchasing, it must be realised that the position to-day, when these handy little vehicles are used in thousands, shows that the progress in developing the machine has been little short of marvellous. The results of the trials have exceeded the most sanguine expectations of the Club committee, who hardly thought it probable that 70 of the competitors would get their machines through the severe test without having to touch a screw or clean a sparking plug. The distance of 200 miles, covered easily within the 12 hours, is fully double the distance that the average user of a motor-bicycle would require the machine to take him in the day when on tour, and the fact that none of the competitors complained of anything in the nature of fatigue showed plainly that the motor-bicycle is a comfortable machine to ride. Coming to more mechanical considerations, it is worthy of note that the belt transmission has proved itself perfectly satisfactory—at any rate under the splendid weather conditions prevailing! This fact is well worth pondering over by those critics who can find no single good feature in the belt. With the exception of a solitary instance, none of the belts had to be touched at all. The chain machines certainly went through equally well, but did not show that they had points of superiority over the belts. The chain drive, it is claimed by many riders, shows its superiority in wet weather. The problem of how the trial is to be concluded, with so many competitors getting through, is not an easy one for the committee to solve. A possible solution might be to double the distance, half being over a much more difficult route than the North Road. The trial might be held on two consecutive days.

Edison's wonderful electric battery is again agitating the minds of writers in the halfpenny Press. For about the tenth time it is just about to be launched on the market. The "Daily Mail" man has again interviewed Edison, who has told him that the battery is now perfect, and that it will be manufactured in large quantities, and that he only wants a suitable running gear, etc., etc. All this reiteration must be rather wearying to the public. What we want is to see the battery in practical use as a commercial article and a great deal less newspaper booming.





**Two Points of View.**

(Justice Grantham anticipates a long series of motor accidents "between now and nobody knows when.")

Looking down the future ages,  
When the motor, free at last,  
Through this hapless country rages,  
Justice Grantham stands aghast.  
Gloating Death, with scythe immense,  
Hovers like a gruesome phantom,  
Seen through eyes of apprehensive  
Justice Grantham.

But the motists, hesitating,  
Looking for those happy days,  
Which for long they've been awaiting,  
Somewhat dubious queries raise.  
Prospects *look* all right, but still,  
Still they somehow don't enchant 'em—  
How much freedom, think you, will  
Justice grant 'em?

SYDNEY J. TAYLER.

Vol. IV.

Commences next week.

Indices and binding cases will be ready very shortly.

"THE MOTOR" will very fully report and illustrate the motorcycle trials.

We give some striking photographs of the French motor-launch trials on another page.

Mr. T. H. Woollen has an interesting article on "Time Recording" in the "Automobile Club Journal."

Our remarks on the weight problem have brought in quite a number of letters, a selection of which will appear next week.

A cyclist who gave warning to several motorists of a police trap on the Bath Road was threatened with a summons by the police, but nothing further has been heard of it.

The Pedestrians Protection League heartily approves of the Motor Cars Bill. Our cup of happiness is now full! We wish some pedestrians were not let out without their protectors.

Sir Francis Jeune is in agreement with the greater portion of the Motor Cars Bill, but is of opinion that the penalties are too heavy. He does not think there should be imprisonment for a first offence.

Attention is drawn to a letter from a firm of solicitors which appears in our correspondence columns this week. It relates an extraordinary ruling by Mr. Curtis Bennett, and is commented upon in our editorial page.

The Automobile Club is presenting a cup for one of the events at the Omnibus Sports. This is a well-deserved gift. The omnibus men of London are, generally speaking, a civil lot of fellows, and by no means disposed to be unfriendly to motorists. It is distinctly diplomatic to cultivate rather than alienate their friendship.

**Coming Events.**

- Aug. 10. The Motor-Cycle Reliability Trials:—Examination of Competing Machines at Crystal Palace.
- " 11. Ride to Canterbury and back.
- " 12. " Brighton and back.
- " 13. " Worthing and back.
- " 14. " Eastbourne and back.
- " 17. " Folkestone and back.
- " 18. " Brighton and back.
- " 19. " Basingstoke and back.
- " 20. " Eastbourne and back.
- " 21. " Worthing and back.
- " 22. Speed Trials on Crystal Palace Track.
- Sept. 4. Commencement of 1,000 miles Trial of Motorcars, organised by Automobile Club.

A spacious repair department for Minerva motors has been opened in Farringdon Road, E.C.

Mrs. S. F. Edge was summoned at Marlborough Street last week for driving a motorcar to the common danger. The constable said the car was being driven at eighteen to twenty miles an hour, and as Mrs. Edge did not regard his warning, he jumped on the steps of the car. The acrobatic police officer was, of course, believed; in fact, the magistrate, in imposing a fine of £3 and 2s. costs, hinted that the evidence against the lady was "overwhelming."



Photo] [La Fayette.  
**Col. Sir Neville Chamberlain, who was responsible for the perfect constabulary arrangements in connection with the Gordon-Bennett race, and who was recently knighted by the King.**

The second reading of the Motor Cars Bill was fixed for Tuesday of this week.

His Majesty, the King, enjoyed a long motor trip through Connemara on Thursday.

In consequence of the Bank Holiday "THE MOTOR" is issued a day later than usual.

For the Auto Cycle Club 1,000 miles motorcycle trials, commencing next Tuesday, 48 entries have been received.

Considerable interest is evinced in motor launches, judging by the correspondence we are receiving on the subject.

Dr. Lehweß has been fined £5, at Corwen Petty Sessions, for driving furiously en route to the scene of the Gordon-Bennett race.

The splendid entry of forty-eight has been received for the motorcycle reliability trials, which commence on August 10th.

The entries of the forthcoming motorcar reliability trials are 50 per cent greater than last year's, there now being 132 cars entered.

The attention of readers is directed to the special inset in this issue dealing with the maker of Dunlop tyres in the Gordon-Bennett race.

Mr. Balfour has appealed for restraint in the debate on the Motor Cars Bill, but Sir H. Campbell Bannerman cannot guarantee it.

The honour of knighthood was recently conferred upon Colonel Neville Chamberlain, who, it will be remembered, had charge of the arrangements for policing the Gordon-Bennett race route in Ireland.

In our correspondent's letter from New York, the feat of riding a mile on a motor-bicycle in less than a minute, which was accomplished by Albert Champion, an old cycle racer, is described. A photograph of Champion and the machine which he rode is given.

In our third editorial, in this issue, on the subject of the Motor Cycling Club reliability trials, by a printer's error we are made to imply that 70 riders went through without mishap. What we wrote was, of course, 70 per cent., and the section being printed, we are unable to make the correction in the page.

With further reference to our allusion to Mr. A. J. Wilson in our last issue, we have since communicated with the writer of the original paragraph, who is away on his holidays, and he assures us that he had no knowledge of the fact that Mr. Wilson had criticised the Gordon-Bennett timing arrangements in print. As the editor had not seen such criticism, it is obvious that our remarks were not intended to apply to Mr. Wilson—whose services, we know, have always been given to the club in an entirely honorary capacity.

### Still Rising!

The circulation of this paper still continues to move upwards. Last week we printed 1,000 copies extra, making 36,000, and still received orders from wholesale newsagents which we were unable to execute.

### A Cheap Line in Silencers.

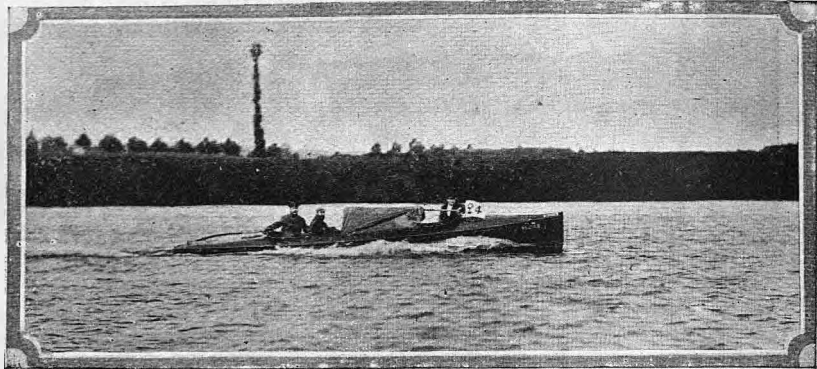
The London Autocar Co., Ltd., 182, Gray's Inn Road, make a speciality of a motor-bicycle silencer. It is provided with three chambers, and the makers claim that it is free from back pressure. It is very strongly made, with brass end plates, and retails at 6s. 6d.

### Found: a V Belt.

We have a letter to hand from Mr. A. Overton Jones, Struan, Fassett Road, Kingston-on-Thames, in which he states that he found a V belt off a motor-bicycle on the road just outside his house on Thursday, July 16th. He will be pleased to return same to the rightful owner if he will communicate with him.

### Assaulting a Motorist.

A few days ago, while Mr. and Mrs. Morriss, of King's Lynn, were travelling from Newmarket to King's Lynn, a labourer, John Cooper, deliberately threw a big stick at the occupants of the car, which just missed Mrs. Morriss, struck Mr. Morriss, and fell into the road. Mr. Morriss stopped his car, and, after a chase secured the name and address of his assailant. He reported the circumstances to the Norfolk Automobile Club, and they in their turn referred them to the Motor Union. The Motor Union, considering the case one of considerable importance, undertook to bear the cost of the prosecution, and placed the matter in the hands of Messrs. Mills and Reeve, solicitors, of Norwich. The case was heard at Downham Market Petty Sessions recently, when Mr. Bainbridge conducted the case for the prosecution. He asked the Bench to make an example of defendant, so that in other parts of the country persons would be shown that they could not do these things with impunity. The Magistrate fined the defendant 36s. inclusive, or in default a month's imprisonment.



"Le Flore," winning motor launch, in the French launch races.

### Motorcycle Numbering in U.S.A.

The Massachusetts Highway Commission have experienced some difficulty in determining exactly how motor-bicycles should be labelled to comply with the new regulations. It was at last decided that every machine should carry a number on the headlight and saddle. The numbers will run from 1 to 9,999 and then a new series "A" will commence from 1 to 9,999.

### Improved Exhaust Valve Cotter on Clement Motors.

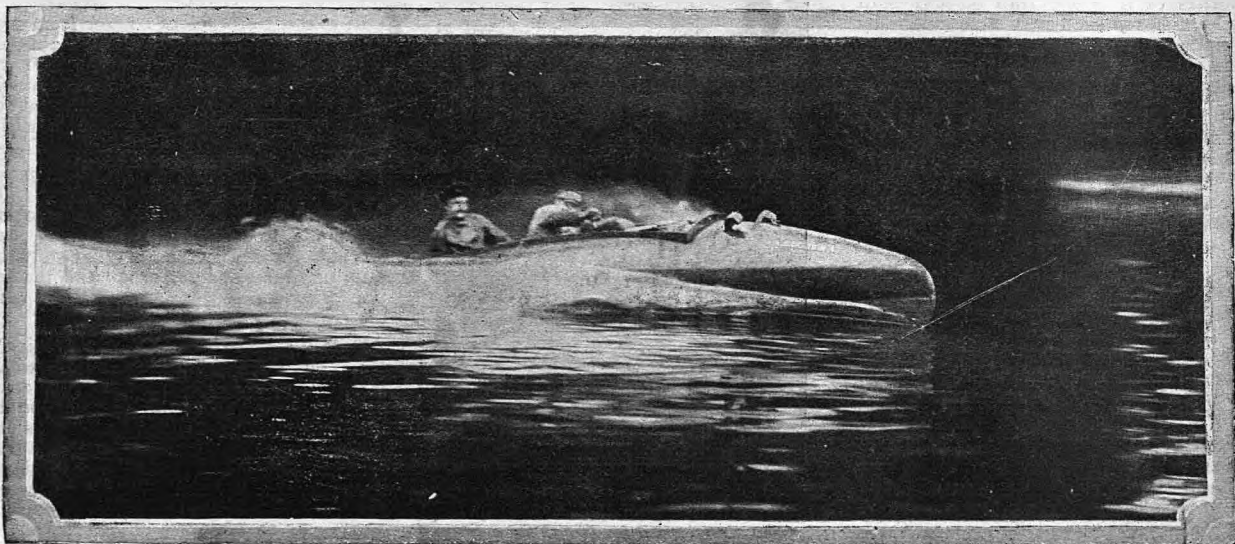
The Garrard Manufacturing Co. wish us to mention, in reference to the letter in "O.P.V." recently, under the heading "A Tip about the Clement Motor," that they do not fit the tapered pin referred to now to the exhaust valve, but have an improved cotter fastening which is perfectly satisfactory. All motors supplied this season have had this fitted.

### Strong Language.

A correspondent sends along a cutting from a Yorkshire paper, which records the utterances of a clergyman in supporting a resolution to protest against the Motor Bill. He said that personally he had a great objection to "the Johnnies who endanger life and limb of the public, and who are pushed about by half a pint of petrol, and who are seated upon an odoriferous half ton of scrap iron."

### Motor Launch Racing in France.

Poissy Meulan was the venue of the 100-kilometre race organised by the Parisian paper "Le Yacht," on July 26th. The race was won by M. Senot's "Floré," with 24 h.p. motor; he thus became the first possessor of the handsome cup presented by M. Marius Dubonnet. M. Bacon's "Alcyon I." (fitted with 12 h.p. Ader motor) was classed second. In the series devoted to cruisers, i.e., the equivalent to the touring section in car contests, pride of place was gained by "Camelia," belonging to M. R. Chappu. This boat was driven by a 12 h.p. De Dion motor, whilst "Kiss II." the property of M. George Leys, fitted with a 12 h.p. Panhard and Levassor motor, finished second. Prior to the start, an unfortunate accident occurred, attended, unhappily, with a fatal result. M. Perignon was giving a preliminary demonstration of the speed powers of his boat, "Marsouin," fitted with 15 h.p. Mutel motor, and which was calculated to be able to attain a speed of 35 kilos to the hour. About 22 gallons of petrol were stored on the boat, and by some means this became ignited; M. Perignon and his mechanic, Grosse, were compelled to throw themselves out, and, although the former managed to keep afloat until help arrived, the mechanic was drowned. We give illustrations of "Le Floré," the winning boat, and of "Marsouin."



The unfortunate "Marsouin," which was burnt in a preliminary trial through the petrol becoming ignited. The photo shows the boat going at full speed in the dark.



### How to Solve the Motor Problem.

A German schoolmaster, who was run down by a motorcar, and who subsequently attacked the driver thereof with an axe and beat him into insensibility, is suing for the loss of a suit of clothes. He would have a better chance of winning his case if he had sued for loss of temper. No wonder the Germans are so far ahead of us in education if their pedagogues carry axes about with them, and no wonder their cars are the fastest in the world if their drivers have to dodge infuriated Teutons with bare battle-axes. In this particular incident under notice, the injuries received by the battered chauffeur seem to have been the result of an *axe-dent*.

### Motorcyclists in Demand by the War Office.

Motorcycles rendered such very valuable service to the Automobile Club during the Gordon-Bennett race that the War Office have quite awakened to their extreme value in war time. They are offering 10s. a day with petrol to motorcyclists who will take part in the forthcoming military manoeuvres, which take place on September 5th to September 12th. All those motorcyclists who are willing to act as temporary officers of His Majesty should communicate, without delay, with the secretary, Auto-Cycle Club, 119, Piccadilly, W. It is not necessary to be permanently enrolled in this smart Volunteer corps in order to take part in these manoeuvres, but it is hoped that it will lead to a very large permanent increase in this useful body. The War Office are applying for any number of men.

### A Midland Fatality.

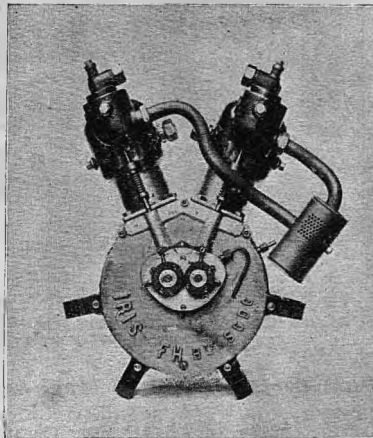
It was truly a remarkable coincidence that on the very day following the Midland Automobile Hill Climb at Sunrising Hill, near Stratford, on Saturday of last week, which was reported in our last issue, a sad fatality happened, resulting in the death of two motorists. It appears that a Mr. Chas. Bishop Alger, his father, Mr. C. S. Alger, Mr. J. J. Brittain and a lady were motoring from Oxford in the direction of Stratford on a 10 h.p. Wolseley car. Just how the accident happened is shrouded in mystery. It is said that the brakes failed to act, but the Wolseley Company claim that these were in good order. Anyway, in descending the hill the pace of the car gradually increased, until it is said to have been travelling at nearly fifty miles an hour, and in turning the sharp corner just above Rupert's Cottage, the rear wheel on the right-hand side is said to have struck the bank, and was broken by the impact. The car turned over, and when assistance arrived young Alger was found to be dead, while the father died half an hour after the accident. The other two passengers escaped with cuts and bruises. At the inquest on Wednesday the jury returned a verdict of "accidental death," and very properly added a rider to the effect that the road at the corner should be widened and the hedge lowered. After inspecting the hill on the day previous to the accident recorded, we were at a loss to understand why such a dangerous state of affairs should have been allowed to exist so long. The corner is a very bad one, while the gradient at that point is said to be 1 in 6, and the road surface leaves much to be desired.

### An Interesting Motor Museum in Paris.

Now that so many motorists will be touring in France and running on to Paris, it is well worth remembering that there is a splendid collection of motor relics, from Cugnot's old road-carriage down to De Dion's experimental machines, to be seen at the Musee des Arts et Métiers, which is convenient to the centre of the city, and open all day.

### The "Iris" Two-cylinder Motor.

The illustration shows a well made two-cylinder motor with water-cooled head, and developing 5 h.p. This is known as the "Iris," and is placed on the market by



The "Iris" Two-cylinder Motor.

the Iris Motor Co., 58, Holland Street, Brixton, London, S.W. The cylinder dimensions are 68 mm. bore by 78 mm. stroke. The contact breaker is a special type requiring no trembler on the coil or motor. The motor is suitable for fitting on loop frames for motorcycles. It is also well adapted for driving a small car.

### Good Idea for Preventing Accidents.

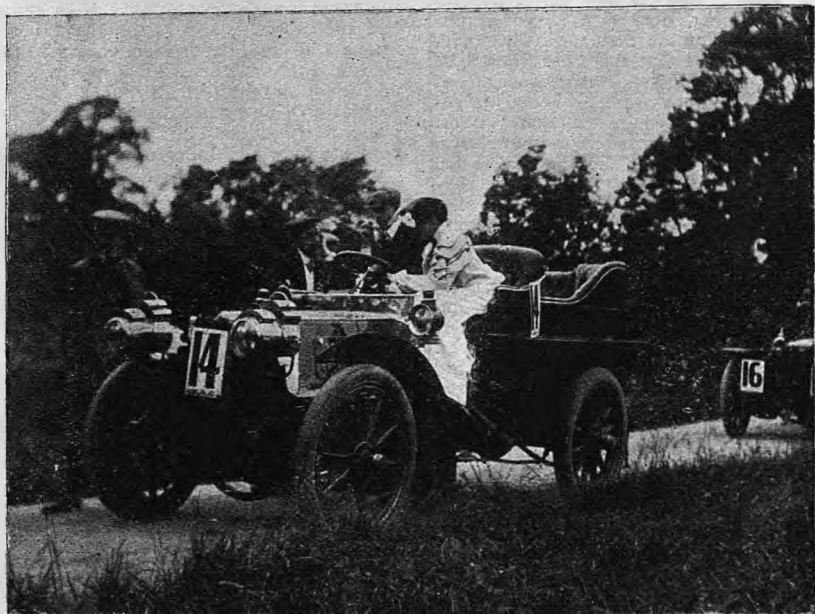
A writer in a French motor journal thinks that motorcar accidents would be greatly lessened at level crossings if a day and night signal were arranged at a distance of several hundreds yards before the crossing, so that when a train was due ample warning would be given to the driver of the car.

### Mr. Long Explains how the Bill will protect the Public.

A letter from a gentleman to Mr. Long, in which he claims to represent the views of quiet, reasonable and middle class people respecting probable dangers resulting from the Motor Bill passing, has been replied to by Mr. Long. He points out that the public safety has been the main consideration in framing the Bill, and the safeguards have been piled up to form a formidable defensive barrier to the public. He says the present state of things is most unhappy, and that it would be impossible to enforce a specific speed limit without the aid of a host of rural policemen.

### The Gallant District Council and Lady Motorists.

At the last sitting of the Vienna-Hietzing District Council the Acting Superintendent, Bayer, moved that measures be taken to put a stop to "scorching" on the part of motorists, and proposed that the steering of motors by the beau sexe should be forbidden. Alas for the chivalry and common sense of the District Council, that motion was accepted! The stern sex—or, to adopt the antithesis, the ugly sex—has no monopoly of nerve or motoring skill. Besides, ladies are allowed to ride or drive fiery thoroughbreds, and animals of this kind demand a firm strong hand and (with Herr Bayer's permission) plenty of nerve. Why not drive motors? It is a question of individual fitness. But it is not any use to argue with the Austrian District Council, so we leave Herr Bayer and his friends to their midsummer madness, cordially wishing them a speedy recovery.



CECIL EDGE ON THE NAPIER CAR.

Taken just before the start of the Sunrising Hill-climb, which was won by this car on Saturday week.

Mr. Edge writes informing us that the Napier car used by Mr. Cecil Edge, in the Sunrising Hill Climb, was an ordinary 20 h.p. car, which was previously the property of Mr. F. W. Taylor, of Sunderland, from whom it had been bought back on that gentleman ordering a new car. The engine was not that used in last year's Gordon-Bennett race.

#### An Important Point.

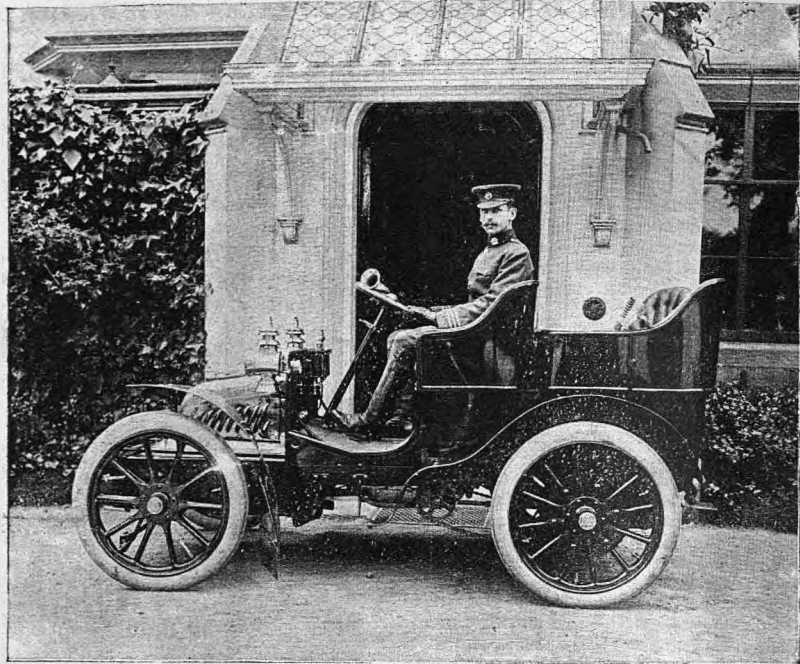
A motorist, who purchased a "Fairfax" silent exhaust box on the strength of the notice we gave it, has complained that our report was misleading, because his results are not up to expectations. We wish he could have seen, as we have, the pile of letters received by the London General Motor Car Company from satisfied purchasers speaking in praise of the invention. Possibly the fitting may be at fault in his particular case. It is most important that, in bending the exhaust tube, a good bend should be made. If it is a "kink," and not a clean bend, it throttles the exhaust, and is sure to give trouble.

#### Catching Motorists.

The primitive method of police signaling, by raising the helmet or pulling a handkerchief out of the pocket, is completely out of date. The police now employ electric methods. They have, at more than one district in the south, a sort of portable telegraph with concealed wire and signal keys. On a good day for motoring the peelers bring out the wires and lay them along the ditch for a measured quarter mile. At night a small, but powerful, electric flash is used. According to recent accounts the motor catchers are getting very expert at jumping on the rear of a fast car to get the driver's name.

#### Dunlops in the Gordon-Bennett Race.

The various rumours which have gained currency since the Gordon-Bennett race as to the tyre trouble with Mr. Edge's Napier have, undoubtedly, left an impression on the minds of the public that the failure of the car was due to inferior tyres. This was not the case, and, in fairness to the Dunlop Pneumatic Tyre Co., it is only right that the truth should be fully stated. Messrs. Jarrott and Stocks failed in the race owing to accidents entirely unconnected with their tyres. Neither driver suffered from punctures, or any other trouble, and the tyres fitted to their cars are as good to-day as they were when they left the workshop. Mr. Edge's tyres neither punctured nor went to pieces, as some have stated. The unfortunate trouble from which Mr. Edge did suffer was the result of a miscalculation. The tyres used by the foreign competitors were 5 inches in diameter, whereas Mr. Edge only used 3½ inch tyres. The holding strength of the two types differs considerably, and that of the smaller tyre was not sufficient to withstand the strain of eighty miles an hour. They would up to a speed of sixty miles an hour, but at the high speed which Mr. Edge's car was capable of attaining they would not grip. If an unfortunate one, it was not a faulty miscalculation of Mr. Edge's, for it must be remembered that no facilities offered of testing the car and the tyres at high speed prior to the ride, such not being allowed. We refer our readers to the important inset in this issue of "THE MOTOR," in which will be found letters from each of the English competitors relating to their Dunlop tyres.



Lieut.-Col. Mark Mayhew (commanding the Motor Volunteer Corps) in the recently approved uniform of the corps.

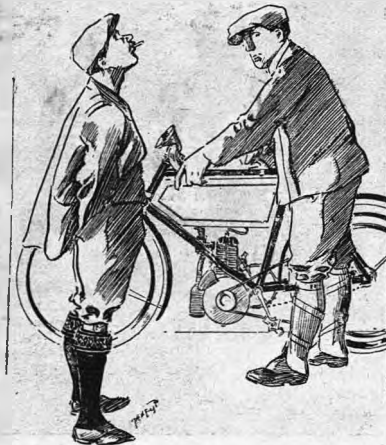
#### Auto-Cycle Club Race Meeting.

Saturday, August 22nd, will be a great day for motorcycling at the Crystal Palace. In the morning the speed tests of the 48 machines engaged in the 1,000 miles reliability trial will take place, and in the afternoon the annual race meeting will be held. As last year, there will be three events for various challenge cups presented by motor journals. The first is an hour's race for the "Autocar" Cup, won last year by J. van Hoooydonk, with over 42 miles to his credit. This time the committee have wisely decided, in view of the freak machines that have been built and the excessive speeds that have been attained, to limit the cylinder capacity and weight of the machines. The race will be an invitation one for motor-bicycles only. Entries will be invited from the most representative riders and firms. The cubic contents of the cylinder must not exceed

343,000 mm., which gives an engine of 70 by 70, or roughly 2 h.p., and the weight limit is 114 lbs., minus oils. Silencers must be fitted, but mudguards need not be. The second event is a five mile handicap for the "Motor Car Journal" Cup. Entries will be unlimited, but the race is confined to motor-bicycles. Weight limit 170 lbs., and cubic contents 440,000 mm., which gives what we know as a 2½ h.p. engine. The third event for the "Automotor Journal" Cup is a one mile flying start time trial. Twenty-five entries will be invited, and the machine conditions are the same as for the five mile handicap. Entry fee for each event is fixed at 10s. 6d., or 25s. for the three. The order of running off will be as stated above. In addition to the cups, gold, silver and bronze medals of the Auto-Cycle Club will be presented to the first three riders (not owners) in each event.

#### Motor-bicycle at a Fire.

Some weeks ago we published a photograph of a fireman mounted on a motor-bicycle, which he frequently uses for getting promptly to the scene of a conflagration. An incident happened the other day which shows how useful the handy motor-bicycle is. The occupants of the Warren House inn, near Wokingham, retired in the usual way soon after ten, and at about midnight the landlord's brother was disturbed and found a cat scratching his face. He found the room full of smoke, and at once alarmed the other inmates of the house, and proceeded to call the Fire Brigade. Mr. Heelas, who is the hon. sec. of the N.C.U. local centre, and who is a well-known fireman in the district, was able to save much time by proceeding to the scene on his motor-bicycle. He quickly found out the best means of obtaining water by cutting an opening in an eave, and so no time was wasted. In spite of all, however, the house was burnt out, though, happily, no lives were lost.



"I have a peculiar knocking in my engine. Can you suggest what it is?"  
"Spirit rapping!"



**THAT SIDE ATTACHMENT.—OR, DOUBLE SIDE FORE-CARRIAGE CUM TRAILER.**

*Brown is a man of method—he cannot afford a car, but, by borrowing some trallers, he rigs up something of this sort, and is able to take out the girl of his heart, and at the same time charm his prospective mother-in-law and spinster aunt (both very rich), and be on good terms with her younger sister.*

It is expected that there will be a very animated debate at the second reading of the Motor Cars Bill in the House of Commons. Several drastic amendments are likely to be moved.

A meeting of the competitors and officials in the reliability trials for motorcycles will be held at the White Swan Hotel, opposite the Crystal Palace, on Monday next, at eight o'clock, when full instructions and explanations will be given.

The new standards introduced for the big motorcycle races on the 22nd instant are notable in that, for the first time, cylinder capacity and weight are limited together. Previously, either one or the other has constituted the standard in all motor events, so that the Auto-Cycle Club is to be commended upon its move.

**Repairers Make Hay while the Sun Shines.**

There is little difficulty in getting small repairs effected at the towns or villages on any good motoring road on a Bank Holiday now. Repairers are enterprising enough to keep their depots open, and no motorist will grumble at having to pay a trifle above the standard charges for having his requirements attended to. It is pleasant to note that it is the exception now to come across a repairer who will refuse to supply a motor-bicyclist with half-a-gallon of petrol. Another matter the enterprising repairer attends to now is to always keep a few well-charged accumulators on hand. These he will hire out to any motorist who finds himself stranded for current

**Hilly Devonshire.**

A member of the staff, who has just completed a cruise in Devonshire, says that he was surprised at the small number of motor vehicles seen in that part of the country. Perhaps this may be due to the generality of the opinion that in the extreme south-west of England the hills are both numerous and trying. They are numerous, of course, but, on the other hand they are well engineered, and there is no reason why an average speed of sixteen miles an hour should not be main-

tained by either motorcycle or motorcar. We consider the motorcycle specially suited to Devonshire. Cycle riding there is frequently hard and slow work, whilst horse-drawn vehicles can only average three or four miles an hour, because of the slow pace up hills, and the painfully slow crawl down hill with brakes, which, to a motorist, seem crude and inadequate. We feel sure that the motorcycle and the fore-carriage will open up to tourists one of the finest portions of these islands.

**Holiday Notes.**

An observer stationed at the Marble Arch about mid-day last Saturday would have been impressed by the number of motor-bicyclists on touring bent. The idea of touring on a motor-bicycle is becoming very popular now that it is possible to travel several hundred miles with nothing worse happening, perhaps, than a trembler getting out of adjustment. The splendid weather that has obtained this holiday time has been especially favourable to belt-driven machines. The writer covered about 130 miles on the Sunday and Monday afternoons, and although he noticed at least half-a-dozen cars held up with punctures or other troubles, he did not see any motor-bicycles in trouble. The roads he covered were those in the "up river" district. Everywhere the going was excellent, with the solitary exception of the road through Richmond Park, which is in a dreadfully loose condition. One had also to be very careful of the tram junction at Twickenham, dense crowds of trippers and wet and greasy rails rendering it imperative to go dead slow or dismount.



*"But you don't spell 'Reigate' with a 'W'?"*  
*"Yes, I've been fined there so often that I always spell it 'Wrygate.'"*



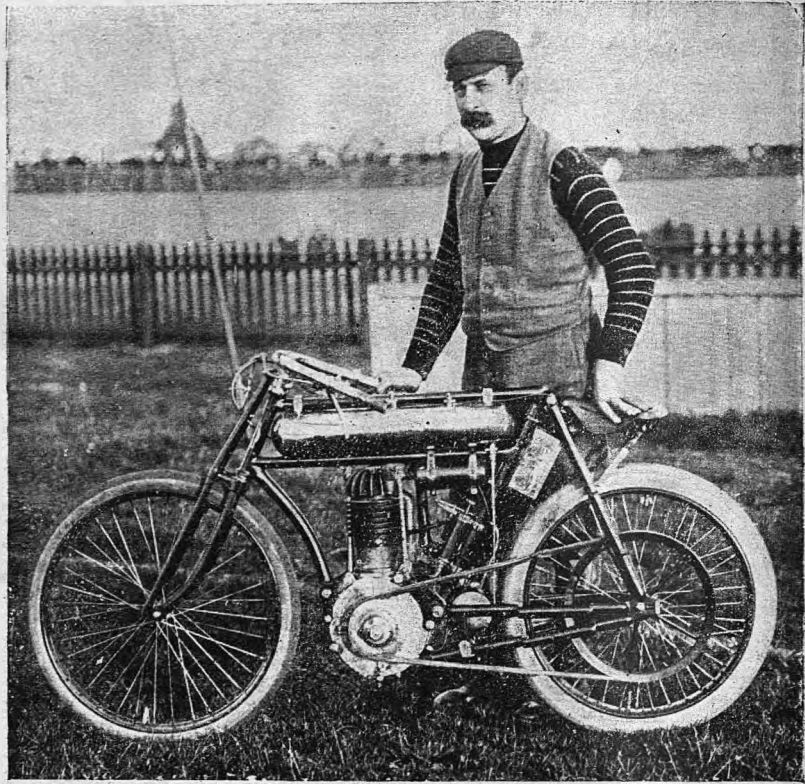
The Eastbourne Bicycle Club included a three miles motor-bicycle race in their list of events at Devonshire Park on Bank Holiday. This race was open to members only, and was won by H. H. Frowd. G. W. Scott and J. S. Gowland were second and third.

At St. Albans several motor-bicycle events were included in the programme on Bank Holiday. In the one mile motor-cycle match F. W. Chase beat T. C. Newman in 1 min. 37 1-5th secs. In the ten miles handicap Newman, with one minute start, won in 12 mins. 13 3-5th secs., F. W. Chase and A. A. Chase being second and third.

The Auto-Cycle Club's Reliability Trials, which will be conducted during the next two weeks, will, no doubt, attract many interested sightseers. For many reasons, the actual routes and times will not be published, but full particulars will be obtainable from the secretary of the club by anybody who is interested, and who may be willing to lend a helping hand. All that would be asked of a local checker would probably be a few minutes' work in the morning and the same in the afternoon.

#### Records at Canning Town.

T. Tessier, on his 2½ h.p. Bat, travelled well at Canning Town on Bank Holiday; in fact, he eclipsed himself, paradoxical as that may appear to be, in the five miles handicap. During his heat in the race he beat the world's record for the flying mile, his time for the journey being 1 min. 4 4-5th secs. This was 1-5th second better than the previous record. Later on, in the final, which he won somewhat easily from J. F. Crundall, he went one better, by riding the flying mile in 1 min. 4 2-5th secs., which was 2-5th secs. better than his effort earlier in the afternoon. His full time for the five miles was 5 mins. 44 2-5th secs. A three miles motorcycle race between H. Martin and J. Crundall resulted in a win for the latter by a quarter of a lap, in 3 mins. 25 1-5th secs. Subsequently the pair contested a mile match, and this was won by Martin, only by the very narrow margin of half a length, in 1 min. 9 4-5th secs. Both events were contested from a flying start. The motor races were watched with the keenest interest by some 7,000 persons, the weather being of a glorious summer character.



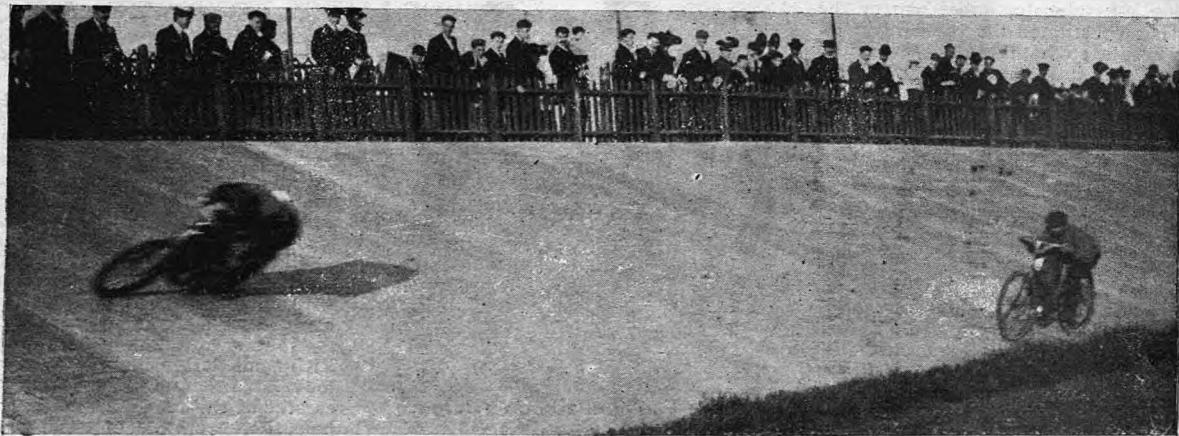
**T. Tessier, who twice beat the flying mile record at Canning Town, on Bank Holiday.**

#### Motor Volunteer Corps.

On the 28th instant Mr. J. T. Overton was on duty driving to Royston and back. The work of the corps is proceeding apace in the Chester command, where Captain Hammond is indefatigable in his efforts, making a personal tour through his district for the purpose of enrolling those who have made application for membership. At the forthcoming manoeuvres the Motor Volunteer Corps will play an important part. A large number of cars and motorcycles will be attached to the various commands, and no effort is being spared to prove, beyond a doubt, the practical utility of such a corps in time of war. Lieutenant-Colonel Mayhew arranged

with several of his officers for a staff ride on August 1st, 2nd, and 3rd over the manoeuvre area, in order that the chief roads and localities may be familiar to those doing duty during the manoeuvres, and to arrange for the supply of petrol, stores, etc., at various points. We may again mention that further motorcyclists are required, and those desirous of becoming members of the corps should enrol without delay. Full particulars may be obtained from the Adjutant, 11, Tothill Street, Westminster, S.W.

The date of the opening of the French Motor Show is December 10th, and it will close on December 25th. The Grand Palais is again the venue.



**Wonderful speed work by Tessier. Passing another competitor in his record ride at Canning Town on Bank Holiday.**

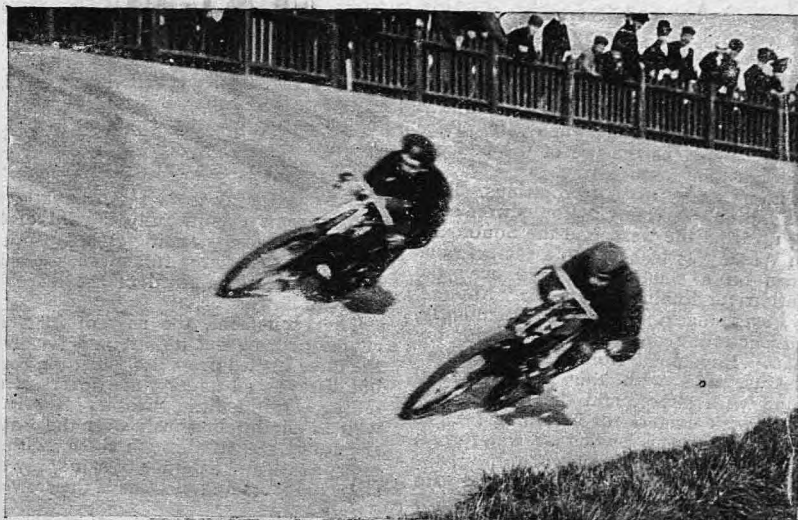
The membership of the Auto-Cycle Club is growing satisfactorily.

#### **A Simple Light Car.**

We have already dealt with the "Morette" in these columns, but it has now been so greatly improved in many ways that we give an illustration of it in its present form.

The body and seat are entirely built of steel tube, firmly braced together, the floor of the vehicle and seat being of wood fibre carried on cross tubes. The tyres are all specially thickened "Driver" tyres, with the object of being interchangeable upon the front driving wheel. This not only provides against irritating punctures, but also averages the lives of the tyres, as it is easy, when the front tyre shows signs of wear, to change it for one of the rear tyres. The rear wheels are fitted with band brakes. The vehicle is propelled by a 2½ h.p. motor, hinged on a strong bracket behind the crown of the front wheel fork, of which it forms a part. This bracket also carries a rubber covered pulley, with which the driving pulley of the motor engages frictionally, and which carries on one of its sides a driving sprocket, connected by a Hans Renold 5/16 in. by 1/4 in. motor chain, with driven sprocket fixed on hub of the front wheel, and geared down 10 to 1 from motor.

To reduce vibration in the frame due to the motor, wood fibre or other suitable material is interposed at the hinged joint of the bracket. The steering is arranged on the tiller principle. A part of the steering arm projects in front of the head, and is connected by a rod to the cylinder head of the motor, so that by an upward movement of the tiller the driving pulley of the motor may be disengaged from the counter or intermediate pulley, giving a free engine. The current is switched on and off by handle-grip, and the tank (which contains sufficient petrol for a 70 miles run), carburetter, accumulator and coil are all placed in the front part of the carriage, close to the motor. Price 70 guineas; if with 4 h.p. motor, 80 guineas. The vehicle is fully protected by patents and registration, and is made by B. E. Dickinson, Toledo Engineering Works, Aston Brook Street, Birmingham.

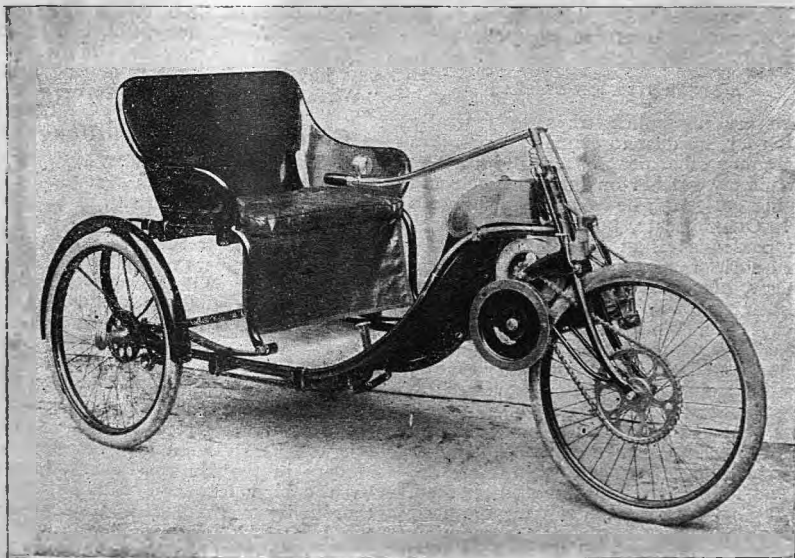


**An exciting moment. Martin and Crundall racing neck and neck on the banking at Canning Town on Bank Holiday.**

#### **What the Toolbag of the Motor-Bicycle Should Contain.**

It never pays to venture out for a long ride on a motor-bicycle without seeing that the toolbag is well stocked with tools and odds and ends of material that may come in useful. The tools should consist of (1) a spanner of the adjustable type, and it should be tested to see that this will take any nut on the machine; (2) a pair of flat-jawed pliers, with cutters for wire; (3) a couple of screwdrivers, one having a wide blade, say, 3/16 in., and the other a narrow one, 3/16ths; the handles can be quite short, but preferably broad, so as to get a good grip. With these two screwdrivers it should be possible to reach every screw about the machine. (4) A small but good quality file, round on one face and flat on the other; this should be of a medium cut and about 4½ in. long. (5) A piercer, or belt awl—better, in the writer's opinion,

than a punch. This should be made of a good piece of steel rod, well sharpened and tempered, and firmly secured in a short handle. A penknife is also indispensable, but it is to be supposed a rider will always carry one with him in any case. Concerning spare parts, it is important to at first consider what details about the motor are most susceptible to go wrong. The exhaust valve gets severe treatment, and one cannot exactly say what life it may have, although instances are not unknown in which the same valve has lasted 3,000 miles. On the other hand, a valve head might break off in a few hundred miles. The inlet valve has not a quarter the work of the exhaust, and yet the other day the writer heard an instance of a head shearing clean off the stem but this was a very uncommon case. The modern type of contact breaker is a much more substantial article than was the first Minerva type, for instance. Springs rarely break now, but the platinum tip wears out, so always carry a spare one, and also a contact screw, not so much because this wears out—as a matter of fact the platinum on the screw will last a thousand miles with care—but it is so very awkward to lose the screw in the grass when making a roadside adjustment. The writer experienced this once, and in a futile search he got his hand badly stung by some nettles. The next thing is always to have a spare sparking-plug. It is worth paying an extra shilling or two to get a high-class porcelain plug, and keep this in the toolbag, and use either an E.I.C. or a "Durable" mica plug to run with, then, in the rare instance of the insulation of either of these breaking down, one always feels that there is a good reserve. Tyres, of course, are always liable to puncture, so it would be folly to miss carrying a repair outfit. Only one thing—never trust the tube of solution unless you know it is actually in a workable condition. Many a rider has found himself stranded because the tube of solution had dried up. Next, carry a yard of good stout copper wire, say, No. 14s gauge, and also a length of thinner gauge, say, 20s. A piece of a No. 12 cycle spoke is also a very useful thing to have.



**The improved Motorette, with chain drive.**

## A CRUISE IN THE RACING "NAPIER."

We had heard that a trip to sea on board the racing "Napier" launch was rather thrilling, and when Mr. Edge kindly offered us the use of the boat we were not long in accepting.

The morning was not propitious. Rain was falling, dark, angry clouds were tearing up from the west, and the Southampton Water was lashed into a tempestuous ocean on a small scale, and even the gentle river Itching, where the "Napier" lay, was smacking her banks petulantly, and encircling our saucy craft with toy foam. Enveloped from head to toe in oilskins, and with the sleeves bound round with string, and the neck stuffed round with dusters till breathing became difficult, we were passed as waterproof, and allowed to proceed on board.

The "Napier" is a long, low boat with a hull of 20 gauge steel, and a big stretch of canvas decking for and aft, but no watertight compartment. Most of the well of the boat is occupied by the big Napier four-cylinder motor, the actual motor that was in the first Napier car that attempted to win the Gordon-Bennett race. It is nominally 50 h.p., but on measurement would be rated, we fancy, at about 66 h.p. In front of this huge motor sits the helmsman, on this occasion Mr. Evans, and in the stern Macdonald, the engineer, and Tom, the Solent pilot, whilst the solitary passenger, the writer of these notes, was offered

### THE ONLY SALOON ACCOMMODATION AVAILABLE,

which took the form of a seat on the pump, alongside the man at the wheel. For a prolonged cruise we would not suggest that the "Napier" is a serious rival from a comfort point of view to a Cunarder, but then she is built to get there quickly, and not to take long over her voyages. After we had just time to take all this in, the man at the wheel seized hold of what at first we mistook for a mast, but it turned out to be the starting handle, and giving a few slow, deliberate half-turns, and injecting a little petrol into the motor, just to make it wish for more, it burst into song, that sonorous music so dear to the ear of the motist, and the startled trout in the Itching tried to throw themselves ashore to escape the volcano they thought was disturbing the peaceful haunts of their fathers.

"ARE YOU READY?"

shrieked the man at the wheel, his face now set and grave. "Yes," came a voice from the stern, with a far-away distant ring about it, and a little bell went "Ting-ting," the clutch was let in, and away we went. From the very first instant of starting, one was conscious of speed; but this was nothing to what was to come.

Again that feeble little "Ting-ting." Quick came the answering roar, as when some distant bugle sounds the charge, and at the faint call there comes the clatter of a thousand horse. So our motor, urged by the little bell, put forth its greater strength, and we leapt.

We have travelled a good deal faster on express trains and powerful motorcars than we did when the "Napier" launch was making her 22 knots an hour, but

DIO

never before had we experienced such a sensation and full realisation of speed.

The feeling was that the boat was

### TRYING TO RISE FROM THE WATER

and fly in the air; in fact, it really did rise to some extent, fully a yard of her keel at her nose standing right up out of the water when going full speed, the spray breaking nearly a third of the length of the boat down.

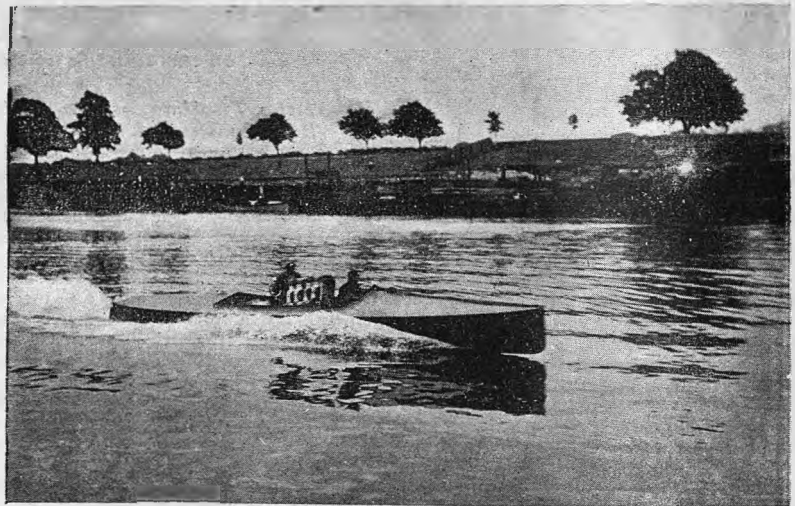
The excitement, the roar of it! The engine pouring out its strength furiously, the three bladed propeller whistling round but always well under water, every stroke telling, for the little "Napier" scorns to wait to climb laboriously over the waves, she tunnels right through them, with an angry swish and a deluge of salt spray that slaps the faces and oilskins of the crew and

spectator of the little launch's performance.

A little distance from the ship the launch looked

### LIKE A CLOUD OF SPRAY

moving very rapidly over the face of the waters. No one at first would take it for any sort of a boat, but rather a huge fish or whale racing away from some enemies. The extraordinary rapidity with which she answered her helm was another thing that was very marked. For instance, on the return she came close along the port side of the "Espigiel," but she was round on the starboard side before we could run across the deck of the ship. As somebody on board said, "Why, that's quick enough to dodge a torpedo." We ran back to Southampton without a hitch, all four cylinders humming away, and we pulled



The "Napier" Launch, a trial trip on which is described on this page. The above photo was taken at Cork.

hisses on the engine. It is most exhilarating, most exciting, a sport destined with certainty to secure many votaries. You see

### A CLEAR STRETCH OF SEA;

there are no police traps to fearfully watch for, no dust to grime one's clothes and annoy other people, no hills to slow, you simply put her on the top notch and let her go. And, heavens, how she does go! Other yachts, both sail and steam, are passed as if at their moorings, the wind shrieks past, the spray flies high in the air, officers on the warships rush to see her go past, the passengers on the packet cheer. We seem to leave them all in a flash, as a biograph picture too quickly gone, and still we flow on evenly, smoothly, no oscillation, no movement to give the most susceptible a sense of sickness, and all that seems the matter is that Southampton Water and the Solent are not big enough. We pay a call to H.M.S. "Espigiel" and are hospitably entertained, what time our dripping oilskins drain off on to the Turkey carpet of the captain's cosy cabin, and, whilst he takes a trial trip aboard the "Napier," the writer from the poop is able to adopt the position of

up alongside the wharf as quietly and smoothly as a little electric launch at Surbiton. It was delightful, and to those who hunger for a new sensation we would say, have a run on the "Napier" launch, "When the stormy winds do blow."

G.H.S.

### Gordon-Bennett Challengers' Race.

There is a possibility, says the "Automobile Review" (America), of a race between Messrs. L. P. Mooers and Percy Owen in the near future. Both of these men were members of the American team that contested for the Gordon-Bennett cup recently in Ireland. It would be a great event to get these two fast American drivers into a race. Neither of the gentlemen desires to issue a challenge, but from present indications it seems that very shortly some arrangement will be made for a meeting. It is understood that the Peerless machine driven by Mr. Mooers in the Gordon-Bennett race has been cabled for, and will be at once thoroughly overhauled, as the accident on the Irish race course evidently put it in bad condition. Mr. Owen drives a Winton racer, and is one of the most fearless operators of a machine in this country.



## AUTO-CYCLE CLUB'S 1,000 MILES RELIABILITY TRIALS.

Forty-eight entries have been received for these important trials, which commence next Tuesday. Of these, thirteen are from private owners, and we set out below the full details of each entry. We are pleased to note that several new makes of motor-bicycles are in competition with other well known manufactures. The

start and finish is at the Crystal Palace, different routes being taken each day, the trials concluding on August 22nd with speed tests on the track. Whilst on the road the machines have to cover sections of ten miles within specified limits, the scoring being by a system of marks. We shall give a full report of the progress of

these interesting trials in our next three issues. We notice, with great regret, that the signatories to the recent protest against the scheme have refrained from entering machines for the trials. We are afraid that the action of this section of the trade is not a wise one, making neither for individual nor collective good

### CLASS FOR MANUFACTURERS AND AGENTS.

Official No.	Make of Machine.	Manufacturer or Agent.	Engine.	Bore.	Stroke.	H.P.	Weight of Machine (pounds).	Belt, Chain or Gear.	Revolutions per minute.	Speed (m.p.h.).	Ignition.	Price.
1	Bradbury	Bradbury and Co.	Bradbury	70	76	2	125	Belt	1500	25	High Ten.	£ 45 0
2	Bradbury	Bradbury and Co.	Bradbury	70	76	2	140	"	1500	30	"	50 0
3	Peugeot	Friswell, Ltd.	Peugeot	2 1/2	70	2	114	"	—	—	"	42 0
4	J A.P.	Prestwich & Co.	J A.P.	70	75	2 1/2	110	"	1200	20	"	45 0
5	Nob'e	Noble Motor Co.	Noble	70	76	2 1/2	110	"	1100	17	"	32 0
6	Booth	Booth Motor Co.	Booth	68	70	2	120	"	2000	17	—	45 0
7	Booth	Booth Motor Co.	Booth	82	82	3 1/2	125	"	1800	45	"	—
8	Roc	A. W. Wall, Ltd.	Roc	—	—	2 1/2	90	Chain	1500	30	Magneto	45 0
9	Roc	A. W. Wall, Ltd.	Kelecom	84	87	3 1/2	150	Belt	1500	30	"	55 0
10	Griffon	F. R. Goodwin	Griffon	—	—	2 1/2	—	"	—	—	"	—
11	Bat	Bat Motor Co.	M.M.C.	78	80	2 1/2	150	"	1200	40	High Ten.	50 0
12	Bat spring frame	Bat Motor Co.	M.M.C.	78	80	2 1/2	150	"	1200	40	"	55 0
13	Kerry	East London Rubber Co.	Kerry	70	80	2 1/2	—	"	1400	30	"	44 0
14	Phœnix	Phœnix Motor Co.	Minerva	75	75	2 1/2	—	"	1500	20	"	50 0
15	Phœnix Trimo	Phœnix Motor Co.	Minerva	82	82	3 1/2	—	"	1500	20	"	73 10
16	Ariel	Ariel Cycle Co.	Ariel	3 1/2	76	3	150	Chain	1700	40	"	52 10
17	Brown	Brown Bros.	Brown	75	75	2 1/2	145	Belt	1600	25	"	42 0
18	King	W. King and Co.	King	80	82	2 1/2	170	"	600	12	"	50 0
19	Robinson and Price	Robinson and Price	R. and P.	70	70	2 1/2	108	"	1200	20	"	45 0
20	Ormonde	Ormonde Motor Co.	Kelecom	76	83	2 1/2	130	"	1500	35	"	50 0
21	Weller	Weller Bros.	Weller	70	76	2 1/2	120	"	1500	25	"	45 0
22	Werner	Werner, Ltd.	Werner	76	76	2 1/2	118	"	1800	32	"	45 0
23	Werner, forecarriage	Werner, Ltd.	Werner	85	80	3 1/2	124	"	1650	35	"	75 0
24	Werner	Werner, Ltd.	Werner	68	77	2	105	"	2000	26	"	40 0
25	Lagonda	Lagonda Co.	Lagonda	78	76	2 1/2	130	"	1800	31	"	55 0
26	Castell	Castell and Sons	Fernhead	80	80	2 1/2	127	"	1200	16	"	45 0
27	Jehu	Jehu Motor Co.	Jehu	66	70	2	120	Chain	1800	25	"	45 0
28	Chase	Chase Motors	Ariel	66	70	2 1/2	120	Belt	1800	22	"	47 5
29	Chase	Chase Motors	Ariel	80	76	3	130	"	1800	24	"	52 10
30	Rex	H. W. Stone	Rex	76	76	2 1/2	170	"	2400	35	"	52 10
31	Matchless	H. A. Collier	M.M.C.	74	76	2 1/2	160	"	800	16	"	45 0
32	Regina	Hford Motorcycle Co.	M.M.C.	79	85	2 1/2	140	"	1500	20	"	50 0
33	Evert Hall	Evert Hall, Ltd.	—	76	88	2 1/2	140	"	1200	30	"	45 0
34	Alldays	Alldays and Onions	—	70	76	2 1/2	110	"	1600	25	"	45 0
35	F.N.	McTaggart	F.N.	64	72	2	115	"	700	—	"	43 0

### PRIVATE OWNERS' CLASS.

Official No.	Make of Machine.	Entrant.	Engine.	Bore.	Stroke.	H.P.	Weight of Machine (pounds).	Belt, Chain or Gear.	Revolutions per minute.	Speed (m.p.h.).	Ignition.	Price.
36	Phœnix tricycle	A. Hooydonk	Minerva	82	82	3 1/2	—	Belt	1500	20	High Ten	£ 70 0
37	Ormonde	C. Vandeville	Kelecom	77	83	2 1/2	130	"	1500	20	"	50 0
38	Ormonde	D. Elgard Brown	Kelecom	70	74	2 1/2	130	"	1500	30	"	45 0
39	Quadrant	A. Candler	—	66	70	2	100	"	1500	35	"	50 0
40	Werner	A. Hoffman	Werner	76	76	2 1/2	120	"	1800	32	"	45 0
41	Roc	A. Hauflon	Roc	—	—	2 1/2	170	"	1500	—	Magneto	—
42	Ormonde	Private owner	Kelecom	76	83	2 1/2	130	"	1500	35	High Ten.	50 0
43	Rex	Private owner	Rex	76	76	3	—	"	1600	—	"	52 0
44	Booth	S. B. Moore	Fernhead	—	—	—	—	"	2000	—	"	—
45	Spark	A. Hirst	Spark	66	80	2	—	"	1800	25	Magneto	38 0
46	Spark	—	Spark	66	80	2	—	"	1800	25	"	38 0
47	Rex	C. F. Law	Rex	78	78	3	170	"	—	—	"	52 10
48	Not stated	J. Bond	—	53	76	2 1/2	120	"	1700	30	High Ten.	47 5

### M. Michelin on Tyres.

It is interesting to note what Mons. Michelin says on the subject of pneumatic tyre covers. He held the opinion that a broad tread was better than a narrow tread, as the cover had a longer life. On the other hand the narrow tread was less liable to side-slip, but the deterioration of the rubber was greater than was the case with a wide tread, due to the extra heating. These remarks were made at the recent meeting of the International Automobile Congress.

### The L.V.B. Universal Light Car.

This car is fitted with a six h.p. De Dion engine, giving eight h.p. on the brake at 1,500 revolutions per minute. The gear is of the Panhard type, three speeds forward and one reverse, with direct drive on top speed. Especially heavy gears are fitted, having 22 mm. width of tooth and three inch bearings at each end of gear box, so there is no danger of straining driving shaft when on top speed of 30 miles per hour. The steering is irreversible, working on rack and pinion, and the machine is controlled by levers on steering column. Two brakes are fitted; one on countershaft, controlled by foot lever, and internal drum expansion on both back wheels controlled by hand lever at side. Either of these brakes throw the engine out of gear.

Other features are genuine De Dion carburetter, equal size artillery wheels, and heavy reinforced Dunlop tyres 700 X 85 mm.

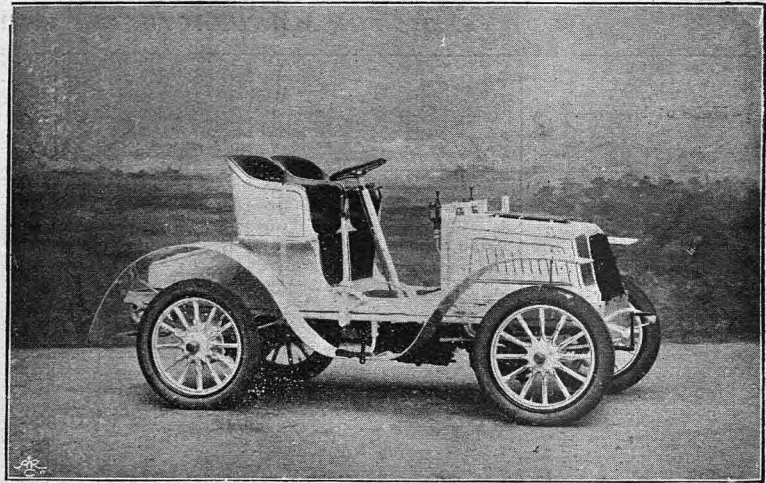
The wheel base is 6 ft. long and 3 ft. 9 in. tread.

The body is highly finished with two bucket seats, or the same car can be sup-

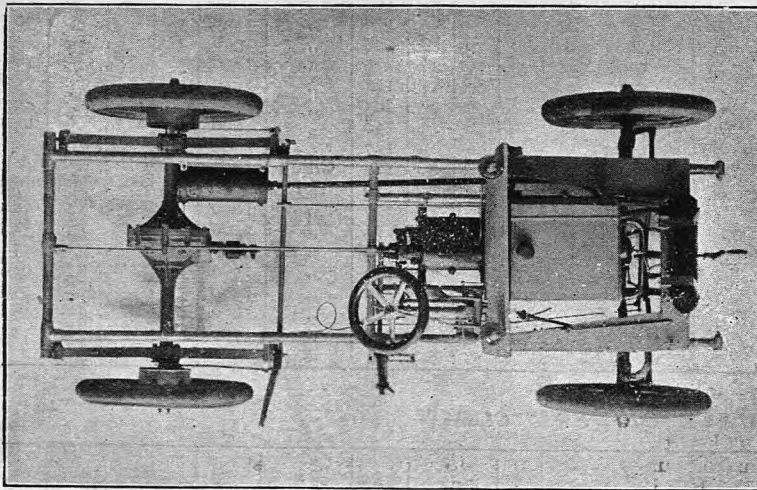
### The New "Minerva" Motor Repairs Department.

The development of business in connection with the "Minerva" Motor has become so large that the company recently decided to open extensive premises in Farringdon Road, London, which would be replete with a plant and general equipment that would enable them to effect repairs and replacements quickly for any type of the "Minerva" since the first one was placed on the market. Anticipating a large amount of business with

shelves, containing every component part of the "Minerva" motor equipment down to the smallest screw, and no matter how old the pattern may be, the part can be supplied in a very few minutes. The upper floors are equipped with a very complete accumulator-making plant, and an electric motor transformer and switchboard is put down for charging the cells. The top floor has been arranged as a machine shop, and has a very up to-date machine tool equipment, comprising lathes, grinding and milling



The L.V.B. Universal Light Car.



Chassis of the L.V.B. Universal Light Car.

plied fitted with tonneau body at an extra cost of fifteen guineas.

We have had the pleasure of a short trip on this car, and it gave evidence of possessing all the qualities claimed for it. Out and home, through traffic, it was easily manipulated on the top speed, and put at the test hill in Richmond Park it went up in good style. When descending another stiff hill it was stopped by using the brake on countershaft only, the reversing gear was thrown in, and the car responded at once by mounting backwards to the top.

The price is 170 guineas, and it is sold by The Motor Car Industries Co., of 55, College Street, South Kensington.

the "Vesta" Light Car, shortly to be introduced, very complete arrangements have been made for dealing with it. Should a part be lost or become damaged, it can be supplied immediately out of stock, and every detail being made dead true to metric system gauges, perfect accuracy of fit can be depended upon. The ground floor of the new premises is fitted up as a garage, and has a 1 ton crane, provided so that a car can be lifted right off a railway waggon with ease. Inspection pits are also a feature. The first floor comprises an extensive suite of offices, well furnished and lighted. Above these is the stores department, provided with numbered drawers and

machines, all electrically driven. A lift communicates with all the floors, and will be used for the handling of large stocks of parts. The new department will undoubtedly prove a boon, both to the trade and riding public. The company will supply motor - bicycle replacement parts retail, but all other parts will be supplied through the trade. "Minerva" Motors, Ltd., will also supply the "Vesta" car to the trade only.

"From Fire Station to Motor Garage" aptly applies to the motor depot of E. I. Coles, situated in Great Portland Street. He has taken the premises recently vacated by the fire brigade. By the way, it was Coles who appeared at the Alhambra a few years ago with a Benz car.

### Bad Connections that Cause Misfiring.

It is very often the case that the connection between the contact maker base-plate and the motor, which is depended on in most makes of machines to form the return to the coil, becomes imperfect, due to wear between the shaft and base-plate. If occasional missing is experienced, and no other reason can be found for it, a connection should be made between the contact plate and the motor by means of a piece of copper wire. Another rather frequent cause of missing is a corroded connection at one of the accumulator terminals, due to some of the acid having crept up and attacked the metal. It is well to keep the outside of the positive terminal well vaselined, as this is the one most susceptible to corrosion. Other points where bad connections occur are at the plug switch, which may get black and oily, or at the coil terminals; these sometimes work slack with the vibration. Where possible lock nuts should be fitted.



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

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

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

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

#### The Wear of Tyres.

Sir,—Has "Photo Motorist" tried the K. C. band made by the East London Rubber Company of Great Eastern Street, Shoreditch? I have two solutioned on my covers (F. D. Werner). The driving tyre band has run 1,800 miles, and when I refixed it on my new covers a week or so ago, I found it still thick enough to do as much again; these bands wear in time, but will not cut. My old covers had run 4,500 miles, and had given way in the fabric against the rims.—Yours faithfully,  
J. FREDK. HUNT.

#### Mysterious Tyre Troubles.

Sir,—I have ridden a motorcycle fore-carriage for two months, and have had the following troubles with the tyres, the cause of which I am somewhat perplexed about:—(1) The sudden bursting of inner tube of back tyre, which was apparently correctly put on and not pinched in any way (as it was put on by the makers). The machine had covered about fifty miles on the said tyre without giving any signs of trouble; when the burst occurred the outer cover was blown off the rim, but not damaged in any way. (2) The appearance of a small longitudinal slit in the inner tube exactly at the point of the diamond shaped patch of the valve seating. This has occurred in four new inner tubes of different makes and on different wheels, but the slit always occurs exactly at the same spot. Is this caused by the seating patch being made with canvas, and therefore not stretching uniformly with the rest of the tube, thereby throwing a severe strain on the tube just at the point of the patch? I should be glad to hear through "O.P.V." columns the experience of any other readers on these points, or suggestions as to the probable cause of trouble.—Yours faithfully,

"A CONSTANT READER."

Blackheath.

#### Efficient Sparking with Two Volts.

Sir,—I notice one of your correspondents, in a recent issue, writes about running motor on a single cell of the accumulator. Perhaps it might interest your readers to know that last year I rode from Cobham to London on one cell, the celluloid having cracked and let all the acid out of the other cell. I got perfect firing up to about sixteen miles an hour, but directly I advanced the spark above that point it stopped altogether. I was using a trembler coil at the time, which I think accounted for the good result, as I have since tried the experiment with a non-trembler coil with poor results.—Yours faithfully,

PERCY E. LAMBERT.

#### The Petrol Motor Launch.

Sir,—Thanks for reply to my queries as to motor launch. Your article on same also was very welcome. I note "Magneto" writes, "In this country we are a good deal behind the United States in the application of the petrol motor to launches." Why is this? I can but think there are a great many amateurs who, like myself, intend fitting up a boat; not building the boat or engine, but merely converting an existing boat into a "launch." I should think if some English firm would make a speciality of supplying the necessary fittings required, i.e., engine, say, 3 h.p., with suitable base for bolting down firmly, thrust block, shaft, propeller, etc., it would well repay them. Hoping to see further correspondence on the subject.—Yours faithfully,  
"CONSTANT READER."

Sir,—I was much interested in your article dealing with the above subject, having owned a motor launch, supplied me by the Twentieth Century Motor Car and Launch Company, for the last two years, with great success. To those of your readers who contemplate tasting the delights of "motoring on the water" a short description of it may be acceptable. The boat is carvel built, and just over 20 feet long by about 4' or 8 inches beam. It is fitted with a 4½ h.p. four-cycle single cylinder motor with high tension ignition. It has a large propeller which drives it at any speed to about 12 miles per hour, which, I think, all must admit is as fast as one can wish for. It will go astern with facility. I have had several long trips in the boat without experiencing a breakdown of any kind. Having seen and tried one or two of the American makes, it was quite a revelation to me last year to find that an English maker turned out something that "would go," and prove reliable. Half a turn of the starting handle and the launch starts right away. No smoke, smell, stoking or gauges to look

after, simply a regular feed of petrol and lubricating oil is all that is required. One can almost go to sleep! With an awning to keep off rain or sun a party of six can have a most pleasant week-end up river. Therefore, I say, let those who hesitate do so no longer, but try this most healthy and enjoyable means of recreation.—Yours faithfully,

"MOTOR-LAUNCHIST."

#### Is the Motor-Bicycle a "Light Locomotive"?

Sir,—There appeared in the "Daily Mail," of the 21st ulto., a report of a case of a motorcyclist charged at Selby with exceeding the speed limit; the case was dismissed on the technical ground that a "motorcycle" is not a "light locomotive" within the meaning of the Act; if this be so, it at once disposes in one fell swoop of all questions of license, speed, etc., where such are concerned. In view of the tendency of the Motor Bill, now before Parliament, to saddle motorcyclists with all the responsibilities and obligations of car drivers, this decision, if it can be upheld, is of the greatest moment to users of the humbler vehicle, and cannot be too widely known, and to this end I have, therefore, addressed you.—Yours faithfully,

R. MIDWORTH.

#### Motor-Bicycle Experiences.

Sir,—I take this opportunity of thanking you for the useful and valuable information I have obtained from "THE MOTOR" since its first issue. I was prompted to go in for a motor-bicycle, and have ridden up to the present nearly 1,000 miles, and my experiences are as follow: On two occasions I was stopped for over half an hour overhauling the machine to find the cause of the motor ceasing to work, and then discovered I had run short of petrol. Three times the belt hook has pulled through the eye (belt is a twisted leather one). Once one of the jets in the Longuemare carburetter got choked up; this only necessitated opening the throttle wider until I arrived home, and could clean it out at leisure, which only took half an hour. Twice in the first 400 miles I had to grind-in the exhaust valve, through using too strong a mixture. I have not touched it since. I had a lot of misfiring at first, and found that by putting a big platinum tip on the trembler blade it was done away with, at first I put on a platinum tip just large enough to rivet over, and after the first mile misfiring commenced. The machine is only 2 h.p., but on give and take roads to 30 m.p.h. can easily be maintained. It will also draw a trailer with a ten stone passenger at 15 m.p.h. It will travel 130 to 150 miles on



one gallon of petrol. I am glad "Cyclo-mot" is now advocating spray carbureters, as I have always thought them the better type. The machine will, I have observed, travel much faster with well inflated tyres than it will with soft tyres. The machine I am riding is the Star Griffon.—Yours faithfully,

WILFRED N. LIVERSIDGE.  
Bangor Road, Kew Bridge, W.

#### Flat versus V Belts.

Sir,—In reply to "Flat Belt" in a recent issue of "THE MOTOR," I may say I have run over 2,000 miles with one, and prefer it to the V owing to the following reasons, viz., cheapness, it being so easy to cut a piece off to shorten and no troublesome holes to make as in V pattern belts. I have run 50 miles without a stop and 400 without cleaning belt surface, but may say much better results can be obtained by fitting a guard (I made one myself) of zinc or other metal over inside of belt. I clipped it to stays and carried it down inside, and all the mud which would be thrown on inside is caught by guard. I may say I use imitation "Dicks" belt, made of canvas and rubber, and it never stretches, nor affected by rain. Dress with castor oil. Price 1½d. per foot, so comes out very cheap, 1 inch wide.—Yours faithfully,

P. A. REVELL.

Sir,—Referring to the letter from "Flat Belt" in a recent issue, I may say that I am using a Dick's flat belt on a 1902 F.N. motorcycle with the greatest success; the belt is ¾ inch wide and costs, with fastener and postage, 1s. 1½d.; it appears to be a composition of rubber and cotton. I have already run it several hundred miles, and it does not seem to be any the worse for wear. To prevent slipping I carry with me a small oil can filled with castor oil, and when the belt gets dry I distribute about half a dozen drops along the inside of the belt which, after a few revolutions, gives it a good gripping surface again. Since I adopted this type of belt a breakage or a pulled-out fastener has been an unknown quantity, and, further, these belts do not get so greasy in wet weather as do leather ones. If "Flat Belt" will try one of these I think he will find it a distinct improvement on leather. The address of the makers is R. and J. Dick, 10, Corporation Street, Manchester; and when ordering he should state the horsepower it is to transmit, together with the diameters of the driving and driven pulleys; it is also best to have one of the makers' own fasteners to use with it.—Yours faithfully,

"EFENITE,"

#### Gaining Experience on the 3½ h.p. Benz Car.

Sir,—We occasionally hear and read about "Motors for men of moderate means," but, after reading with avidity, thinking perhaps that at last there is a chance for men who claim their abatement when paying their income tax, we find the writers' ideas of moderation, as applied to incomes, allow for an estimated expenditure on motoring of anything from £100 to £250 per annum. I contend that it is possible now to possess a car and to get a lot of pleasure and valuable experience out of it for a much smaller sum than that. Each week's motor papers bring forth lots of advertisements of little 3½ h.p. Benz cars at or about the price of a motor-bicycle. I do not think there can be any comparison between the two so far as a family man is concerned; in

D16

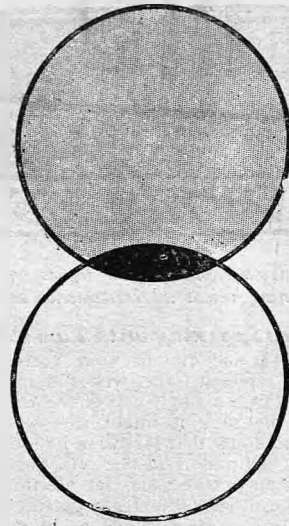


FIG. 1  
Before the Alteration

NOTE.  
THE BLACK PORTION  
SHOWS OPENING FOR  
GAS.

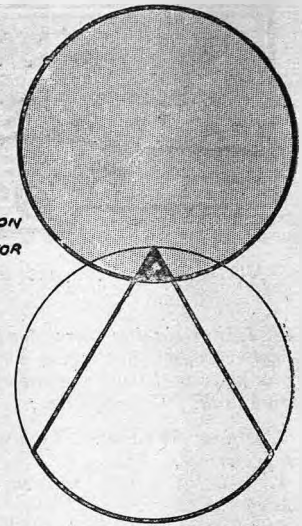


FIG. 2  
After the Alteration.

Illustrating letter from J. B. Bent.

the one case he can take his wife and one or two children with comfort, while in the other, although greater speed is attained, it is secured at the price of safety and discomfort, while the luggage carrying capacity is either non est or reduced to an absolute minimum. The experience gained in the management of a Benz car would be invaluable in the training for a larger car later on. They are very reliable, and there is no fear of punctures, and with the mechanically operated inlet valve, as advertised in your columns, 20 miles an hour on the level is easily attained, and little hills can readily be overcome on the top speed. For very steep inclines the Crypto gear is always available, and will get up any hill where wheel traffic is possible.—Yours faithfully,

"BENZITE."

#### A Throttle Valve Improvement.

Sir,—Being troubled, as many others have been, with the difficulty of regulating the gas in a sufficiently gradual manner by means of the ordinary throttle valve, I have adopted the following method on my Minerva motor, which answers well:—Instead of having an elliptical hole for the throttle, I have blocked this up by means of some tin soldered to the present valve, so as to make the hole V shaped. The advantage is evident, for whereas, before one notch gave an opening, lozenge shaped and too large, I now get one V shaped and much smaller. In the diagrams the shaded circle represents a section of pipe from carburetter. Trusting this may be advantageously used by some of your 50,000 readers.—Yours faithfully,

J. B. BENT.

#### The Motor Cars Bill.

Sir,—I have read the details of the Motor Cars Bill in your issue of the 15th inst. and also your remark thereon, with which latter I entirely agree, but I suppose we must make the best of a bad job now, and hope for better things in the future. I see that Sec. 5, sub-sec. (2) provides for the placing of conspicuous notices in places where special limits shall be imposed on speed, but there is no provision for lighting up such notices at night.

I think there should be such a provision, or the last state of the motorist will be worse than the first. I think that Section 1 must have been framed in order to encourage police traps rather than otherwise. The proposed amendment will give rise to a lot of trouble, and so will the words you comment on, viz., "or which might be expected to be" in Sec. 1.—Yours faithfully,

G. M.

#### Remedy Wanted for a Seizing Clutch.

Sir,—Some little time ago I bought a 1903 9 h.p. car, and ever since I have used it experienced great trouble through the clutch seizing. In fact, it has seized so badly that two-gear wheels have been stripped through shock at starting, and it is not at all unusual for the engine to stop. I have treated it with castor oil, graphite, vaseline and sperm oil, the latter acting well, but the effect wearing off in an hour or so. If any reader can suggest any treatment I should be much obliged.—Yours faithfully,

CECIL HOPWOOD.

#### Accumulator and Ignition Hint.

Sir,—I should like to call the attention of some of your readers to a very dangerous practice, viz., connecting the cells of an accumulator with fuse wire. It seems to be a common thing to do so where the makers have fitted four terminals on the battery instead of two, and a lead bridge. There are plenty of places in circuit where a safety fuse could easily be fixed, because if the one on the battery ever had to perform the function intended there would be every chance of an accident. Of course, I only allude to celluloid cases igniting. One of your readers mentions that he cannot obtain any explosion with the compression on, but if he releases compression he gets an explosion. The cause, to my mind, is simple; the compression forces the points on the spark plug together, and "no spark" is the result; but as soon as a portion of the compression is released the points part, and he gets a spark.—Yours faithfully,

GOLDMAN.

Birmingham.

**Police Traps.**

Sir,—I beg to inform you, for the benefit of your readers, that there is a police trap on the Great North Road about six miles north of Stamford, at a place called the "Bloody Oaks." Three or four people have been caught there and fined.—Yours faithfully,  
H. S. PHILLIPS.

Sir,—I shall be much obliged if you will warn motorists travelling on the North Road of the existence of a police trap which is often in operation at the village of Water Newton, between Wansford and Alwalton, about six miles north of Norman Cross. A constable is stationed up a lane in the village, and times motors coming over the top of a hill from the direction of Norman Cross. I should judge the distance to be about half a mile.—Yours faithfully,  
H. NELSON SMITH.

Sir,—In a letter from my home I was informed of a police trap for motorists. It exists on the Oxford road, as you go from Banbury towards Adderbury, about two miles out: of course, consisting of the usual three policemen and plainclothes men.

The place cannot be mistaken, as there is a large stone house on the right, the trap lying beyond that and the next group of farm buildings, also on the right.

I sincerely trust that this information may be of use to some of your readers.—Yours faithfully,  
"A CYCLIST WHO READS 'THE MOTOR.'"

**To Give Warning of Police Traps.**

Sir,—It would be useful if motorists could, through your widely read paper, arrange some signal, whereby notice of the proximity of a policeman could be given to a car or cycle going in the opposite direction. A few days ago I passed one of the force in a deserted road, luckily at low speed, and shortly afterwards met a car driving well over the limit. I tried to let the occupants understand the lurking danger ahead, but with what result I do not know. Probably they did not understand the warning I wished to convey. Perhaps some reader can suggest a suitable sign. I think most motorists would make use of it, and tend to decrease the steady flow of hard cash into the coffers of the police.—Yours faithfully,  
"SIGNAL."

**Assistance to Riders in Difficulty.**

Sir,—I am sorry to note the tone of "Number One's" letter in a recent issue of "THE MOTOR." Although it is a fact that many motorcyclists are thoroughly selfish and would not lift their little finger to assist a fellow motorist on the road, yet is that any reason why "Number One" should wish to swell the ranks of the selfish? Personally, I am fond of assisting people on the road, as I learn a great deal by that means, and the pleasure of seeing the troubled one getting under weigh again is ample compensation for any delay. I hope "Number One" will reconsider his position, otherwise some fine day when he is stuck and a passing motorist does happen to give him a hand and set him running, he will have unpleasant prickings of conscience. If "Number One" intends refusing to give assistance, he must also refuse assistance proffered.—Yours faithfully,

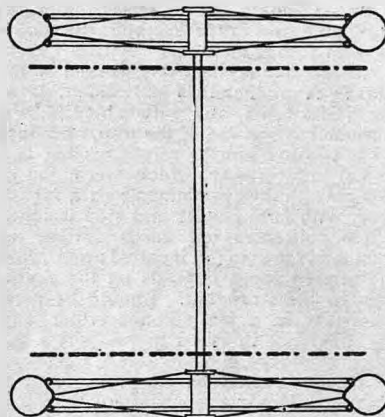
R. WOOD.

**Tyre Wear.**

Sir,—Having seen a good many complaints about tyres in "THE MOTOR," I should just like to say I have ridden a 2 h.p. Minerva machine, 1903 type, over 1,000 miles now, and only had one puncture, which was in the back wheel, and caused by a piece of iron about 3 inches long. My bicycle is fitted with Palmer tyres, and I cannot speak too highly of them on the score of immunity from punctures. The back wheel is only slightly worn and the front wheel shows practically no wear at all. I have had flints nearly half an inch long in the tread and have not experienced a puncture.—Yours faithfully,  
"STORAGE."

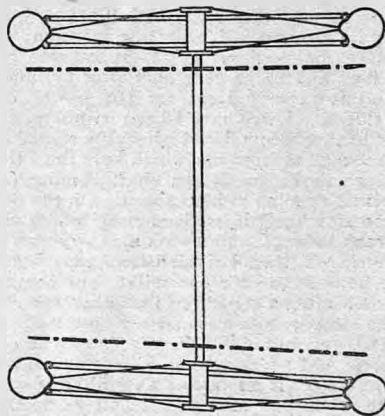
**Abnormal Wear of Fore-carriage Tyres.**

Sir,—The abnormal wear on the tyres of fore-carriages, it seems to me, may be directly attributed to the wheels being



**WHEELS PARALLEL  
TYRE WEAR SLIGHT**

thrown out of parallel with each other. An undue strain, such as, for example, that set up by an obstacle encountered by a fore-carriage whilst travelling at a fast pace may put the distance rod of the



**WHEELS NOT PARALLEL  
TYRE WEAR ABNORMAL**

steering gear out of alignment, with the result that the wheels tend to diverge. This sets up sideward stresses on the tyres and results in a shortened life for these latter. The accompanying sketches will help to a clear understanding of this point.—Yours faithfully,  
"PETROLIA."

**The Tyre-wearing Problem.**

Sir,—In reply to "Photo-Motorist," who writes under "Other People's Views," the following may be of interest to him, and perhaps to other readers. I myself am bringing out a patented tyre and tread, which I hope to have upon the market shortly, and which I think will do much to satisfy the want expressed in the above-mentioned letter. It will take the form of a flexible detachable tread of a practically unpuncturable material, and specially constructed to minimise side-slip to a very great degree, and to practically take all the wear of the tyre in driving, and will render the likelihood of puncture (by anything short of bayonet points) practically nil. The increased thickness of the tread may, of course, render the tyre slightly less resilient, but will not materially slow it. It is suitable for all size tyres, from cycle tyres to the heaviest car tyres, and is exceedingly simple both in construction and application, being capable of removal and replacement in a very few seconds, and without using tools, so that when worn out it can be replaced easily and without removing the tyre from the rim. It will be made in standard sizes and in two forms, e.g., firstly as a non-puncturable and non-skidding motor tyre, and secondly as a tread possessing the same qualities, and applicable to all existing pneumatic tyres, new or old. I may add that this device is not a metal tread, which is altogether impracticable on a pneumatic tyre in my opinion. I am not prepared to give fuller particulars at present, but should you consider this worth inserting in your valuable paper I shall be most pleased to forward you fuller particulars and drawings at a later date.—Yours faithfully,  
"LIFE-PRESERVER."

**Fore-carriage Experiences.**

Sir,—I was very interested in "Cyclo-mot's" notes on the Trimo fore-carriage. My motorcycling experiences extend over eighteen months, and in what period I have sustained most of the penalties that a motorcyclist's flesh is heir to. After some four serious side-slips—one particularly bad one—which necessitated eight weeks on crutches with a smashed knee, I seriously began to ponder whether a motor-bicycle was a machine for pleasure or self-destruction, and my mind began to ask itself why I insisted on two wheels when three wheels was obviously safer. Result: I ordered a fore-carriage, and had it fitted to my 2 h.p. Singer machine. After waiting weary months, I was told it was ready, and I fetched it home. I mounted with some very pronounced views on possible side-slip—in fact, the roads were so bad that, to have ridden an ordinary motor-bicycle thereon, would have been to court disaster. I was very surprised to find that I could dismiss side-slip from my brain, for, although I could feel the rear wheel slip, yet it mattered not, for the two front wheels continued on their course. I found tram lines had lost their terrors, and I could hop across them or ride between them, or even in them, without any danger whatever. I found that I could negotiate the traffic easier than on an ordinary bicycle, for in blocks of traffic I had merely to shut off the power and wait for an opening, instead of doing balancing feats, such as one must do on bicycles—motor or pedal propelled. As to the steering, I found it ridiculously

easy, although I had previously never ridden a tricycle, and the comfort of being relieved of the need to maintain one's equilibrium must be felt to be appreciated. The vibration of arms and body had been reduced to a minimum, and I was thoroughly in love with the addition. I have just returned from an extended tour on the machine of about 1,000 miles through England and Wales. I have tried the machine with a passenger, without a passenger, and also as a motor-tricycle with the basket removed. With a passenger up, I cannot say a 2 h.p. motor is a success, except on very flat country. A slight hill requires a good deal of what is euphemistically called "light pedalling," but which, in my opinion, is better described as torture, especially on the abnormally low gear fitted to a Singer. I drove it from London to Chester (185 miles) without passenger, but containing luggage, with little trouble, excepting a slight handicap on hills, due to the extra weight. I drove it as a tricycle with basket off from Chester to Southport, via Liverpool, and back to Llangollen, via Wigan, Warrington, and Chester. Leaving Llangollen, I ran on to London, via Shrewsbury and Birmingham. I found that the machine went as well as a tricycle as ever it did as a bicycle. My tour was a great success, and proved my faith in the Singer engine and magneto ignition. The only defect I have found on the Singer is its appetite for tyres, and this is insatiable. The result of the tour causes me to ask your readers if they know of any machine combining the following points: (1) Horse-power must not be less than 3, with efficient cooling. (2) Magneto ignition. (3) Chain or gear drive. (4) Free engine capable of being started while machine is at rest, like a car.—Yours faithfully,

"TRYBIKE."

#### Magistrate's Extraordinary Ruling.

Sir,—A client of ours, Mr. R. F. Dickerson, was summoned for driving a motorcar in excess of the regulation speed, and a policeman having sworn that, according to his estimate, he was going between 40 and 50 miles an hour, he was fined £10 and costs. We do not wish for the moment to deal with the excited fancy of the constable who thinks that a motorcar could go 50 miles an hour in one of the busiest parts of London, but we wish to give the facts relating to another part of the case. An elderly man, not so far as one could judge by his appearance of the usual type of hooligan, of the name of Robinson, and living at Ealing, was standing on the pavement when the motorcar went by. He says that another motorcar had nearly run over him a week prior, and he appears to have vowed vengeance for the future against all drivers of motorcars. In consequence of this, as our client passed, he threw a stick at him with great force. Fortunately, the stick missed our client, or it might have seriously injured him, but it struck the back of the car so violently that the stick broke in two and damage was done to the car which will cost £5 to repair. We applied for a summons for assault, but Mr. Curtis Bennett, in his wisdom, did not think it was an assault to throw a stick at a motorcar driver, but ultimately consented to grant a summons for the damage to the car. When the summons came on for hearing the man Robinson admitted throwing the stick and prac-

tically admitted the damage, but swore that he did it in the public interest in order to stop the motorcar. Mr. Curtis Bennett, in his great wisdom, decided that as the man Robinson, of Ealing, swore that he threw the stick in the public interest therefore it was not done wilfully with intent to damage the car. Therefore, the result of this decision is that it has been decided officially by a metropolitan police magistrate that any loafer on the pavement may throw anything he likes at a motorcar driver, and may, apparently, even shoot him if he feels so disposed, and that he is not liable if he swears that he did it in the public interest, and to stop the motorcar. We may, therefore, expect an era of public ruffianism based on this decision.—Yours faithfully,

GREVILLE AND CO.,

Solicitors for R. F. Dickerson.

60, Haymarket.

#### Police Timing Methods.

Sir,—I should like to remark upon the unreliable and crude method the police have in timing motorists. A trap I came across on Sunday last was worked as follows:—A plainclothes policeman, wearing a straw hat, and with a bicycle, was stationed at one end of the trap, and upon a car passing him he raised his hat in a casual kind of way, which was noted by two plainclothes gentlemen half a furlong away with field glasses and stop watches. Three policemen ten yards further up were ready to step out if called upon. Now the alleged speed depends on the gentleman in the straw hat. Should he make a mistake in a few seconds either way, the difference in speed in so short a distance would be considerable. I learn at a recent committee meeting of the Southern Motor Club that all members will carry coloured confetti, which will be dropped at the approach to a police trap.—Yours faithfully,

W.L.

#### Pins Working Loose Inside the Crank Case.

Sir,—There is one grievance I should like to ventilate through the columns of "O.P.V." with your kind permission. My machine is fitted with a small motor which is, generally speaking, splendidly designed and the accuracy and finish leave nothing to be desired. I will not mention the make, but will say it has an outside fly-wheel and valve gear on top of cylinder, and it is very light for the power developed. Twice have I been within an ace of having the motor irretrievably ruined by the small tapered pin which keys the 2 to 1 gear crank arm to the shaft coming out whilst running at high speed. On the first occasion the pin wedged itself under the crank balance, and it took me two hours to get it out, then I riveted the ends up and it held secure for 600 miles, but coming home after a long ride the other evening the motor again suddenly jammed at 1,500 revolutions. The pin had come out again and I found I had a bent piston rod this time. It might just as well have been the crank pin snapped off and £2 to pay for a new crank and axle. Why cannot an occurrence like this be rendered impossible? I hold that no tapered pin inside the motor should be unprovided with a nut or cotter to keep it in place, or better still, it should have no keyed parts whatever inside the motor. It should not be beyond the skill of a good designer to make a crank and shaft of this kind in one piece.—Yours faithfully,

"SECURITY."

#### Unable to Obtain Some Parts.

Sir,—I should like to call attention to the difficulty experienced in getting spare standard parts for the 2 h.p. De Dion engines. A special matter I wish to draw attention to is that certain accessory firms advertise that they supply these parts, and yet when written to fail to acknowledge, in any way, receipt of the order. I have heard of several similar instances from my motorcycling friends.—Yours faithfully,

"BUSINESSLIKE."

#### Starting with Spray Carburetter.

Sir,—Re the recent letter in "O.P.V." If Mr. Pooley will adjust the angle which his spray carburetter makes with the vertical, until the top of the nozzle is exactly the same height as the petrol in the float chamber, I think he will find the machine will start readily if valves and ignition are in good order. I have had slight trouble myself with the F.N. carburetter, but by altering either the angle of carburetter or length of the jet I can always get a start as soon as the exhaust valve is dropped and current switched on. I have had this experience with several F.N.'s, but have never had trouble after once adjusting properly, and seeing that the hole in jet is the right size.—Yours faithfully,

NOEL PATON.

Dobcross, Oldham.

#### Speed: Motor v. Train.

Sir,—In the issue of "THE MOTOR" for 15th July, 1903, page 565, col. 1, there are some comments on train speeds. For many years I have taken a great interest in this question. I have quite failed to find any one instance in which any so termed "rail record" was timed by a recognised expert using a duly certified watch. The average railway time is absurdly ludicrous. The railway timer is a lofty-minded man, who scorns seconds, and would have a fit if fractions thereof were mentioned in his hearing. The rule seems to be to try to see the time by the various station clocks as the train rushes through—if missed, guess it. The two Royal runs to the West are fine samples of rail timing. "Five miles in four minutes" is good enough for the railway timer. What is extraordinary is that the railway companies, when a record (?) run is contemplated, put every obstacle in the way of the times being taken by an expert. Then the Press get a series of grotesque "even" times. It is, on a fifth chronograph, 5 to 1 against any mile coming out at the even second; 300 to 1 against it coming out at the even minute; against ten miles all coming out at even seconds it is 9,765,615 to 1 (a railway records); as to a series of miles finishing at even minutes, well it is billions to one. A regiment of men might clock continuously for generations without finding such a result. To anyone, even with the most rudimentary knowledge of the gentle art of timing correctly, the railway record (?) is too funny for words.—Yours faithfully,

H. HEWITT GRIFFIN.

\*\*\* A large number of interesting letters on a variety of subjects have been held over through lack of space, and the Editor desires to inform those correspondents whose letters have not yet been published that they will appear as soon as possible. In consequence of the mass of correspondence it has been found necessary to limit the number of letters on any one subject.—ED. "THE MOTOR."





### SPECIAL NOTICE.

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

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

E. Isaacs (Whyteleafe).—We advise caution in dealing with the firm you refer to. We have heard numerous complaints.

H.M. (Clapham).—You cannot possibly have good compression if you can pedal the machine easily with the exhaust valve closed. It would be as well if you fitted a throttle on the gas supply; it would be possible to run fairly slow by using it. You would not gain anything by altering the contact maker as you suggest. The break, if anything, would be slower than with the present arrangement.

F. P. Waymouth (Albury, N.S.W.).—We are unable to give particulars of a gear to meet your requirements. There has been a good deal of talk lately about various forms of all speed gears that would be ideal for motor-bicycle work, and just about to be put on the market. They have not materialised yet. We are hoping to see something really practical in this direction at the coming Shows.

### Porcelain v. Mica Plugs.

"Perplexed" (Camp Hill) writes:—I am rather in doubt whether to have a porcelain or mica sparking plug for my motorcycle. A local agent tells me that he gets much more power with a De Dion plug than with a mica one. The reason he is unable to explain, but says it is a fact. On the other hand, a motorcycling friend tells me he discarded porcelain plugs a long time since, and would not use them again. I shall be glad if you will tell me which to have?—Our experience is that you can get equally good results with either porcelain or mica. We should put down the local agent's experience largely to his imagination. The chief claim for a mica plug over porcelain is that it is unbreakable, whilst porcelain ones often break with the heat. There is practically no difference in the power of the spark with either, providing the points are adjusted the same distance.

"2 h.p." (Shrewsbury).—1. Fix the Gamage carburetter, as in Fig. 1 of your sketch. 2. It will be quite safe to bush the ivory plate with brass, as long as you make sure that no part of the trembler or contact screw touches the brass. 3. The platinum points should separate  $\frac{1}{8}$ th inch.

### Loss of Power.

T. Gosnall (Windsor) writes:—I have a  $1\frac{1}{4}$  h.p. engine, which has been lately overhauled by the makers, and which ran as well as ever for a time, but since the hot weather it has seemed to struggle and lose a great deal of power, and during the hottest part of the day I can only open the air lever quarter way, which causes engine to overheat. With compression lever well down, one can easily push the machine along, and the belt takes the pulley wheel over almost as easily as though the compression tap were open. I notice a peculiar gurgling noise made by inlet valve when same jumps up and down, which is felt by placing hand upon the valve when the throttle pipe is taken off and machine is being pushed along. (1) Should the noise occur? Would the symptoms lead one to suppose the piston rings were too small? There are supposed to be three upon mine. I have pulled coils of springs out half an inch, as advised by your correspondent, Reginald Price, in a recent issue of "THE MOTOR," with no better results. After emptying the used lubricating oil out of engine or wheel chamber after a run, is it sufficient to inject a few charges every ten miles, or should there always be a quarter of a pint or so in the wheel chamber? Is it advisable for an amateur of average ability to take his engine to pieces, or is it best while there is any "go" at all in the engine to find out from a general external diagnosis?—You cannot expect to get any power from the motor if the compression is poor. You had better first regrind the valves, and test the joints, and

if no better compression results, have the piston rings renewed. With a better compression you will get a better suction through the carburetter, and it will take more air. The noise from the inlet valve is of no consequence. We think that one pumpful of oil every twenty miles should be ample. A quarter pint is rather too much oil to have in crank case. Half this quantity should suffice. We do not advise dismantling the motor beyond removing the cylinder or valves. It is generally a troublesome matter to reset the timing gear.

### Sparking to Motor.

H. G. Tidey (London) writes:—Whilst riding my Clement-Garrard motorcycle after dark, I sometimes see a spark pass from contact breaker to crank case, which are very close on this machine, but the running is apparently unaffected. I have the — wire from accumulator twisted round advance spark rod. Has this anything to do with it, or, if not, can you tell me what the cause is likely to be?—We expect that the screw which holds the platinum tipped screw block secure from the back comes very close to one of the crank case screws and makes contact now and again when the advance rod is moved. Should advise you to take the contact maker base plate off and slightly file the head of the screw so that there is plenty of clearance.

### Clement-Garrard Details.

J.G.C. (Enfield) writes:—Please answer the following queries in your "Information Bureau": 1. Do you consider the Juno motorcycle fitted with Clement Garrard  $1\frac{1}{4}$  h.p. motor a thoroughly reliable machine? 2. What is the exact petrol and lubricating oil capacity, and how far could it travel on a fairly level road without replenishment? 3. What is the accumulator capacity in miles? 4. Can coil, accumulator, and carburetter be relied on as trustworthy? 5. Do you think the motor would climb a hill a quarter-mile long, with a gradient of 1 in 16, with a  $12\frac{1}{2}$  stone rider? 6. Do you consider such a machine in careful hands capable of running 10,000 miles? 7. The machine in question is fitted with Dunlop tandem tyres. Are these strong enough for such a motorcycle? 8. Is this machine fitted with throttle and adjustable air supply?—1. We think the combination would prove a very satisfactory one. 2. Petrol capacity with careful handling 100 miles, but average 75 to 80. Oil suffices for 500 miles. 3. Accumulators when thoroughly charged should do 750 miles, but advisable to charge up every 500 miles. 4. These details are very reliable. 5. The motor is quite equal to this gradient. 6. With a few replacements of parts most subject to wear we believe it would. 7. Tandem tyres would be amply strong enough. 8. Yes, a throttle and air adjustment are provided.

### EDITION

### No. 5

*A book which has easily sold four large editions must possess some merit, and it is not our own opinion when we state that the "Motor Manual" is the standard book on motor matters. It has already had an enormous sale and is still in great demand. The fifth edition of this useful book is now on sale at one shilling. It has been revised, and many new details are embodied. Every motorist should have a copy for reference.*

Now ready, Post free 1/2.

A.F. (Birmingham).—The following specification should suit you: (1)  $2\frac{3}{4}$  h.p. Aster motor, air-cooled. (2) Brush contact and Basse and Michel coil. (3) A rim and two band brakes. (4) Longuemare carburetter. (5) Palmer motor-bicycle tyres.

"Novice" (Drumore).—(1) There is no risk in mounting the motor on the down tube if you see that this is of suitable strength and the joints good. (2) It is entirely a matter of opinion which position is the better. We have had equally good results in either position. (3) If anything, it is an advantage to have a long belt drive.

"Edwards."—(1) A motor  $2\frac{5}{8}$  by 3 inch should give  $1\frac{3}{4}$  to 2 h.p. (2) Fly-wheels 16 lbs. the pair. (3) The process of case-hardening is not one you are likely to be able to do yourself. (4) It would be very injurious to inject water into the hot cylinder. It would rust the bore, and possibly crack it. (5) One induction valve is sufficient.

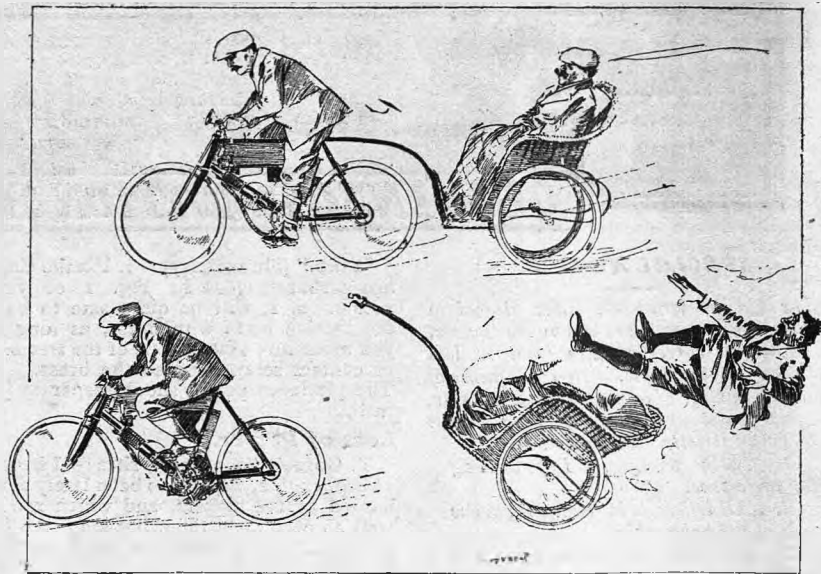
#### No Hill-climbing Power.

"Puzzled" (Evesham) writes:—I have a  $2\frac{3}{4}$  h.p. motorcycle, but cannot get good hill climbing power out of it. If I go for a run, it travels well at first, but after four or five miles begins to misfire, even on the level, and at all times is weak on the hills. I have tried the compression, which is good, cleaned trembler blade and sparking-plug, tested accumulator, tried mixture lever in all positions, but motor still continues to go badly. I have a Longuemare carburetter fitted, and have tried changing the copper cones and screws. Can you help me? I am a constant reader of "THE MOTOR," and find that it helps one out of many difficulties.—It is very probable that the motor overheats, if you have no doubts that the ignition is in good order. First of all, make sure that the spark-plug does not get sooted up through over lubrication. Then you will have to experiment with the carburetter; perhaps this is continually flooding. Or you may require an additional air supply. Keep the smaller spray jet in to start with. You are likely to get too much petrol through with the others.

#### Motor Suddenly Stops.

B. H. Palmer (Sidcup) writes:—Would you be so good as to give me any information you can on the following point. I have just bought a new motor-bicycle, and whenever I take it out after pedalling vigorously for some time, I get good explosions, and then suddenly the engine stops dead, causing the back tyre to skid along the road. This is naturally very bad for the tyre. I myself think the inlet valve is faulty. I have taken it out, but could not discover anything wrong, to my mind. Many congratulations on your excellent Gordon-Bennett number. It beat any other account I saw.—It would appear to us that the ignition failed for some reason. We advise you to carefully examine the accumulator, contact breaker, and sparking plug, to see that the sparking is efficient. The inlet valve, of course, may stick now and again, probably through using too much lubricating oil. This would cause the engine to stop in the manner you describe. It would also be well to examine the valve lifter. Sometimes this is rather too good a fit in the guide, and expands with the heat, and gets fast.

C22



#### CLUB NOTE.

Mr. Joliman, the genial member so long associated with social motorists, is now "unattached!"

C. M. Tudor (Broadwindsor) writes:—I have a 2 h.p. motor-bicycle, which is eminently satisfactory, except with regard to the silencer. Could I have a Dunlop silencer fitted? I want the bicycle to run as quietly as possible, and am quite prepared to sacrifice a little of the power in order to get it to go silently. I suppose there would be no difficulty in getting a silencer which would fit the screw at the end of the present exhaust pipe?—The Dunlop Engineering Co., Coventry, would supply a good silencer. You would have to send them full details of positions available. We had a very complete article on silencers in the last issue, and doubtless there were some points in this that would help you.

#### Carburetter and Belt Queries.

F. J. Rendell (Revizes) writes:—I have purchased a reputed make  $2\frac{1}{2}$  h.p. motor-bicycle and have experienced considerable difficulty with it. I can get it to start when cold, but after going a mile it gradually slows up and stops and will not start again for about ten minutes. I have examined ignition, carburetter and valves and all appears to be in good order and machine has been properly lubricated. I have used the mixture as weak as possible. There are also three holes drilled in inlet pipe near engine to admit air, and I have had these open, but with no better results. Can you suggest a cause for the machine running so badly? If not troubling you too much I should like to have your opinion on my belt. It is a Lincona, but it runs within  $\frac{1}{8}$  of an inch of the back tyre and already shows signs of rubbing the tyre, and I am afraid that in muddy weather the belt will become plastered with mud. Is this sufficient clearance?—We think the difficulty is due to flooding of the carburetter. You thus get far too much gas, which overheats the motor. Perhaps the float valve leaks. It is advisable to try running with smaller petrol supply; have the tap only part on. The belt certainly comes too near the tyre. It may be the back wheel is adjusted a little to one side in the forks.

"Moto" (Leicester) has observed that there is considerable loss of compression on his magneto ignition motor, and that smoke comes out at the sparking plug now and again, and he wishes to know how to remedy this.—As a rule, it will be found that the mica packing of the insulated pin of the make and break requires replacing. This is liable to deteriorate after much use. The renewal is easily effected.

#### Short Circuit.

"Kharki" (London W.C.).—The fact that the acid in one cell of the accumulator had turned brown looks as if the paste was coming from the plates, causing internal short circuiting. We cannot say what view the makers would take of the matter, or whether they would replace the accumulator. (2) The spark gap does not act in the way you suppose. The valve of same is a matter upon which there is some diversity of opinion. (3) It will certainly be an advantage to dress the twisted belt with castor oil.

#### A Timing Gear Question.

E. Tasker (Higher Broughton) writes:—I had great difficulty with my 2 h.p. motor in getting it to run until I read the recent article on "Timing an Engine." I found that the timing was not adjusted properly, but I followed the instructions in the article carefully, and got the motor to run all right. It went very well on the stand for one hour, when it stopped. Since then I have been unable to get it to start at all. Upon examination I found the timing had got wrong again, as the exhaust valve did not begin to open till the piston was half way up on the exhausting stroke. I should be glad if you could explain the reason for this.—There is only one possible explanation, and that is the exhaust cam or large gear wheel has moved out of its position on the shaft. This is assuming that the valve lifter has not got damaged in any way. It was not wise to run the motor for a long period on the stand, as overheating and lubrication difficulties are likely to occur, and possible jamming of the gear.

J.F. (Bury).—We cannot recommend the inlet valve attachment you refer to.

Cavendish (Weston-super-Mare).—(1) It is entirely a matter of opinion as to whether a chain or belt drive is the better. (2) The Humber or Clement-Garrard. (3) Excelsior (belt drive).

### Important Power Calculations.

B. S. Wills (Leonora, Australia) writes:—Please inform me in as untechnical language as possible how the h.p. of gas engines working on motor-bicycles is calculated. 1. Is the force of the explosion a factor in the calculation? 2. Does the gearing from engine pulley to road wheel enter into the calculation? 3. What is the difference between brake and actual horse-power? 4. Why are engines of a certain h.p. rated as such at a particular number of revolutions per minute? 5. I possess a gas engine of the following dimensions: 81 mm. stroke, and 78 mm. bore, and the ratio of the engine pulley to the cog-wheel on the road-wheel (it is a chain driven bicycle) is as 1 is to 4 $\frac{3}{4}$ , that is to say, engine pulley 1, driven wheel 4 $\frac{3}{4}$ . Please tell me the horse-power of this bicycle, and let me have a formula (if one exists) from which I can calculate the h.p. of a motor-bicycle of any given bore, stroke, and gear. And, finally, can you explain to me how it is that a 1 $\frac{1}{4}$  h.p. (so-called) motor fails to carry a rider up a hill, with a gear down of 1 to 6, when the average cyclist can ride up the same hill with a gear up of 3 to 1?—The force of the explosion does not enter directly into the calculation usually made for small petrol motors. This is the brake horse-power test. But with large and slow running motors the mean effective pressure of the explosion can be determined, and this can be used in a special formula for determining the power. This formula is: Mean effective pressure  $\times$  length of stroke of piston  $\times$  area of piston  $\times$  number of revolutions per minute divided by 33,000. But with small motors, such as used on cycles, it is practically impossible to find what the pressure is, owing to the great speed. 2. Power developed by a motor is always determined at the motor pulley, and not after transmission through the gearing, as a certain amount of power is lost in transmission. 3. Brake horse-power is the amount of power actually available at the motor pulley. Actual h.p. implies that power developed by the explosion, and not deducting anything for friction losses in the motor. 4. The motors are rated at the maximum number of revolutions they will make, because the speed is a very important factor in the amount of power developed. The power falls off in considerably greater proportion than the speed. 5. From these figures it is only possible to give an approximate idea of the power, but a well-made engine with cylinder of 78-81 mm. should give 3 $\frac{1}{4}$  h.p. easily. The only practical formula we can give you is for a brake test. viz.:  $(W_1 - W_2) \times 3.1416 \times N \times D$  divided by 33,000.  $W_1$  is the weight or pull against the direction of rotation of motor pulley.  $N$  = number of revolutions per minute,  $D$  diameter of pulley. A 1 $\frac{1}{4}$  h.p. motor fails to take the rider up a particular hill simply because it cannot be proportionately geared to allow the motor to develop its maximum revolutions; probably the gradients pull the speed down to one-half, at which the power may be much less than half horse-power. See the "Motor Manual" for fuller details.

### Strange Deposit in Carburettor

"Oil Merchant" (Bristol) writes:—I am curious to know where a thick oily deposit in carburettor comes from. I find this every time I clean it out. The carburettor is a spray pattern. I have not noticed any difference in the running of the motor although the petrol reads .725. I wonder if any other reader has found this peculiar oil collect in his carburettor?—in our opinion the oil is simply separates from the petrol. At a density of .725 it will not be excessively pure. It will probably be something in the nature of a heavy petroleum oil that separates. We presume there is no leakage between the lubricating oil tank and the petrol, because if so it would easily account for the deposit.

### Inlet Valve Difficulty.

F. J. Ashby Jones (Wimbledon) writes:—I have a 4 $\frac{1}{4}$  h.p. De Dion voiturette, which is not giving the best results. I find when the engine is working that instead of there being an indraught at the open end of the inlet tube there is the reverse, i.e., the air is expelled with considerable force. I have had the inlet valve examined, and find it is in perfect order. Please explain.—We cannot see how the inlet valve can be in perfect order if the charge blows back through the carburettor. It is very probable that the spring on the inlet valve is not quite strong enough. You might experiment by pulling out the coils of the spring so as to put more tension on the valve. Then it will shut quicker, and the blowing back be prevented.

### A Lubrication Question.

H. E. Marshall (London, N.E.) writes:—I have a 1903 2 $\frac{1}{2}$  h.p. Minerva machine, which runs splendidly, with the exception that the spark-plug gets covered with a dry black glossy substance—burnt oil, no doubt—after thirty miles. I lubricate with Carless and Leonard's S oil, a pumpful every thirty miles. Half a pumpful every fifteen miles was perfectly satisfactory with my 1 $\frac{1}{4}$  h.p. Minerva. Piston rings are bright all round and compression good. Do you think a thicker oil would improve matters? If so, can you recommend a brand? I always use as weak a mixture as possible. Burnt oil sometimes causes exhaust valve to stick. Inside of combustion head is clinkered with burnt oil. Exhaust box also has traces of oil. Would a spark gap in this case improve running? Also, can you tell me cause of 20th Century gas lamp (motorcycle) back jet only of burner always choking up with soot? I keep my lamp very clean, use good carbide, and never let flame die out. Own idea, defective draught causing pressure on back jet.—It is, of course, quite probable that you would find a thicker oil not so apt to get into the combustion chamber. From experience we have found Wellsaline A oil very thick bodied. First of all we should try the experiment of gradually reducing the quantity of oil used in a given distance. If the trouble still continues it may be advisable to have new piston rings fitted, as these sometimes lose their elasticity, and become loose on the piston. A spark gap would not influence matters. Acetylene lamp trouble may be due either to too free a supply of gas, imperfect combustion, or impure carbide, giving off compounds that cause sooting up.

### Resetting Piston Rings.

"Dionist" (London).—You must not open the rings more than will just allow them to pass over the piston. The slots should have previously been well cleaned out with petrol, in case some grit had got in. It is always advisable to space the slots out equally. There will then be no risk of gas getting past into the crank case.

### Various Queries.

R. Browne (London) writes:—(1) Is the chain drive on leather covered back rim reliable for a 1 $\frac{1}{4}$  h.p. Minerva machine? (2) Is the "X" grip pulley for V belts good; would this be a better drive than a chain? (3) Is the Vours carburettor reliable and will it work with Pratt's .720 petrol? (4) Who makes the best silencer. Is Dunlop's out yet? (5) Is the PM sparking plug sold by Peto and Radford reliable?—(1) We should advise the round belt drive. The chain would not be a success. (2) Pulley mentioned is being improved at present. (3) Vours carburettor very good. (4) J. B. Dunlop Engineering Co., Coventry, make a good silencer. (5) The PM spark plug is very reliable.

### Leakage on High-tension Cable.

"Forecar" (Northampton) writes:—Please explain: (1) Why I should experience shocks by touching any part of the high tension wire—that is, of course, the insulated part. I may say that I do not notice the shocks in dry weather, but chiefly after having ridden through the rain. (2) I have located a squeak at the exhaust valve of the motor. This stops by putting some lubricating oil on the stem, but the squeaking noise returns in a short time. What can I do to prevent it?—(1) Either your high tension wire has poor quality insulation, which gets saturated with moisture, or deterioration of the rubber has set in. This means that the surface gets cracked, and lets in the wet, which conducts the high pressure current to the outside, hence the shocks. We advise fitting a new cable. (2) Lubricating oil is no use for exhaust valves; better to get some good quality blacklead powder and lubricate the valve guide and stem.

### Belt Difficulty.

"Stondly" (Haddenham) writes:—I shall be grateful for answers to the following queries:—(1) What is the cause of the flat belt on my machine now and then taking to running on the outer edge of the pulley on back wheel? There is no apparent reason; tension and alignment remain undisturbed, and it will suddenly get all right again. (2) What is the reason of the accumulators supplied with the machine not holding charge for more than 300 miles, and sometimes not that? I understand they should last me for at least 600. Accumulator is by no means new, but another new one I have, same make, does not seem to be going any better.—(1) We generally put this trouble down to the rear pulley getting slightly out of line with the motor; a very small difference will cause the belt to climb up on the flange. Test the lining-up with a piece of twine and make sure. If it is quite correct, then it must be the belt that has stretched unequally. We have heard of several instances of this occurring. (2) Difficult to say why the cells run down if you have no short circuits and do not keep them so long uncharged. A new cell will not give its full capacity at first.



**Water Tank Query.**

I. Williams (Ambleside) writes:—I have had a water tank made for a 3 h.p. water-cooled tricycle, but the makers have not put any fitting in the top of tank for the steam to escape. Will you please say if such is necessary? If so, would small holes in the top of tank do for this purpose, or what would you advise?—We think it advisable to have a small screw cap fitted. This should have a  $\frac{1}{4}$  inch hole drilled through

**Charging Battery Queries.**

J. H. Whiteley (Manchester) asks the following:—(1) What is the best strength of chromic acid to use in a charging battery? (2) Strength of sulphuric acid. (3) Is the chromic acid placed inside the porous pot with the carbon?—The following strength of solution will give good results: chromic acid 5 ounces, water 20 ounces, sulphuric acid 3 ounces. The chromic acid must be placed in the outside vessel, and the zinc in the porous pot.

**Flooding Carburetter.**

E.S.S. (Leeds) wishes to know how he can tell if his spray carburetter is flooding, as he finds his machine slow on hills, and occasionally it loses power on the level.—You can, as a rule, tell if the carburetter is flooding by the petrol dripping from carburetter. Also you will notice that the motor gets very hot, and loses power, especially on hills. It may be necessary to examine the float valve, as this may leak; if so, it should be carefully reground till it is petrol tight.

**Charging Queries.**

J. W. Scholes (London) writes:—I should be very glad of your advice on the following: I have a  $2\frac{1}{2}$  horse-power Beeston Humber machine, and wish to charge my own accumulators. The current is continuous and 200 volts. What resistance must I have to charge one accumulator or two accumulators at one time? I understand the voltage in charging one accumulator must be brought down to five volts, and for two to ten volts. Is this correct, and how must I do it?—You can charge the two accumulators in series through a 50 c.p. lamp. This will give the right amount of current. You need not be concerned about the volts. See "Motor Manual" for diagrams.

**Explosions in Exhaust Box, etc.**

E.F.G. (Liverpool) writes:—(1) What is the cause of the engine making a loud explosion when I switch on the electric current after having had it off a second or two? It does not always do this, but I have been unable to find out why it should do it at all. This, of course, might be very troublesome if it happened in a crowded street, as horses do not seem to appreciate it much. (2) Very often on switching on the current the engine makes a dozen or so very feeble explosions and then goes off with a bound. Why is this so? I have cleaned the seating of the inlet valve, as I feared it might be sticking, but this has not had the desired effect.—(1) The explosion is caused through an unfired charge remaining in the silencer and the heat of the next exhaust fires it. Best always to switch off a few seconds before lifting the exhaust valve. (2) It is probably the carburation at fault. Try shutting off the air partly until the motor picks up speed; doubtless you have too weak a mixture to start with.

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**Silencer Question.**

E. W. Bond (Stevenston) writes:—(1) What is the best silencer for a car 16 to 20 h.p. four cylinders? Name of makers? (2) Of what material should the exhaust pipe be made of? (3) Would a gradual bend be better than sharp corners?—It is not possible to speak of a "best" silencer, but we believe the Dunlop Engineering Co., Coventry, are making a specially good silencer. (2) Exhaust pipes are invariably steel or wrought iron. (3) The bend should be gradual, to avoid back pressure in the motor.

**Balancing Connecting Rod, etc.**

E. Arnfield (Whaley Bridge) writes:—I have a 2 h.p. motor in course of construction,  $2\frac{3}{8}$  bore and  $2\frac{1}{2}$  stroke, weight of fly-wheels about 16 lbs, exhaust valve 1 3-16ths dia. The fly-wheels are entirely unbalanced, being plain true discs. To balance these correctly what shall I add to the balancing side, the weight of the connecting rod, piston block, crank pin, etc., or what? Do you think the weight of the fly-wheels is correct?—The piston, piston rod, and crank pin must be balanced carefully. You may be able to drill out sufficient metal from the rim on the crank side. We presume the wheels are 8 lbs. each: this weight is about right.

**Using too High a Voltage.**

"Riada" (Cookstown) writes:—Can you inform me the reason why fuse wires on accumulator snap when out riding now? I always have to replace the fuse wires at least once; they do not fuse as one would expect but snap off short. I use a fairly thick wire; I have been lately using both accumulators at once, that is, to give a 6-8 volt current. Would this be the cause? Will using both accumulators at once in any way injure themselves or induction coil, etc.? Can you tell me a really satisfactory way of preventing acid from spilling out of accumulators? I am very much troubled with this.—The explanation is that you have been taking an excessive current. It is a serious mistake to put six or eight volts through the circuit. It is very likely to break down the insulation of the coil. Use only four volts, and then the fuse will remain intact. Look up recent replies for information as to spilling of acid from accumulators.

**Pulleys out of Line.**

A. E. Rudham (Fulham) writes:—I recently purchased a motorcycle from a well-known firm, and from the first I experienced trouble with the belt running off the pulley. I took the machine to a repairing shop and had it examined, when I was told the engine pulley was  $1\frac{1}{2}$  inches out of line with the driving wheel pulley, due to the engine shaft being longer than it ought to have been. I wrote to the makers, and received a reply stating that it was quite right to be so, as it gave the belt a better grip on the driving pulley. I shall be glad if you will give a reply as to your opinion on the matter, as I am inclined to think the arrangement not practical.—We can say that the maker is entirely wrong in saying it is an advantage to have the pulleys out of line. This is contrary to all mechanical practice. The pulleys on all good makes of motorcycles are lined up dead true. This important matter receives little attention on inferior grades, with the result that the belt continually gives trouble.

**ANSWERS BY POST.**

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

*Friday, July 24th.*—G. Shaw Scott (Sutton Coldfield), W. Arbuthnot (Anerley), J. J. Austin (Belfast), R. C. Haggard (Shipperton), A. E. Rudham (Fulham), C. Hopwood (Stoke-on-Trent), R. S. Nicol (Bolton), H. V. Stanton (Dudley), W. Dallaway (Smethwick), R. Brown (London, W.), B. H. Carr (Kingsbridge), G. C. Whiteman (Dublin), A. Faulkner (Birmingham), T. Jarman (Romsey), J. Todd (Bromfield).

*Saturday, July 25th.*—Letters received on this day were replied to on Monday.

*Monday, July 27th.*—L. Marsh (Liverpool), A. P. (Weymouth), C. Butler (Birmingham), H. Pigon (Dartford), G. Powell (Bridgend), S. Smith (New Southgate), S. Wilde (Cheltenham), J. P. Oliver (Penarth), W. Pringle (London), A. L. Riddle (Southampton), C. L. Stephenson (Stirling), H. du Cane Suard (Witham), J. Threadgold (Luton), T. G. Gandy (Uffculme), W. T. Hankin (Farnham), F. Murrin (Torquay), H. W. Smith (Chelsea), S. Guy (Dublin), C. J. Cowie (London), T. W. Moss (Barking), F. Miller (Worcester Park).

*Tuesday, July 28th.*—B. Porter (Southery), H. W. Harris (West Kirby), R. Brown Gillies (Bishopton), J. F. Stuart (Wexford), B. Bolt (Birmingham), G. H. Brochie (London, N.W.), G. B. Lewis (Portsmouth), H. Finney (Goodmayes), J. L. Lock (Uxbridge), N. Osborne (Portsmouth), T. Allison (London, S.W.), H. Rimmington (Lynn), J. Lane (Thornton Heath), J. W. Aldridge (Willesden), S. H. A. Green (Preston), G. Scantlebury (London, E.C.), E. L. Grant (London), A. E. Ball (West Hove).

*Wednesday, July 29th.*—W. H. Payne (Totland Bay), T. H. Derham (Preston), C. M. Sutton (Bishop's Waltham), A. B. Elmslie (Bedford), A. Mays (South Shields), C. F. West (Eastbourne), H. J. Evelyn (Brighton), G. Powell (Bridgend), L. Whatley (Bath), E. G. Young (Nottingham).

*Thursday, July 30th.*—J. C. Kinna (Edinburgh), D. W. Holloway (Hammer-smith), S. Hampton (Wednesbury), H. Hayward (Dolgelly), W. B. Sharp (Falkirk), C. S. Young (Woolwich), W. P. Sett (London), E. B. Poole (Hull), F. W. Mander (Walsall), P. Engleman (Highgate), W. J. Forward (Brockley), L. Whatley (Bath).

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